

FRONTIERS IN EDUCATION 2018

Fostering Innovation Through Diversity

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2018 CONFERENCE PROCEEDINGS

Please visit website for more information!
<http://fie2018.org>

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2018 Frontiers in Education Conference

Fostering Innovation through Diversity

Conference Program

San Jose, California

October 3-6, 2018

Sponsored by

American Society for Engineering Education (ASEE)
Educational Research Methods (ERM) Division

Institute of Electrical and Electronics Engineers (IEEE)
IEEE Computer Society
IEEE Education Society



FIE 2018 CONFERENCE PROCEEDINGS

The FIE 2018 conference proceedings is provided to all registrants on a USB drive. The proceedings are also available on the FIE Web page:

<http://fie2018.org>

To obtain copies of the USB version of the proceedings, please contact:

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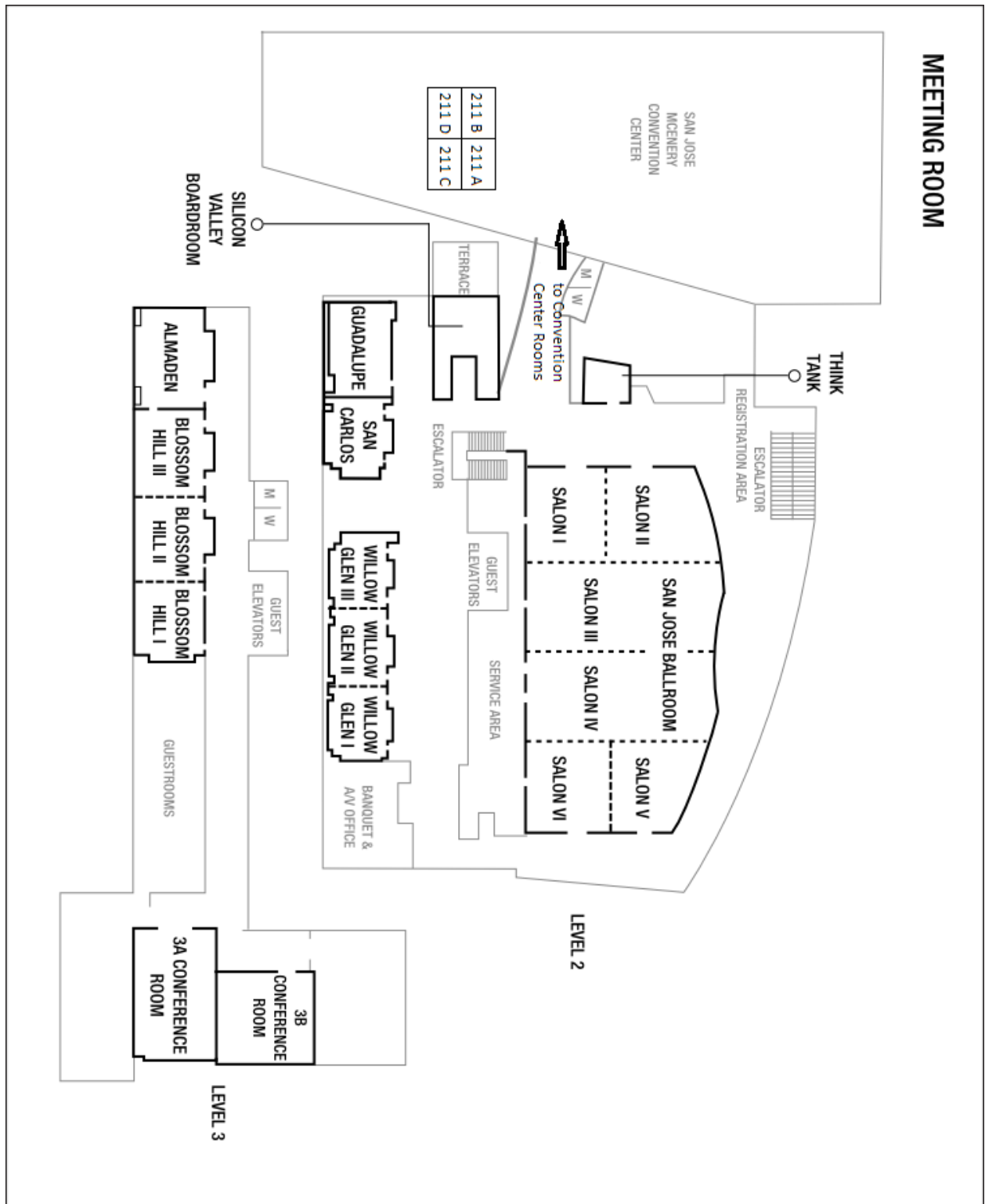
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CONFERENCE AT A GLANCE

Wednesday, October 3

8:30 AM – 4:30 PM	Registration Open
9:00 AM – 4:00 PM	All-Day Workshop: Evidence-Based Teaching
1:00 PM – 4:00 PM	Workshop Session 1 (<i>free for full-conference participants</i>)
5:00 PM – 8:00 PM	Workshop Session 2 (<i>free for full-conference participants</i>)

Thursday, October 4

7:30 AM – 5:00 PM	Registration Open
7:30 AM – 8:30 AM	Focus on New Attendees Breakfast (<i>included in conference registration</i>) San Jose Ballroom
8:30 AM – 9:30 AM	Plenary Speaker: Cynthia Stoddard, Adobe Systems
9:30 AM – 7:00 PM	Exhibits Open – Pre-function Area
9:30 AM – 10:00 AM	Exhibit Area – Break
10:00 AM – Noon	Technical Sessions (T1)
Noon – 1:00 PM	Lunch (<i>included in conference registration</i>) San Jose Ballroom 2018 IEEE Undergraduate Teaching Award presentation
1:00 PM – 3:00 PM	Technical Sessions (T2)
3:00 PM – 3:30 PM	Exhibit Area - Break
3:30 PM – 5:30 PM	Technical Session (T3)
5:30 PM – 7:00 PM	Conference Mixer (<i>included in conference registration</i>) Exhibit Area and San Jose Ballroom Sponsored by the San Jose State University Charles W. Davidson College of Engineering

Friday, October 5

7:30 AM – 5:00 PM	Registration Open
7:30 AM – 8:30 AM	Breakfast (<i>included in conference registration</i>) San Jose Ballroom Sponsored by Silicon Valley Women in Engineering
8:30 AM – 9:30 AM	Plenary Speaker: Laura Oliphant, Partner, Spirit Venture
9:30 AM – 4:30 PM	Exhibit Area Open – Pre-function Area
9:30 AM – 10:00 AM	Exhibit Area – Break Sponsored by Mouser Electronics
10:00 AM – Noon	Technical Sessions (F1)
Noon – 1:00 PM	Lunch (<i>included in conference registration</i>) FIE New Faculty Fellows Presentation San Jose Ballroom
1:00 PM – 3:00 PM	Technical Sessions (F2)
3:00 PM – 4:00 PM	Focus on Exhibits and New Faculty Fellows Exhibit Area Sponsored by Cypress Semiconductor
4:00 PM – 6:00 PM	Technical Sessions (F3)
7:00 PM – 10:00 PM	Reception and Awards Banquet (<i>additional ticket required</i>) Sponsored by the IEEE Education Society

Saturday, October 6

7:30 AM – 5:00 PM	Registration Open
7:30 AM – 8:30 AM	Breakfast (<i>included in conference registration</i>) San Jose Ballroom
8:30 AM – 10:10 AM	Technical Sessions (S1)
10:10 AM – 10:30 AM	Break – Pre-function Area
10:30 AM – 12:10 PM	Technical Sessions (S2)
12:10 PM – 1:00 PM	Lunch (<i>included in conference registration</i>)
1:00 PM – 2:40 PM	Technical Sessions (S3)
2:40 PM – 3:00 PM	Break – Pre-function Area
3:00 PM – 4:40 PM	Technical Sessions (S4)

WELCOME FROM THE GENERAL CHAIR



It is my pleasure to welcome all of you to sunny San Jose and the 48th Frontiers in Education Conference! San Jose is the hub of Silicon Valley, and it is only fitting that the FIE Conference should come take a turn in the birthplace of the transistor, the microprocessor, ink jet printing, web browsers, and other inventions. I am honored to serve as the general chair of the conference this year and excited to host our community in this marvelous city.

The theme this year is *Fostering Innovation Through Diversity*. It reflects the backdrop of innovation present in San Jose, while simultaneously acknowledging the diversity in skills, perspectives, and participants needed to continue fueling innovation into the future. We have two amazing keynote speakers lined up for this year's conference: Cindy Stoddard, the SVP and CIO of Adobe Systems, will talk about shattering stereotypes, drawing from her own personal experiences and insights. Laura Oliphant, currently a partner at Spirit Ventures, will talk about the exciting future of innovation in the semiconductor industry. I am grateful to both of them for supporting engineering and computing education and agreeing to come share their wisdom and insights with us.

It takes a village to put on a conference, and it has been a privilege for me to work with the staff and volunteers who made this possible. I am indebted to Beth Eschenbach for leading the six Technical Program Chairs who managed the review process and put together a fantastic program. In addition, the new faculty fellows, special sessions and workshops, exhibits, awards, and international attendees don't magically organize themselves, and the chairs, co-chairs and committees who made these pieces happen deserve a huge round of applause. Kevin Curry from KUPCE and Cynda Covert from Conference Catalysts provided event planning, logistics, and promotional support. Stephen Frezza, the FIE Steering Committee Chair, provided guidance and leadership throughout the process. My home institution joined the party as a sponsor and a contributor through a College of Engineering faculty and staff steering committee. It was this steering committee who influenced the theme and the image of the Olympic Black Power Statue on our campus to commemorate this year's conference. Last but not least, FIE is co-hosted by the ASEE ERM Division and the IEEE Education and Computer Societies - we all appreciate your continued commitment to this unique event.

I am looking forward to seeing all of you in San Jose, and wish you all a fulfilling, enjoyable, and inspiring time here. Thank you all for being part of the FIE community!

Jinny Rhee
Associate Dean, College of Engineering
San Jose State University

CONFERENCE SPONSORS

FIE 2018 is sponsored by:

American Society for Engineering Education (ASEE)

Educational Research Methods (ERM) Division

Institute of Electrical and Electronics Engineers (IEEE)

IEEE Computer Society

IEEE Education Society



FIE 2018 is hosted by:



Founded in 1857, **San Jose State University (SJSU)** is the oldest public institution of higher education on the West Coast. From its beginnings as a normal school to train teachers for the

developing frontier, SJSU has matured into a metropolitan university that offers 145 areas of study with an additional 108 concentrations. One of the 200 top research universities in the nation, SJSU offers rigorous course work and research opportunities to more than 30,000 undergraduate and graduate students in eight colleges.

San Jose State's location in the Silicon Valley makes it an exceptionally rewarding learning environment for students. Silicon Valley firms and agencies seek SJSU students for internships, summer work programs and for assistance with research and development projects. Silicon Valley firms employ more graduates from SJSU than from any other university in the nation.

CORPORATE AFFILIATES AND SPONSORSHIPS

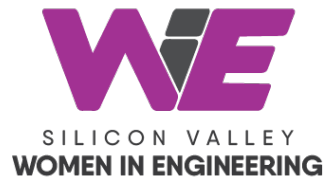
We appreciate these supporters and the part they play in making the 2018 FIE conference an outstanding event.

Platinum Sponsor



The SJSU Charles W. Davidson College of Engineering is the sponsor of the FIE mixer on Thursday evening.

Conference Breakfast Sponsor



Silicon Valley Women in Engineering is sponsoring the breakfast on Thursday. Learn more about them at <http://www.sjsu.edu/wie/>.

Friday Morning Break



Mouser Electronics is sponsoring the Friday morning break.

Focus on Exhibits Sponsor



Cypress Semiconductor and the Cypress University Alliance Program is sponsoring the Focus on Exhibits on Friday afternoon. Enjoy refreshments and check out their booth during this final exhibit session.

FIE 2018 PLANNING COMMITTEE

General Chair

Jinny Rhee, San Jose State University

ASEE/ERM Program Co-Chairs

Beth Eschenbach, Humboldt State University
Alejandra Magana, Purdue University

IEEE/Computer Society Program Co-Chairs

Alison Clear, Eastern Institute of Technology
James Harland, RMIT University

IEEE/Education Society Program Co-Chairs

Edmundo Tovar Universidad Polytechnic Madrid
Claudio da Rocha Brito, COPEC

Workshop, Special Sessions & Panels Co-Chairs

James Huff, Harding University
Adam Kirn, University of Nevada, Reno

Exhibits Chair

Robert J. Hofinger, Purdue University

Publications Chair

Conference Catalysts, LLC

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Paul Gannon, Montana State University

International Co-Chairs

Melany Ciampi, COPEC Europe
Ying Li, Princeton University

Awards Chair

James Sluss, University of Oklahoma

San Jose State University Steering Committee

Vimal Viswanathan, Assistant Professor, ME
Farshid Marbouti, Assistant Professor, General Engineering
Blanca Sanchez-Cruz, Director of Student Services
Audrey Leong, EE Department Technician
Pat Backer, Professor, Technology
David Parent, Professor, EE
Folarin Ergbolu, Assistant Professor, BME

Assistant to the General Chair

Kevin Curry, University of Kansas

FIE STEERING COMMITTEE

ASEE Educational Research and Methods Division Representatives

Elizabeth Eschenbach, Humboldt State University
(June 2010 - June 2020)
Jim Morgan, Charles Sturt University, Australia
(June 2011-June 2020)
Archie Holmes, University of Virginia
(June 2012 - June 2018) Steering Committee Secretary

IEEE Computer Society Representatives

Arnold Pears, KTH Royal Institute of Technology in Stockholm, Sweden (June 2009 - June 2020)
Stephen Frezza, Gannon University
(June 2011 - June 2018) Steering Committee Chair
Deborah Trytten, University of Oklahoma
(June 2013 - June 2019)

IEEE Education Society Representatives

Claudio da Rocha Brito, COPEC
(June 2017 - June 2019)
James Sluss, University of Oklahoma
(June 2012 - June 2018)
Henrique dos Santos, University of Minho, Portugal
(June 2017 - June 2020)

Russ Meier, Milwaukee School of Engineering
(June 2007 - June 2017) Senior Past Chair

FUTURE FIE CONFERENCES

FIE 2019 Cincinnati, Ohio

FIE 2020 Uppsala, Sweden

Are you interested in hosting a future FIE conference?

Check out the "Propose to Host" section of the FIE

Clearing House website:

<http://fie-conference.org/proposal-host>

FIE 2018 EXHIBITORS

The FIE vendor and association exhibits are a popular and rewarding tradition for both attendees and exhibitors. Exhibits will include materials, equipment, textbooks, software, and state-of-the-art tools applicable to engineering education. We thank the vendors for their financial support and contributions to making FIE 2018 a meaningful experience.

Exhibit Area Hours

The exhibits will be open in the foyer outside the San Jose Ballroom Thursday from 9:00 a.m.–7:00 p.m. and Friday from 9:30 a.m.–4:30 p.m. Friday. The following companies have committed to exhibiting at FIE 2018:

EXHIBITOR	WEBSITE
Ansys Inc.	www.ansys.com
CATME	http://info.catme.org/
Cypress and the Cypress University Alliance Program	www.cypress.com
dotin	dotin.us
eGrove Education	www.spatialvis.education
gradescope	www.gradescope.com
MIDFIELD	https://engineering.purdue.edu/MIDFIELD
Mouser Electronics	www.mouser.com
Piazza Technologies	https://piazza.com/
Purdue University EPICS	https://engineering.purdue.edu/EPICS
Purdue University - Network for Computational Nanotechnology	https://nanohub.org/groups/ncn
Purdue University School of Engineering Education	engineering.purdue.edu/ENE
San Jose State University EPICS	https://sjsu.edu/epics/
SAS Institute, JMP Division	www.jmp.com
University of California, Davis College of Engineering	http://engineering.ucdavis.edu/
University of Cincinnati Engineering Education	www.ceas.uc.edu/dee.html
Utah State University Department of Engineering Education	www.eed.usu.edu/
EDEFI Research Team at Vanderbilt University	https://blackengineeringphd.org/
Virginia Tech Department of Engineering Education	http://www.enge.vt.edu/
zyBooks	www.zybooks.com

EXHIBITOR SHOWCASE PRESENTATIONS

Thursday, October 4

10:00 AM - Noon

JMP

Willow Glen I

Topic: JMP and the Predictive Modeling Workflow

As engineering problems are become more and more complex, scientists and engineers are beginning to incorporate many of the modern and more sophisticated descriptive and predictive modeling techniques to their analysis toolkit. A typical real-world predictive modeling workflow includes data cleaning and exploration, model fitting, model validation, model comparison, final model selection and deployment of the final predictive model.

Friday, October 5

10:00 AM - Noon

eGrove Education

Willow Glen I

Topic: Spatial Vis Classroom™: A sketching app with automatic grading to teach spatial visualization skills to introductory engineering students.

Spatial visualization (SV) refers to the ability to manipulate geometric shapes in one's mind and is important in many STEM fields. Studies have shown that SV skills are learnable, and SV training can increase GPAs and graduate rates in engineering. Additionally, sketching has been shown to be an important part of increasing 3D visualization skills, which is key for creativity and team communication. However, few engineering curricula include SV training, and adding new content to an already full program can be difficult. The Spatial Vis Classroom™ App, developed by eGrove Education, was designed with the potential to teach SV training outside of scheduled class time. It allows for freehand sketches of isometric and orthographic assignments to be graded automatically and for hints to be provided when needed. The Spatial Vis Classroom app has been tested in a number of trials at universities across the country and has been shown to be an engaging and effective tool in improving SV skills. The app runs on iOS and Android devices.

This showcase will provide an overview of the benefits and best practices of using the Spatial Vis app in your college first year engineering or introduction to computer graphics courses. In addition to a demo of the Spatial Vis Classroom app, participants will be able to download a trial version of the software to their own devices and test out their own SV skills. You won't want to miss it!

4:00 – 6:00 PM

zyBooks

Willow Glen I

Topic: Student and instructor success via interactive learning content instead of textbooks

In 2012, a small group of professors, started zyBooks to help students succeed in their early CS, engineering, and other STEM courses. We created new learning content from scratch for the web, making it highly interactive via animations, learning questions, and auto-graded homework and labs -- thus replacing textbooks, homeworks, and more with a single web resource, priced to be affordable while being sustainable.

The results exceeded our expectations. Research via controlled studies and cross-semester analyses show strong improvements in learning outcomes and course grades. Students express high satisfaction and ask for access to more. Instructors say their lecture time is more fun, plus they and their TAs save a lot on grading. Over 600 universities and 400,000 students have used zyBooks to date, with numbers growing.

In this session, we'll demonstrate zyBooks' interactive content, summarize research showing learning improvements, share data showing students earnestly use the content, and discuss best practices. We'll also discuss research on active classrooms and peer instruction, both made easier when zyBooks are used. We'll share latest research on replacing intimidating weekly programs by many smaller programs (MSP), shown to improve student motivation and learning as well. We'll discuss our latest platform innovations, and listen to your ideas on what you and students need to further improve success.

PLENARY SESSIONS

Thursday, October 4, 8:30 AM

San Jose Ballroom

Speaker: Laura Oliphant, Partner, Spirit Ventures

Title: The Future of Innovation in the Semiconductor Industry



Laura Oliphant has been at the forefront of technology for over 25 years, first at Intel, as an Engineer and Corporate Venture Capitalist, and now, as a Board Director and CEO of startups. She will talk about the challenges for technology innovation going forward, and how corporations use partnerships with educational institutions and external entities to accelerate innovation, and what we should expect from technology in the future.

Dr. Laura Oliphant is an experienced CEO, Board Member, and Investor. She is currently a General Partner at Spirit Ventures (www.spiritvc.com), a venture fund focusing on key enabling technologies for the semiconductor industry. Prior to Spirit Ventures, she was an Investment Director in Intel Capital from 2001 until her retirement from Intel in 2016. During her career in venture capital, she brought over \$1B in strategic and financial value to Intel through her investments and was awarded Intel's highest award, the Intel Achievement Award, for her contributions to Intel. After retiring from Intel, she was a member of the Board of Directors and the CEO of Translarity, an investor backed, semiconductor test startup. Laura is also part of the Board of Directors for Thin Film Electronics ASA, a public company based in Norway and Numascale AS, also based in Norway. Laura received her PhD in Chemical Engineering from the University of California, Berkeley, where her thesis research was centered on candidate batteries for electric cars.

Friday, October 5, 8:30 AM

San Jose Ballroom

Speaker: Cynthia Stoddard, Senior Vice President and Chief Information Officer, Adobe Systems Incorporated

Title: Shattering Stereotypes



Most fulfilling career journeys are not scripted or orchestrated. They are dynamic and fluid and always evolving. Adobe CIO, Cynthia Stoddard, explains her career journey as a mix of ambition, education and opportunity. With a 25-year career in IT spanning various industries as well as positions from programmer trainee to head of IT, Stoddard had a breadth of experiences from which she built a successful career. In her talk, Stoddard will share insights on how she shattered workplace stereotypes, address the skills needed for the next wave of tech innovation, and offer advice for educators to help their students grow their careers.

As senior vice president and chief information officer of Adobe, Cynthia Stoddard oversees Adobe's global Information Technology team. In her leadership role, Cynthia spearheads a global strategy for delivering services that form the mission-critical backbone for the company. This includes providing always-on systems and enterprise applications that enable us to run Adobe's business; delivering productivity to employees everywhere; and providing the information and data services for real-time decision making and personalized customer experiences.

Cynthia is an IT industry veteran, with more than 25 years of business experience and IT expertise leading large global organizations in supply chain, retail, and technology development. Before joining Adobe in 2016, she was chief information officer and senior vice president at data storage and management company NetApp, where she led the company's traditional IT functions while also expanding focus on innovation, customer-facing programs, and strategic partnerships. She previously held a number of information technology and technical leadership positions at supply chain, retail, and technology companies including Safeway Inc. and APL Limited.

Cynthia is a recipient of the Computerworld Premier 100 IT Leaders Award, was named among the top Women of Influence in 2016 by Silicon Valley Business Journal, and was recognized as one of Huffington Post's Top 100 Most Social CIOs in 2015 and 2016.

Cynthia holds a Bachelor of Science degree in accounting from Western New England University, from which she graduated cum laude, and an MBA from Marylhurst University.

GROUP MEETINGS

Wednesday, October 3

3:30 – 5:00 pm	FIE Steering Committee Meeting	Room: Blossom Hill I
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Thursday, October 4

10:00 am - 1:00 pm	ERM Board Meeting	Room: Willow Glen I
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Friday, October 5

10:00 am – 1:00 pm	IEEE Education Society Strategic Planning Meeting	Silicon Valley Board Room
1:00 – 4:00 pm	IEEE Education Society Board of Governors meeting	Room: Almaden

Saturday, October 6

8:00 – 10:00 am	FIE Steering Committee Meeting Executive Session FIE	Silicon Valley Board Room
1:30 – 3:00 pm	2019 Planning Committee Meeting	Silicon Valley Board Room
6:00 – 10 pm	FIE Steering Committee Strategic Planning	Room: Almaden

NEW FACULTY FELLOW PROGRAM

Each year, FIE invites new engineering and computer science faculty to submit applications for possible selection as New Faculty Fellows. A review panel of engineering and computer science faculty from assistant, associate, and full professorship levels completes a rigorous peer review of each applicant's conference paper, nomination letters and professional résumé. The fellowship provides a \$1,000 grant for conference travel expenses.

The purpose of the program is to promote the involvement of new faculty in the Frontiers in Education Conference so they will be exposed to the "latest and greatest" in engineering educational practices and will have the opportunity to exchange information with leaders in education innovations. This year, FIE 2018 will provide four registration and travel grants for awardees to attend the conference.

Focus on New Faculty Fellows

Each fellow will present a conference paper during FIE 2018. Join them in their session and share your thoughts and ideas about the future of engineering education. Also, during the Focus on Exhibits session Friday at 3 p.m., the Fellows will display posters describing their interests and activities and previewing the full papers that they will present as part of the FIE 2018 technical sessions.

2018 New Faculty Fellows:

Priscila Silva Neves Lima

Federal University of Goiás, Brazil

- Session S4C, *Content Analysis of Student Assessment Exams*, Priscila Lima, Ana Paula Ambrosio and Igor Moreira Félix

Kerrie Douglas

Purdue University

- Session S1F, *Comparison of Live, Late and Archived Mode Learner Behavior in an Advanced Engineering MOOC*, Kerrie A. Douglas, Harsh Wardhan Aggarwal, Taylor Williams, Yichen Fan and Peter Bermel

Bosede Edwards

Imagineering Institute, Malaysia

- Session T1F, *A Physically Embodied Robot Teacher (PERT) as a Facilitator for Peer Learning*, Bosede I Edwards, Idris Muniru, Nosiba Khougali, Adrian D Cheok, and Rui Prada

Natascha Trellinger Buswell

University of California Irvine

- Session T2E, *Behind the Scenes: Course Syllabi Explained*, Natascha T Buswell
- Session S1G, *Can adding discussion-only active learning increase student learning in materials science class?* Amir Saeidi, Daniel Mumm, Adrienne Williams, Kameryn Denaro and Natascha T Buswell

CONFERENCE AMENITIES

Breakfast

7:30 a.m.–8:30 a.m. Thursday Room: San Jose Ballroom

7:30 a.m.–8:30 a.m. Friday Room: San Jose Ballroom

7:30 a.m.–8:30 a.m. Saturday Room: San Jose Ballroom

Refreshment Breaks • Exhibit Area

Morning and afternoon breaks Thursday, Friday, and Saturday

Lunches

Luncheon – Room: San Jose Ballroom

Noon –1:00 p.m. Thursday

2018 IEEE Undergraduate Teaching Award presentation

Presented by 2017 IEEE President, Karen Bartleson to Susan Lord for contributions to the development of more inclusive and innovative undergraduate teaching in electrical and computer engineering.

Luncheon – Room: San Jose Ballroom

Noon –1:00 p.m. Friday

Luncheon – Room: San Jose Ballroom

Noon –1:00 p.m. Saturday

Conference Mixer

Sponsored by the San Jose State University Charles W. Davidson College of Engineering

5:30 p.m.–7:00 p.m. Thursday

Stop by the San Jose Ballroom and the exhibit area any time between 5:30 and 7 PM to have a drink, enjoy some light snacks, and meet up with other conference participants. Head out to dinner from here. Be sure to bring the drink ticket you received when you checked in at registration.

New Faculty Fellows • Exhibit Area

3:00 p.m.–4:00 p.m. Friday

A special session focusing on the New Faculty Fellows will be held on Friday. This session will provide an opportunity to meet this year's New Faculty Fellows, a group of new CSET educators who were selected based on an application and a full paper being presented at this year's conference. There will also be an opportunity to view their poster presentations at this time.

Focus on Exhibits • Exhibit Area

3:00 p.m. – 4:00 p.m. Friday

Visit the FIE exhibits and check out the latest textbooks, computer software, lab equipment, and other innovations while enjoying refreshments provided by our sponsor.

Awards Banquet • San Jose Ballroom

7:30 p.m. – 10:00 p.m. Friday

Thanks to our sponsor, the IEEE Education Society, the Frontiers in Education Conference annual gala networking dinner and awards program is only \$30 per person. An opening reception will be followed by a full-service plated meal. This business formal event is sponsored by the IEEE Education Society - a group of more

than 3,000 engineers and academics dedicated to advancing the scholarship and practice of engineering education. You do not have to be an IEEE Education Society member to attend. Tickets can be added to your registration on site.

FIE Registration Conference Desk • Pre-Conference Area Outside of San Jose Ballroom

Registration will be open during these times:

Wednesday	8:30 a.m. – 4:30 p.m.
Thursday	7:30 a.m. – 5:00 p.m.
Friday	7:30 a.m. – 5:00 p.m.
Saturday	7:30 a.m. – 3:00 p.m.

FIE T-Shirt Pick Up • Think Tank Room on Level 2

Wednesday	1:00 p.m. – 5:00 p.m.
Thursday	1:00 p.m. – 4:30 p.m.
Friday	1:00 p.m. – 4:30 p.m.

Hospitality Table • Near Conference Registration

If you are looking for a certain kind of a restaurant, shop, golf course, or health club, stop by the hospitality table close to the registration area. Maps and brochures of area attractions will be available.

FIE Message Center • Near Conference Registration

The conference will maintain a message board by the registration area. Messages received for conferees will be posted there. In an emergency, we will make every effort to locate you.

2018 FIE CONFERENCE AWARDS PRESENTATIONS

Friday, October 20 Luncheon

IEEE 2017 Undergraduate Teaching Award

Friday, October 20 Awards Banquet

Frontiers in Education (FIE) Conference Awards

FIE Benjamin J. Dasher Best Paper Award

FIE Helen Plants Award

FIE Ronald J. Schmitz Award

IEEE Education Society

Harriett B. Rigas Award

IEEE William E. Sayle Award for Achievement in Education

IEEE Transactions on Education Theodore E. Batchman Best Paper Award

Chapter Achievement Award

Distinguished Chapter Leadership Award

Distinguished Member Award

Edwin C. Jones, Jr. Meritorious Service Award

Mac Van Valkenburg Early Career Teaching Award

Student Leadership Award

AWARD SELECTION COMMITTEE & CHAIRS

IEEE Education Society Awards Policy Committee

Michael Auer
Lyle Feisel
Susan Lord
Joanne Bechta Dugan
James Sluss, Chair
Edwin C Jones, Jr.

Frontiers in Education Conference

Benjamin J. Dasher Best Paper Award Committee
Deborah Trytten, Emily Dringenberg, and Russ Meier
Helen Plants Award Committee
Mats Daniels, Jaci McNeil, and Rosanna Chan
Ronald J. Schmitz Award Committee
Edwin C. Jones, Jr., Chair

IEEE Education Society

Harriett B. Rigas Award	Joanne Bechta Dugan, Chair
IEEE William E. Sayle Award for Achievement in Education	Susan Conry, Chair
IEEE Transactions on Education Theodore Bachman Award	Jeff Froyd, Chair
Chapter Achievement Award	Trond Clausen, Chair
Distinguished Chapter Leadership Award	Kai Pan Mark, Chair
Distinguished Member Award.....	Ted Batchman, Chair
Edwin C. Jones, Jr. Meritorious Service Award	Susan Lord, Chair
Mac Van Valkenburg Early Career Teaching Award.....	Hosseini Mousavinezhad, Chair
Student Leadership Award.....	Emmanuel Gonzalez, Chair



Susan M. Lord
University of San Diego



Past Recipients

'03 Mehrdad Ehsani
'04 Richard C. Jaeger
'05 Yannis Tsividis
'06 John Peatman
'07 Clayton R. Paul
'08 Muhammad H. Rashid
'09 John C. Bean
'10 Ned Mohan
'11 Raghunath K.
Shevgaonkar
'12 Santosh K. Kurinec
'13 Charles Kenneth
Alexander
'14 Hsi-Tseng Chou
'15 Branislav M. Notaros
'16 Terri Fiez
'17 Bonnie Heck Ferri

2018 IEEE Undergraduate Teaching Award

For contributions to the development of more inclusive and innovative undergraduate teaching in electrical and computer engineering

Considered by students and colleagues as an extraordinary educator and role model, **Susan M. Lord** is making engineering education more accessible and appealing to diverse students. At the University of San Diego (USD), Lord has coordinated redevelopment of the first-year engineering course multiple times to enhance student learning and improve retention. She also implemented laboratory programs for engineering design to foster continuous improvement. In her drive to make engineering education more welcoming to students of diverse backgrounds, she has conducted research to help faculty better understand who their students are, their pathways into engineering fields, and their classroom experiences. Lord was the first USD engineering faculty member to incorporate service learning where the students present hands-on science to middle- and high-school classes.

An IEEE Fellow, Lord is a professor and chair of engineering at the University of San Diego, San Diego, CA, USA.

About the IEEE Undergraduate Teaching Award

The IEEE Undergraduate Teaching Award was established by the Board of Directors in 1990 to honor teachers of electrical and electronics engineering and the related disciplines.

In the evaluation process, the following criteria are considered: excellence in teaching undergraduate students; creative development of the undergraduate curriculum; authorship of course materials for undergraduate students; involvement with undergraduate students through activities such as advising, project supervision, faculty counseling or advising for student organizations; attracting students to engineering and scientific profession; and the quality of the nomination.



Sarah Kate Wilson
Santa Clara University

IEEE Education Society Harriett B. Rigas Award

For excellence in communications engineering, education and promoting equity

Sarah Kate Wilson earned her A.B. in Mathematics from Bryn Mawr College and her Ph.D. in Electrical Engineering at Stanford University. She has worked in both academia and industry and is currently a Professor of Electrical Engineering at Santa Clara University. Her research area includes wireless radio frequency communications, visible light communications and underwater acoustic communications.

Past Recipients

'95 Denise D. Denton
'96 Karan L. Watson
'97 Patricia D. Daniels
'98 Delores M. Etter
'99 Sherra E. Kerns
'00 Leah Jamieson
'01 Valerie Taylor
'02 Nan Marie Jokers
'03 Joanne Bechta Dugan
'04 Jennifer L. Welch
'06 Eve A. Riskin
'07 Bonnie Heck Ferri
'08 Cheryl B. Schrader
'09 Cynthia Furse
'10 Mari Ostendorf
'11 Karen Panetta
'12 Tanja Karp
'13 Nancy Amato
'14 Noel Schulz
'15 Sarah Rajala
'16 Kathleen Wage
'17 Terri S. Fiez

She served as the Editor-in-Chief of IEEE Communications Letters from 2009-2011, and has been an associate editor for IEEE Transactions on Wireless Communications, IEEE Communications Letters, IEEE Transactions on Communications and the Journal of Communications and Networks. She was the IEEE Communications Society Director of Journals for the term 2012-2013, overseeing four society journals and their Editors-in-Chief. She was the elected Vice-President for Publications for the IEEE Communications Society for the term 2014-2015, overseeing all journals, magazines and online content. She is currently the Faculty Senate President at Santa Clara University.

She has received the IEEE Women in Communications Engineering Service Award, the IEEE Communications Society Joseph LoCicero Award for Exemplary Service to Publications and is a Fellow of the IEEE for "contributions to Orthogonal Frequency Division Multiplexing." She was the co-general chair (with Andrea Goldsmith) of the IEEE Wireless Communications and Networking Conference (WCNC) in 2017 <http://wcnc2017.ieee-wcnc.org/> in San Francisco which was awarded the IEEE iCon award for the best IEEE Conference of 2017.

IEEE Education Society Harriett B. Rigas Award

About the Rigas Award

The Harriett B. Rigas Award is presented annually by the IEEE Education Society to recognize outstanding faculty women who have made significant contributions to electrical and computer engineering education. The award consists of an honorarium, engraved gold-plated medal, and Frontiers in Education Conference registration. It was established in 1993 by Hewlett-Packard Enterprise.

The recipient must be a tenured or tenure track woman faculty member in an ABET-accredited engineering program in the United States, with teaching and/or research specialization in electrical/computer engineering.

About Harriett B. Rigas

Dr. Harriett B. Rigas (1934-1989), an IEEE Fellow, was an electrical engineer with an international reputation for her hybrid computer and computer simulation research. At Washington State University between 1966 and 1984, she was eventually both full professor and chair of Electrical and Computing Engineering School. Later she chaired larger departments at the Navy's Postgraduate School in Monterey and, at the time of her death, Michigan State University.

Her achievements in engineering research, administration, and service were widely recognized. In 1975-76, Harriett was a Program Director at the National Science Foundation and, over the years, a member of numerous panels and advisory committees at both the NSF and the national Academy of Sciences.

Professor Rigas' success was achieved within a profession and within university administrative structures where there were very few women. Her character and courage were both evident in her strong advocacy of advancement for women. She was involved both locally and nationally in the Society of Women Engineers.



Beverly Ma



Jacqueline Doyle



Jacqueline Rohde



Hank Boone

Frontiers in Education Conference Benjamin J. Dasher Best Paper Award

Understanding the Pathways of Students with Normative Attitudes in Engineering by Beverly Ma, Jacqueline Doyle, Jacqueline Rohde, Hank Boone, Allison Godwin, Geoff Potvin, Lisa Benson and Adam Kirn

Beverly Ma worked for the PRiDE research group at as a Master's student the University of Nevada, Reno after obtaining her B.S. in Mechanical Engineering. Her research examined the experiences of normative and non-normative students in the cultures of engineering. Beverly will be working to implement engineering curriculum with Engineering For Kid in Las Vegas, NV.

Jacqueline Doyle is a Postdoctoral Fellow at the Harvard-Smithsonian Center for Astrophysics, where she works in science education research. Her previous work has focused on engineering education and physics education research. Her research interests include diversity and equity efforts in STEM, how students develop their domain-specific identities, and understanding how student and teacher misconceptions in the sciences affect their learning and professional development. She has a B.S. and M.S. in Physics from Purdue University, and a M.S. and PhD in Physics from Florida International University.

Jacqueline (Jacki) Rohde is a graduate student in the School of Engineering Education at Purdue University. She is the recipient of a National Science Foundation Graduate Research Fellowship (NSF-GRF) for her work in understanding engineering students' non-traditional career pathways. Jacki's research interests in engineering education include the development of student identity and attitudes, with a specific focus on the pre-professional identities of engineering undergraduates planning to join fields outside of industry, such as medicine, law, and academia. Jacki earned a Bachelor of Science degree in Bioengineering from Clemson University in 2017. She was a National Scholar as part of Clemson University's most prestigious merit-based scholarship. She is also a founding member of the university's chapter of Grand Challenge Scholars, a program sponsored by the National Academy of Engineering.

Hank Boone is an Academic Success Coach at Nevada State College. His research focuses on First Generation engineering college students' engineering identity, belongingness, and how they perceive their college experience. This research revealed that first generation students in engineering are successful and have shown that it is possible for students to feel they belong in engineering more so than their continuing generation counterparts. His current work as a Success Coach allows him to actively utilize his research to create programs that support a high percentage of non-traditional students as well as First Generation students that are located at Nevada State College. During his M.S degree program, he worked under Adam Kirn on a project looking at non-normative engineering students and how they may have differing paths to success. His education includes a B.S. and M.S. in Mechanical Engineering from University of Nevada, Reno.



Allison Godwin

Allison Godwin, Ph.D. is an Assistant Professor of Engineering Education at Purdue University. Her research focuses what factors influence diverse students to choose engineering and stay in engineering through their careers and how different experiences within the practice and culture of engineering foster or hinder belongingness and identity development. Dr. Godwin graduated from Clemson University with a B.S. in Chemical Engineering and Ph.D. in Engineering and Science Education. Her research earned her a National Science Foundation CAREER Award focused on characterizing latent diversity, which includes diverse attitudes, mindsets, and approaches to learning, to understand engineering students' identity development. She has also been recognized for the synergy of research and teaching as an invited participant of the 2016 National Academy of Engineering Frontiers of Engineering Education Symposium. She also was an NSF Graduate Research Fellow for her work on female empowerment in engineering which won the National Association for Research in Science Teaching 2015 Outstanding Doctoral Research Award.



Geoff Potvin

Geoff Potvin, Associate Professor, Department of Physics and STEM Transformation Institute (STEM-TI): Geoff Potvin is an associate professor in the Department of Physics and the STEM Transformation Institute at FIU. He has extensive experience in survey development and quantitative and mixed-methods designs. Dr. Potvin teaches highly-reformed student-centered introductory physics courses ("Modeling Physics") which leverage student engagement and peer interactions for improved learning outcomes and student empowerment and has taught active-learning undergraduate mathematics and graduate STEM education research courses. His research interests include gender issues in the physical sciences and the cultures of STEM and the connection to the recruitment and retention of future practitioners.



Lisa Benson

Lisa Benson is a Professor of Engineering and Science Education at Clemson University, and the Editor of the Journal of Engineering Education. Her research centered most recently on her CAREER project, Student Motivation and Learning in Engineering, focuses on student perceptions, beliefs and attitudes about their future in engineering and how that affects their approaches to solving problems. Drawing from theoretical frameworks of Future Time Perspective, Possible Selves, Expectancy-Value Theory, and Self-Regulated Learning, this research has revealed connections between students' perceptions of their possible future careers and their expectations about what they should be working on in the present as engineering students. A new direction that has emerged from this work is examining aspects of epistemic cognition, or the processes that students engage in related to building their knowledge and skills in engineering, within students' educational experiences. Relatedly, Dr. Benson's research has expanded to include student trajectories through engineering based on their perceptions of belongingness and identity within engineering cultures. She holds a B.S. in Bioengineering from the University of Vermont, and M.S. and Ph.D. in Bioengineering from Clemson University.



Adam Kirn

Adam Kirn, Ph.D., is an Assistant Professor of Engineering Education at University of Nevada, Reno. His research focuses on the interactions between engineering cultures, student motivation, and their learning experiences. His projects involve the study of student perceptions, beliefs and attitudes towards becoming engineers, their problem solving processes, and cultural fit. His education includes a B.S. in Biomedical Engineering from Rose-Hulman Institute of Technology, a M.S. in Bioengineering and Ph.D. in Engineering and Science Education from Clemson University.

Past Recipients

'73 Walter D. Story
'74 Richard Hooper
'75 John J. Alan III and J.J. Lagowski
'76 John Hipwell and David Blaume
'77 John W. Renner
'78 Albert J. Morris
'79 Donald R. Woods, Cameron M. Crowe, Terrence W. Hoffman, and Joseph D. Wright
'80 Marilla D. Svinicki
'81 Martha Montgomery
'82 A.L. Riemenschneider and Lyle D. Feisel
'83 Davood Tashayyod, Banu Onaral, and James M. Trosino
'84 Bill V. Koen
'85 Bill V. Koen
'86 Richard S. Culver '87 David A. Conner, David G. Green, Thomas C. Jannett, James R. Jones, M.G. Rekoff, Jr.,
Dennis G. Smith, and Gregg L. Vaughn
'88 Richard M. Felder
'89 Richard C. Compton and Robert York
'90 Cindy A. Greenwood
'91 Robert Whelchel
'92 William LeBold and Dan D. Budny
'93 Daniel M Hull and Arthur H. Guenther
'94 Burks Oakley II and Roy E. Roper
'95 Curtis A. Carver, Jr. and Richard A. Howard
'96 Val D. Hawks
'97 Edwin Kashy, Michael Thoennessen, Yihjia Tsai, Nancy E. Davis, and Sheryl L. Wolfe
'98 A.B. Carlson, W.C. Jennings, and P.M. Schoch
'99 Wayne Burleson, Aura Ganz, and Ian Harris
'00 David W. Petr
'02 Zeynep Dilli, Neil Goldsman, Lee Harper, Steven I. Marcus, and Janet A. Schmidt
'03 Glenn W. Ellis, Gail E. Scordilis, and Carla M. Cook
'04 Matthew W. Ohland, Guili Zhang, Brian Thorndyke, and Timothy J. Anderson
'05 Gregory A. Moses and Michael Litzkow
'06 Donna Riley and Gina-Louise Sciarra
'07 Eric Hamilton and Andrew Hurford
'08 Steve Krause, Robert Culbertson, Michael Oehrtman, Marilyn Carlson, Bill Leonard, C.V. Hollot, and William Gerace
'09 Glenda Stump, Jenefer Husman, Wen-Ting Chung and Aaron Done
'10 Jeffrey L. Newcomer
'11 Kristi J. Shryock, Arun R. Srinivasa and Jeffrey E. Froyd
'12 Robin Adams, Alice Pawley and Brent Jesiek
'13 Hansi Keijonen, Jaakko Kurhila, and Arto Vihavainen
'14 Lecia Barker and Jane Gruning
'15 Natasha Nesiba, Enrico Pontelli, and Timothy Staley
'16 Beth Rieken, Mark Schar, and Sheri Sheppard

About the Dasher Award

The Benjamin Dasher Best Paper Award is given to the best paper presented at the annual Frontiers in Education Conference, as demonstrated by technical originality, technical importance and accuracy, quality of oral presentation, and quality of the written paper appearing in the Conference Proceedings. Papers are nominated for the award by reviewers.

A committee with representation from each of the organizing societies (ERM, IEEE Ed. Soc., IEEE Comp. Soc.) is formed to review nominated papers. During the FIE meeting, the committee attends presentations of the nominated papers. The committee then makes a final recommendation to the FIE Planning Committee for the Ben Dasher Award winner based on the overall quality of both the paper and the presentation.

About Benjamin J. Dasher

Benjamin J. Dasher was born December 27, 1912 in Macon, Ga. He earned his bachelor's and master's degrees in electrical engineering in 1935 and 1945, respectively, and graduated with a doctorate in electrical engineering in 1952 from the Massachusetts Institute of Technology. At MIT, Dr. Dasher worked on the electronics of instrumentation of electromechanical transducers and analog-to-digital converters. He was the author of "Dasher's method" for synthesis of resistance-capacitance two-port networks, which is found in standard textbook treatments.

While at Georgia Tech, Dr. Dasher served as a graduate assistant in 1936, then as an instructor in 1940, and became an assistant professor in 1945. While earning his PhD at MIT, he was an instructor from 1948-51. Before finishing with his PhD, he became an associate professor at Georgia Tech in 1951, was promoted to professor in 1952, and became director of the School of Electrical Engineering in 1954, where he served in that capacity until 1969. In 1968, Dr. Dasher was appointed associate dean in the College of Engineering. At Georgia Tech, Dr. Dasher served as director of network synthesis projects and transistor oscillator projects. His fields of interest included advanced network theory, electronic theory, electronic circuits, electrical engineering education, machine translation, speech analysis, and pattern recognition. He was credited for bringing undergraduate engineering education to the forefront at Georgia Tech and for increasing interactions between undergraduates and industry.

Dr. Dasher was a member of Phi Kappa Phi, ASEE, Sigma Xi, and the American Association of University Professors; he was a Fellow of both the IEEE and the Institute of Radio Engineers. He served as a regional director for IEEE and as the chair for the Atlanta section of IEEE; he was on numerous committees for IRE, AIEE, and IEEE. He served as President of the IEEE Education Group in 1970-71.

Ben Dasher organized the first Frontiers in Education Conference; it was held in Atlanta in 1971, and attracted 100 participants. There were 34 papers in six technical sessions.

Dr. Dasher died of congestive heart failure on December 13, 1971 in Houston, Texas.



Sarah Zappe
Penn State University



Stephanie Cutler
Penn State University



Thomas Litzinger
Penn State University

Frontiers in Education Conference Helen Plants Award Best Nontraditional Session at FIE 2017

Teaching to Promote a Growth Mindset by Sarah Zappe, Stephanie Cutler, and Thomas Litzinger

Sarah Zappe is Associate Research Professor and Director of Assessment and Instructional Support in the Leonhard Center for the Enhancement of Engineering Education at Penn State. She holds a B.A. in Psychology from the University of Connecticut. She also received her M.S. and Ph.D. degrees from Penn State, where she specialized in Educational Psychology emphasizing applied measurement and testing. In her position in the Leonhard Center, Dr. Zappe is responsible for developing instructional support programs for faculty, providing evaluation support for educational proposals and projects, and conducting educational research. Her research interests primarily involve creativity, innovation, and entrepreneurship education. She has a growth mindset for leading workshops about growth mindset.

Stephanie Cutler is an assessment and instructional support specialist for the Leonhard Center for the Enhancement of Engineering Education at Penn State. Her research and teaching focus on supporting instructors (faculty and graduate students) as they work to improve their teaching and aiding the evaluation of the teaching innovations they implement in their classrooms. Dr. Cutler has been a member of the American Society for Engineering Education (ASEE) since 2009. In 2014, she received the Helen Plants Award along with her colleagues for the Special Session: Lord of the PhD: Fellowship of the Dissertation: A guide to the Engineering PhD and again in 2017 for: Innovation T-ball: Everybody Wins!! She holds a B.S. in Mechanical Engineering from Virginia Commonwealth University, an M.S. in Industrial and Systems Engineering from Virginia Tech, and a Ph.D. in Engineering Education from Virginia Tech. She maintains a growth mindset with respect to her research, teaching, and special session facilitation; and a fixed mindset with respect to her ability to run a marathon or enjoy the company of cats.

Thomas A. Litzinger is Assistant Dean for Educational Innovation and Accreditation, Director of the Leonhard Center for the Enhancement of Engineering Education, and Professor of Mechanical Engineering at Penn State. His work in engineering education involves curricular reform, teaching and learning innovations, assessment, and faculty development. Dr. Litzinger has more than 50 publications related to engineering education including lead authorship of an invited chapter on translation of research to practice for the first edition of the Cambridge Handbook of Engineering Education Research. He teaches design and thermal sciences. His disciplinary research on combustion in engines and rockets has resulted in more than 120 publications. Dr. Litzinger is Fellow ASEE and ASME. He serves as an Associate Editor for Advances in Engineering Education. He holds a B.S. in Nuclear Engineering from Penn State, an M.Eng. in Mechanical Engineering from RPI, and a Ph.D. in Mechanical and Aerospace Engineering from Princeton.

About the Plants Award

The Helen Plants Award is given for the best special (non-traditional) session at the FIE conference, as demonstrated by originality, session content and presentation including the use of written materials and visual aids, and participation of session attendees.

About Helen Margaret Lester Plants

Helen Margaret Lester was born in Desloge, Missouri, in March 1925, the only child of Rollo Bertell and Margaret Stephens Lester.

She entered the University of Missouri as a journalism major, but soon switched to Civil Engineering. She received her BSCE in 1945. She joined West Virginia University in 1947 as a graduate student and Instructor in Mechanics, and received her MS in Civil Engineering in 1953. She was a Professor of Theoretical and Applied Mechanics and of Curriculum and Instruction in the Division of Education at WVU. She became Professor Emeritus, Mechanical and Aerospace Engineering in 1983. From 1985 to 1990 she served as Chair of Civil Engineering Technology at Indiana University-Purdue University - Fort Wayne.

Her husband Ken Plants had been a "bureaucrat" with the US Bureau of Mines in Morgantown - a chemical engineer with great expertise in cost estimation. Some of their "courting" evenings were spent manually checking the design calculations on the Star City, WV Bridge, designed by the Dean and State Bridge Engineer. While in Morgantown, Helen was active in Trinity Episcopal Church where she served as a Vestryman and Bishop's Man. For many years she was a Girl Scout leader. Helen died in Tulsa, Oklahoma in September 1999.

From the beginning of her academic career, she was a gifted teacher and a role model for the few women students at West Virginia University at that time. Later, she became an advocate of programmed and individualized instruction. She and Wally Venable wrote series of papers on these topics and several texts: *Introduction to Statics, a Programmed Text*, (1975), *A Programmed Introduction to Dynamics* (1967), and *Mechanics of Materials, A Programmed Textbook* (1974). She established the first doctoral program in Engineering Education at West Virginia University.

In 1975, the University of Missouri at Columbia recognized her with the Missouri Honor Award for Distinguished Service in Engineering. She became an ASEE Fellow in 1983 as a member of the first class of Fellows. She also received Distinguished Service Award, Western Electric Fund Award, and was an ASEE Vice-President (1974 – 1976).

Past Recipients

- '80 Helen Plants
- '81 Jim Russell and John C. Lindenlaub
- '82 Karl A. Smith and Harold Goldstein
- '83 E. Dendy Sloan and Charles F. Yokomoto
- '84 David W. Johnson and Karl A. Smith
- '85 Billy V. Koen
- '86 Martha A. Nord and Patricia H. Whiting
- '87 John C. Lindenlaub
- '89 Karl A. Smith
- '91 Troy E. Kostek
- '92 Barbara M. Olds and Ronald L. Miller
- '93 John C. Lindenlaub and Alisha A. Waller
- '94 Billy V. Koen
- '95 Burks Oakley II and Mark Yoder
- '96 Alisha A. Waller, Edward R. Doering, and Mark A. Yoder
- '97 Karl A. Smith, James D. Jones and Elizabeth Eschenbach
- '98 Alice Agogino
- '99 Melinda Piket-May and Julie L. Chang
- '04 Susan M. Lord, Elizabeth Eschenbach, Alisha A. Waller, Eileen M. Cashman, and Monica J. Bruning
- '05 Ruth A. Streveler
- '06 Ruth A. Streveler, Karl A. Smith, and Ronald L. Miller
- '07 Maura Borrego, Lynita Newswander, and Lisa McNair
- '08 Lisa C. Benson, Sherrill B. Biggers, William F. Moss, Matthew Ohland, Marisa K. Orr, and Scott D. Schiff
- '09 Russell Korte and Karl A. Smith
- '10 Mark Somerville, Dave Goldberg, Sherra E. Kerns, and Russell Korte
- '11 Şenay Purzer and Jonathan C. Hilpert
- '12 Lynn Andrea Stein and Caitrin Lynch
- '13 Stephanie Cutler, James J. Pembridge, Matthew Verleger, and Lauren D. Thomas
- '14 Rebecca Bates, Lisa Benson, Alan Cheville, Cynthia Finelli, Jennifer Karlin, and Susan Lord
- '15 James Huff, Brent Jesiek, Carla Zoltowski, Joachim Walther, and William Oakes
- '16 Stephanie Cutler, Thomas A. Litzinger, Sarah Zappe, and Michael Alley



Stephen Frezza
Gannon University

Past Recipients

'84 Carol Schmitz
'85 Lawrence P. Grayson
'86 John C. Lindenlaub
'87 George Burnett
'88 James R. Rowland
'89 Lyle D. Feisel
'90 Edwin C. Jones, Jr.
'92 Karl A. Smith
'92 Victor K. Schutz
'93 Bruce A. Einstein
'94 David V. Kerns, Jr.
'95 David R. Voltmer
'96 William E. Sayle II
'97 Richard S. Culver
'98 Dan Budny
'99 Robert J. Herrick
'00 Larry J. Shuman
'01 David L. Soldan
'02 Goranka Bjedov
'03 Larry G. Richards
'04 James A. Roberts
'05 Robert J. Hofinger
'06 Jane Chu Prey
'07 Joseph L. A. Hughes
'08 Ted E. Batchman
'09 Russ Meier
'10 Dan Moore
'11 Susan M. Lord
'12 Arnold Pears
'13 Jennifer Karlin
'14 Cynthia Finelli
'15 Robert J. Hofinger
'16 Edwin C. Jones, Jr.

Frontiers in Education Conference Ronald J. Schmitz Award

For outstanding service to the Frontiers in Education Conference

Deacon Steve Frezza, PSEM is a professor of Software Engineering and chair of the Computer and Information Science department at Gannon University in Erie, PA. He maintains a Professional Software Engineering Master (PSEM) Certification from the IEEE. His research interests include Global Software Engineering, Affective Domain Learning, Engineering Education Research, as well as Philosophy of Engineering and Engineering Education. He is regularly involved in supporting the regional entrepreneurial ecosystem, as well as projects that serve the regional community. He is an active member and volunteer for both the Institute of Electrical and Electronic Engineers (IEEE) Computer Society and the American Society for Engineering Education (ASEE). He has published numerous conference papers and journal articles on innovations in Software Engineering curriculum development and Philosophy of Engineering & Computing.

Frontiers in Education Conference Ronald J. Schmitz Award (continued)

About the Schmitz Award

The Ronald Schmitz Award is given to recognize outstanding and continued service to engineering education through contributions to the Frontiers in Education Conference.

About Ronald J. Schmitz

Ronald J. Schmitz was born near Ionia, Iowa on April 25, 1934. He attended a one-room country school through the eighth grade and then, as was not uncommon at the time, decided to forgo high school and work on his father's farm. At age 18, he joined the United States Navy. He served as an Electricians Mate, spending much of his enlistment at sea and made a round-the-world cruise aboard the USS Saipan.

In the Navy, Ron found an interest in and an aptitude for technology and recognized the need for further education. He completed a GED program in the Navy and, when he was discharged, enrolled in electrical engineering at Iowa State University. He received all his degrees there, finishing his doctorate in 1967.

In the fall of 1967, he accepted appointment as Assistant Professor in the Department of Electrical Engineering at the South Dakota School of Mines and Technology in Rapid City. He was involved in various research activities and directed both masters and doctoral students, but his strongest interest was always in teaching. Ron was a consummate teacher, patient with students who were having difficulty but intolerant of sloth. He received the School of Mines Teaching Award in 1975 and the Western Electric Fund Award for Excellence in Teaching in 1981.

Dr. Schmitz was very active in the IEEE, especially the Education Society, and served as Secretary Treasurer of the Society. He was also active in ERM and attended, and contributed to, many Frontiers in Education Conferences. He served as general chair of FIE 1981 in Rapid City.

Ron was an avid hunter and fisherman, a devoted husband and father and a faithful friend. He served his church as Lector and Lay Minister and was active as a Boy Scout leader.

Ron contracted cancer in 1983 and died on July 19, 1984.



Mark Allen Weiss
Florida International
University

Past Recipients

'79 Lawrence P. Grayson
'80 Demetrius T. Paris
'81 Lindon E. Saline
'82 Anthony B. Giordana
'83 Joseph Bordogna
'84 John C. Lindenlaub
'85 John D. Ryder
'86 James R. Rowland
'87 Bruce Eisenstein
'88 Mac Van Valkenburg
'89 Edward W. Ernst
'90 Ernst Weber
'91 J. David Irwin
'92 Jerrier A. Haddad
'93 Chalmers F. Sechrist
'94 Eric A. Walker
'95 Stephen W. Director
'96 William H. Hayt, Jr.
'97 Jerry R. Yeargan
'98 Ted E. Batchman
'99 Lyle D. Feisel
'00 Irene C. Peden
'01 Donald E. Kirk and
Eli Fromm
'02 Burks Oakley II
'03 Frank Barnes and
Delores Etter
'04 William E. Sayle II
'05 H. Vincent Poor
'06 George D. Peterson
'07 Sarah A. Rajala and
Marwan A. Simaan
'08 James A. Roberts
'09 Jose B. Cruz, Jr.
'10 Rob Reilly
'11 Susan E. Conry

IEEE Education Society William E. Sayle II Award for Achievement in Education

For contributions to the advancement of Computer Science education through his books and curricular innovations that have enhanced student learning for both high school and college students.

Mark Allen Weiss received a B.E. in Electrical Engineering from Cooper Union in 1983 and a Ph.D. in Computer Science from Princeton University in 1987. He joined FIU in 1987, where he is now Eminent Scholar Chaired Professor of Computer Science and Associate Dean for Undergraduate Education in the College of Engineering and Computing. Dr. Weiss also created and currently serves as the Interim Founding Director of the School of Universal Computing, Construction, and Engineering Education (SUCCEED), which is the first engineering education department at a minority-serving institution.

Professor Weiss is most well-known as the sole author of nine textbooks, in 20 US editions. His first text, "Data Structures and Algorithm Analysis" published in 1991, along with subsequent versions in C, Ada, C++, and Java, have been market leaders for two decades. Dr. Weiss served on the Ad-Hoc Committee that advised the College Board on how to incorporate C++ into the Advanced Placement Exam, and then served as a member of the College Board's Advanced Placement Computer Science Development Committee, including a four-year term as chair, as it redesigned the Advanced Placement curriculum twice, first from Pascal to C++, and then from C++ to Java. In recent years, Dr. Weiss has been the FIU lead in securing over ten million dollars of external funding for FIU's Information Technology related programs.

FIU has recognized Professor Weiss with many awards, including its Outstanding Faculty Torch Award, which is presented by the FIU Alumni Association and FIU President to a single faculty member who has made a lasting impression on the lives of FIU students and alumni. Dr. Weiss is an IEEE Fellow, AAAS Fellow, and ACM Distinguished Educator. He is the recipient of the 2015 SIGCSE Award for Outstanding Contribution to Computer Science Education and the 2017 IEEE Computer Society Taylor L. Booth Education Award.

'12 Theodore Rappaport
'13 Karen Panetta
'14 Raghunath K.
Shevgaonkar
'15 Marco Winzker
'16 Susan Lord
'17 Joseph Hughes

About the Sayle Award and William E. Sayle II

The William E. Sayle II Award is presented to recognize a member of the IEEE Education Society who has made significant contributions over a period of years in a field of interest of the IEEE Education Society. The award consists of a plaque, a certificate, and paid registration to the Frontiers in Education Conference.

Dr. William (Bill) E. Sayle received his BSEE and MSEE degrees from the University of Texas at Austin and his Ph.D. from the University of Washington. He joined the faculty in electrical engineering at Georgia Institute of Technology in 1970, just as Georgia Tech was beginning the transition from an undergraduate institution to a research university. He was the ECE associate chair for undergraduate affairs from 1988-2003 and, following retirement in 2003, served as director of undergraduate programs at Georgia Tech-Lorraine in France until 2007. Bill was a tireless advocate for students, putting in countless late night and weekend hours in addressing student issues, assigning teaching assistants, and meeting with prospective students and parents.

Throughout his career, Bill touched the lives of many people in the worldwide academic community. He was a leader and a pioneer in many areas. In the 1970s, he was a founding member of the IEEE Power Electronics Society, where he served in many leadership roles over the years. He was a champion of diversity and in recruiting underrepresented minorities and women to engineering and science, long before it became a national issue. He visited many high schools on behalf of the Southeastern Consortium for Minorities in Engineering, a role where he made many friends for Georgia Tech among high school administrators and students in the southern part of Georgia.

In his 30-year career at Georgia Tech, Bill received the ECE outstanding teacher award twice, as well as the Georgia Tech outstanding teacher award and outstanding service award. Bill lent his voice and efforts to Georgia Tech faculty governance throughout his career, serving as an elected member of Institute-level committees, the Academic Senate, and the Executive Board.

Bill was a long-time member and active volunteer in the IEEE Education Society and the Electrical and Computer Engineering Division of ASEE. He was a Fellow of both IEEE and ASEE. He was the recipient of the Education Society's 2001 Meritorious Service Award and 2004 Achievement Award and of the ECE Division's 2001 Meritorious Service Award and 2006 ECE Distinguished Educator Award. Bill was the General Chair of the 1995 Frontiers in Education (FIE) Conference, which is still remembered for its all-vegetarian menu, and received the 1996 Ronald J. Schmitz Award for outstanding service to FIE.

Much of Bill's professional career was devoted to engineering accreditation, serving at various times as member and chair of the IEEE Committee on Engineering Accreditation Activities and the IEEE Accreditation Policy Council. He participated in more than 20 visits as a program evaluator, in addition to serving as a team chair and member of the Engineering Accreditation Commission of ABET for more than five years. Bill received the IEEE Educational Activities Board Meritorious Achievement Award in Accreditation Activities in 2004.

Dr. Sayle passed away on February 2, 2008.



Presentation
Rivera-Reyes



Oenardi Lawanto



Michael Pate

IEEE *Transactions on Education* Theodore E. Batchman Best Paper Award

Students' Task Interpretation and Conceptual Understanding in an Electronics Laboratory by Presentation Rivera-Reyes, Oenardi

Lawanto, and Michael Pate

IEEE Transactions on Education Volume: 60, April 2017

After receiving his doctorate in Engineering Education from Utah State University, **Presentation Rivera-Reyes** was a postdoctoral fellow at the University of Nebraska-Lincoln conducting educational research in the Electrical and Computer Engineering Department. He participated in an NSF-funded study to determine the abstraction threshold in electrical engineering and identify relationships between cognitive processing exhibited by students and their course outcomes. Presentation has experience in the telecommunication industry where he worked as a Project Manager developing solutions of high-speed transmission systems for internet and mobile service enterprises. Presentation currently serves as a lecturer in the Department of Engineering Education of the School of Engineering and Applied Sciences at SUNY-Buffalo. He teaches courses on fundamentals of electric circuits for non-electrical engineering majors and conducts educational research in undergraduate electrical engineering related to problem-solving and hands-on activities in the classroom and laboratory environments. Presentation is collaborating in a research project to understand the psychological links between spatial visualization skills and engineering problem solving while simultaneously establishing neurological evidence for these links.

Oenardi Lawanto is an Associate Professor in the Department of Engineering Education at Utah State University, USA. He received his BSEE from Iowa State University, his MSEE from the University of Dayton and his PhD from the University of Illinois at Urbana-Champaign. Before coming to Utah State, Dr. Lawanto taught and held several administrative positions at one large private university in Indonesia. He has developed and delivered numerous international workshops on student-centered learning and on-line learning-related topics during his service. Dr. Lawanto's research interests include cognition (and metacognition), self-regulated learning, problem-solving, and on-line learning.

Dr. Pate earned his Bachelors and Masters degrees in Agricultural Education from the University of Arkansas. He earned his PhD in Agricultural Education from Iowa State University. Dr. Pate continues to be enthusiastic about his teaching after teaching high school for three years. He serves Penn State University as the Nationwide Insurance Associate Professorship of Agricultural Safety and Health providing leadership as the Extension Safety Specialist. Michael's passion for teaching comes from the desire help students improve their technical problem solving skills. He has focused on advancing educational methodologies through the investigation and implementation of experiential learning. Dr. Pate genuinely enjoys teaching and has a sincere interest in developing a deeper professional focus on understanding how people learn and apply knowledge in agricultural settings. It is important to him that students investigate the implications and impact of potential solutions to technical problems in agriculture. His teaching philosophy centers on the perspective that problem solving skills are critical for success in all endeavors. Michael's focus is to equip students with the ability to identify system problems, formulate possible solutions, and analyze the impact of alternative solutions on social and economic institutions.

About the Award

This award recognizes the best paper published each year in the IEEE Transactions on Education, as evaluated on originality, quality, advancement of the art, and effectiveness of presentation in terms of clarity of exposition and coherence.

About Theodore E. Batchman

Ted E. Batchman received his B.S.E.E., M.S.E.E. and Ph.D. degrees from the University of Kansas in 1962, 1963 and 1966, respectively. After working four years in the aerospace industry, he began his academic career at the University of Queensland in Brisbane, Australia (1970-75) where he was involved in optical systems and devices research. He then returned to the USA and assumed a position at the University of Virginia (1975) where he continued his research in electro-optics and semiconductors. In 1988 he moved to the University of Oklahoma to become the Chair of the Electrical Engineering Department, and then in 1995 he moved to the University of Nevada, Reno as Dean of the College of Engineering. He is currently founding director of the Renewable Energy Center at the University of Nevada, Reno. He has been a department chair and dean of engineering for the past 20 years. He was program co-chair of FIE 2000 and general chair of FIE 2001. He has served on the FIE Steering Committee for the past six years and was chair of the FIE Steering Committee in 2007/2008.

He is a fellow of the IEEE and ASEE, recipient of the IEEE Third Millennium Medal, IEEE Education Society 1998 Achievement Award, IEEE Education Society 2000 Meritorious Service Award, is a past member of the IEEE Education Activities Board (EAB) and past chair of the EAB Pre-college Education Committee, a member of the IEEE Education Society Administrative Committee and was editor-in-chief of the IEEE Transactions on Education from January 1997 to January 2001. He is a member of Eta Kappa Nu and Tau Beta Pi.

Past Recipients

- '99 J.A. Buck, H. Owen, J.P. Uyemura, C.M. Verber, and D.J. Blumenthal
- '00 David J. Russomanno and Ronald D. Bonnell
- '01 Christopher W. Trueman
- '02 Mohan Krishnan and Mark J. Paulik
- '03 Tyson S. Hall, James O. Hamblen, and Kimberly E. Newman
- '04 M. Brian Blake
- '04 Russell L. Pimmel
- '05 Antonio J. Lopez-Martin
- '06 Euan Lindsay and Malcolm C. Good
- '07 Jason A. Day and James D. Foley
- '08 France Bélanger, Tracy L. Lewis, George M. Kasper, Wanda J. Smith and K. Vernard Harrington
- '09 Kenneth Ricks, Jeff Jackson, and William A. Stapleton
- '10 Keith Holbert and George G. Karady
- '11 Julie A. Rursch, Andy Luse, and Doug Jacobson
- '12 Susan Lord, Richard Layton, and Matthew Ohland
- '13 Benjamin Hazen, Yun Wu, and Chetan Sankar
- '14 James McLurkin, Joshua B. Rykowski, Meagan John, Quillan Kaseman, and Andrew J Lynch
- '15 Raghu Raman, Krishnashree Achuthan, Prema Nedungadi, Shyam Diwakard, and Ranjan Bose
- '16 Jana Reisslein, Amy M. Johnson, and Martin Reisslein
- '16 Susan Lord, Richard Layton, and Matthew Ohland
- '16 Kayode P. Ayodele, Isaac A. Inyang, and Lawrence O. Kehinde
- '17 Justin M. Foley, Shanna Daly, Catherine Lenaway, and Jamie Phillips
- '17 Yu-Tzu Lin, Cheng-Chih Wu, Ting-Yun Hou, Yu-Chih Lin, Yu-Chih Lin, and Chia-Hu Chang

IEEE Education Society Outstanding Chapter Achievement Award

*For contributions to the revitalization, sustainability and services
to the IEEE Education Society members in Spain*



Spanish Chapter

Past Recipients

- '06 Nordic Chapter
- '07 Spanish Chapter
- '08 Gulf Chapter
- '09 Santa Clara Valley
Chapter and
Portugal Chapter
- '10 Austria Chapter
- '11 Spain Chapter
- '12 Hong Kong Chapter
- '13 India Council
- '16 New South Wales
- '17 Tokyo Chapter

Spanish Chapter Chairman: Manuel Caeiro-Rodríguez (M'07-SM'11) received the Telecommunication Engineering degree and the Ph.D. degree in Information and Communication Technologies from the University of Vigo, Spain. He obtained the 2007 Spanish Chapter IEEE Education Society award to the best Doctoral Thesis. He has received other prizes such as the "New Faculty Fellowship" in the 36th Annual Frontiers in Education Conference, the "Education Track Best Paper" and "Conference Best Paper Finalist" in the World Wide conference 2002, and the "Highlight Paper" in the World Wide Web conference 2001.

Manuel is an Associate Professor at the Department of Telematic Engineering, University of Vigo. He teaches computer programming, software engineering and computer architectures in the school of Telecommunications Engineering. His research interests include e-learning technologies and standards, CSCL, process-based systems, and Educational Modelling Languages, Open Educational Resources and Learning Analytics. He has performed research stays in the University of Coimbra (Portugal), IRISA (Rennes, France), MTA-ZSTAKI (Budapest, Hungary) and University of Kumamoto (Japan) and ISEP (Porto, Portugal). He coordinated the research network TELGalicía since 2012 until 2015.

Currently, Manuel is acting as the Spanish Chapter of the IEEE Education Society chairman for the period 2018-2019. The other members of the board are: Óscar Martínez Bonastre as Elected and Future Chairman from the Universitas Miguel Hernández, Javier García Zubía as Past Chairman, from University of Deusto, José Ángel Sánchez Ortiz as secretary from the I.E.S. Juan Antonio Castro-Talavera de la Reina, Francisco Mur Pérez as Treasurer from the UNED, and as members Francisco Javier Arcega Solsona from the University of Zaragoza, Elio San Cristóbal Ruiz from UNED and Pedro Muñoz Merino from University Carlos III



Professor Reisslein
Arizona State
University

IEEE Education Society Distinguished Chapter Leadership Award

For leadership in promoting important activities in the Phoenix Chapter of the IEEE Education Society

Martin Reisslein (S'96-M'98-SM'03-F'14) is a Professor in the School of Electrical, Computer, and Energy Engineering at Arizona State University (ASU), Tempe. He received his Ph.D. in systems engineering from the University of Pennsylvania in 1998. He currently serves as Associate Editor for the IEEE Transactions on Mobile Computing, the IEEE Transactions on Education, and IEEE Access, as well as Computer Networks. He is Associate Editor-in-Chief of the IEEE Communications Surveys & Tutorials, Co-Editor-in-Chief of Optical Switching and Networking, and chairs the steering committee of the IEEE Transactions on Multimedia. He has chaired the Phoenix Chapter of the IEEE Education Society since 2005.

Past Recipients

- '06 Michael E. Auer and
Manuel Castro
- '07 Carlos Rueda
Artunduaga and
Oliver K. Ban
- '08 Bakr Hassan and
Edmundo Tovar
- '09 Emmanuel A. Gonzalez
- '10 Martín Llamas-Nistal
- '11 Russ Meier
- '12 German Cabuya
- '15 Rosanna Yuen-Yan
Chan
- '16 Francisco Arcega
- '17 Gabriel Diaz



Predrag Pale
University of Zagreb

IEEE Education Society Distinguished Chapter Leadership Award

*For leadership in promoting important activities in the Croatia
Chapter of the IEEE Education Society*

Predrag Pale initiated and led diverse projects: from small ones to nation wide projects, from short term to projects spanning several years in the broad area of human activities. Predrag Pale graduated and received masters degree form the Faculty of Electrical Engineering and Computing at University of Zagreb.

He was involved in basic computer technologies, designing, building and deploying hardware and software, operating systems and computer networks. However, major part of more than 25 years of his professional activity was devoted to the application of information and communication technologies. Deliberately and targeting he was accumulating broad experience in applying ICT areas from civil engineering to medicine, from libraries, government, business and finance to media and education. Working in the industry he gained fundamental experience in design, production and application.

He has envisioned, initiated and led Croatian Internet project, System of Scientific Information of Croatia, National Library System and other large scale projects. From 1993 to 2000 he was a Deputy Minister of Science and Technology in charge of ICT. He founded, developed and led a department of the ministry, a government agency, several NGOs and companies both in Croatia and internationally.

Through all those activities he was continuously learning not only technological but also organizational knowledge and skills. They have been greatly amended and integrated through learning opportunities with best international individuals and organizations like: Harvard University, William Davidson Institute, Management Centre Europe, Business Management Consultants etc.; in the fields of project management, change management, knowledge management, team, time, goal management as well as organization and management of state and local government.

He started teaching at the Faculty of Electrical Engineering and Computing at University of Zagreb in early 1990s. Since 1997 he is actively experimenting with and researching the use of ICT in education. Observing himself and others, learning more from his own mistakes than successes, listening to knowledge, experience and wisdom of international experts in change management he created his own “recipe” for successful management. Recognized and contemporary theories he mixes with his own experience and views helping his audience to find their own way, method and solution.

There are three things in the world that make him “tick”: an idea that gets realized, figuring something out, and the “Aha!” effect in the eyes of his audience.

He was awarded the National medal «Danica Hrvatska» with effigy of “Ruder Bošković” and with the “State Award for Science”.



James Rowland
University of Kansas

Past Recipients

- '05 Marion O. Hagler and
Burks Oakley II
- '06 Ted Batchman and
David A. Conner
- '08 David L. Soldan
- '10 Manuel Castro
- '11 Susan M. Lord
- '12 Matthew Ohland
- '13 Victor Nelson
- '15 Jeffrey Froyd
- '16 Michael Auer
- '17 Rob Reilly

IEEE Education Society Distinguished Member Award

For contributions to the founding of the FIE, long leadership in the Education Society, and many years of service to ABET

James R. Rowland is a Life Fellow of the IEEE. During the 1980s and 1990s, he served as Education Society president, as IEEE Admissions and Advancement Committee chair, and as a member of three IEEE major boards. He received an IEEE Centennial medal in 1984, Education Society awards for achievement and meritorious service, and was recognized among the Founders of the IEEE/ASEE Frontiers in Education (FIE) Conference begun in 1971. He recently chaired the Education Society Fellows Committee for six years. He continues to serve as an ABET program evaluator (PEV) with over 40 campus visits for IEEE and ASEE.

His professional career spanned over 50 years as an electrical engineering professor at three universities. He retired and became Professor Emeritus in June 2017 after 32 years as a professor at the University of Kansas and had held faculty positions at Georgia Tech and Oklahoma State University. He had earned the PhD in electrical engineering at Purdue University in 1966.

His wife is ASEE Life Fellow Mary Anderson-Rowland, who had been his FIE session chair in 1992 following their then recent losses of both spouses to cancer. They plan a 25th anniversary celebration next year.



Diane Rover
Iowa State University

IEEE Education Society Edwin C. Jones, Jr. Meritorious Service Award

For excellent contributions to the Education Society, particularly service on the Finance Committee and the Board of Governors

Diane Rover is a University Professor of Electrical and Computer Engineering at Iowa State University. She currently serves as the alliance director for the NSF-funded IINSPIRE LSAMP Program. She co-leads projects in the department funded by the NSF RED and S-STEM programs. She has held various faculty and administrative appointments at ISU and Michigan State University since 1991. She has served on the IEEE Education Society Board of Governors and on the IEEE Committee on Engineering Accreditation Activities. She represented IEEE on the Engineering Accreditation Commission of ABET from 2009-2014 and served on the EAC Executive Committee. She also has served in the ASEE ECE Division. Dr. Rover is a Fellow of the IEEE and of ASEE. Her teaching and research has focused on engineering education, embedded computer systems, reconfigurable hardware, parallel and distributed systems, visualization, and performance monitoring and evaluation. She received the B.S. in computer science in 1984, and the M.S. and Ph.D. in computer engineering in 1986 and 1989 (ISU).

Past Recipients

- '78 Warren B. Boast
- '79 Joseph M. Biedenbach
- '80 Edwin C. Jones, Jr.
- '81 Lyle D. Feisel
- '82 Roy H. Mattson
- '83 Robert F. Fontana
- '84 Gerald R. Peterson
- '85 Luke H. Noggle
- '86 James A. Mulligan
- Sidney S. Shamis
- '87 Thomas K. Gaylord
- '88 Robert F. Cotellessa
- '89 E. Ben Peterson
- '90 Darrell L. Vines
- '91 Victor K. Schutz
- '92 William K. LeBold
- '93 Frank S. Barnes
- '94 Patricia D. Daniels
- '95 Robert W. Ritchie
- '96 Marion O. Hagler
- Donald E. Kirk
- '97 Robert Sullivan
- '98 Burks Oakley II
- '99 Gerald L. Engel
- '00 Ted E. Batchman
- '01 William E. Sayle II
- '02 James Rowland
- '03 David A. Conner
- '04 Trond Clausen
- '05 J. David Irwin
- Rodney J. Soukup
- '06 Robert A. Reilly
- '07 David V. Kerns, Jr.
- '08 James J. Sluss, Jr.
- '09 Manuel Castro
- '10 Michael E. Auer
- '11 Russ Meier
- '11 Claudio da Rocha Brito
- and Melany M. Ciampi
- '12 Susan Lord
- '13 Charles Fleddermann
- '14 Danilo G. Zutin
- '15 Victor P. Nelson
- '16 Lance Pérez
- '17 Jeffrey E. Froyd

About the Edwin C. Jones Award

The Edwin C. Jones Meritorious Service Award is presented to recognize a member of the IEEE Education Society who has made pioneering contributions to the administrative efforts of the IEEE Education Society over a period of years. The award consists of a plaque, a certificate, and registration to the Frontiers in Education Conference.

About Edwin C. Jones

Professor Jones served as a Society officer from 1970 through 1976; this service included two years as president. He served as Editor-in-Chief of the *IEEE Transactions on Education* from 1982-84. Since he first became involved in the Society in the late 1960s, he has held virtually every office in the Education Society. He is still actively involved with the Education Society. Professor Jones also served the IEEE as a member of the IEEE Committee on Engineering Accreditation Activities. Dr. Jones is University Professor and Associate Chair, emeritus, Department of Electrical and Computer Engineering, Iowa State University. Prior to joining Iowa State in 1966, he was an Assistant Professor at the University of Illinois from 1962-66. He received his PhD in 1962 from the University of Illinois; the DIC in 1956 from Imperial College of Science and Technology, University of London; and the BSEE in 1955 from West Virginia University. Dr. Jones' honors and awards include: Fellow, Institute of Electrical and Electronics Engineers; Fellow, American Society for Engineering Education; Fellow, American Association for Advancement of Science; Fellow, Accreditation Board for Engineering and Technology; IEEE Centennial Medal, 1984; ASEE Centennial Medal, 1993. Some of his ISU Honors Program students have started and endowed an undergraduate scholarship at Iowa State University in his honor.



Robert Pilawa-
Podgurski
University of
California, Berkeley

Past Recipients

'04 Parham Aarabi
'05 John R. Buck
'06 Lisa G. Huettel
'07 Susan C. Hagness
'08 Kathleen E. Wage
'09 Min Wu
'10 Craig Ziles
'11 Jonathan Makela
'12 Babak Ayazifar
'13 Muhammad Zaman
'14 Jill Nelson
'15 Chengying Xu
'16 Katherine Shu-Min Li
'17 Ali Mehrizi-Sani

IEEE Education Society Mac Van Valkenburg Early Career Teaching Award

For demonstrated passion for teaching and commitment to individual student growth, and his curriculum innovations in hands-on learning in the area of electric power and energy systems

Robert Pilawa-Podgurski received dual B.S. degrees in physics, electrical engineering and computer science in 2005, the M.Eng. degree in electrical engineering and computer science in 2007, and the Ph.D. degree in electrical engineering in 2012, all from the Massachusetts Institute of Technology.

He is currently an Associate Professor in the Electrical Engineering and Computer Sciences Department at the University of California, Berkeley. Previously, he was an Associate Professor in Electrical and Computer Engineering at the University of Illinois Urbana-Champaign. He performs research in the area of power electronics. His research interests include renewable energy applications, electric vehicles, energy harvesting, CMOS power management, high density and high efficiency power converters, and advanced control of power converters. Dr. Pilawa-Podgurski received the Chorafas Award for outstanding MIT EECS Master's thesis, the Google Faculty Research Award in 2013, and the 2014 Richard M. Bass Outstanding Young Power Electronics Engineer Award of the IEEE Power Electronics Society, given annually to one individual for outstanding contributions to the field of power electronics before the age of 35. In 2015, he received the Air Force Office of Scientific Research Young Investigator Award, the UIUC Dean's Award for Excellence in Research in 2016, the UIUC Campus Distinguished Promotion Award in 2017, and the UIUC ECE Ronald W. Pratt Faculty Outstanding Teaching Award in 2017. Since 2014, he serves as Associate Editor for IEEE Transactions on Power Electronics, and for IEEE Journal of Emerging and Selected Topics in Power Electronics. He is co-author of nine IEEE prize papers.

About the Mac E. Van Valkenburg Award

This award recognizes members of the IEEE Education Society who have made outstanding contributions to teaching unusually early in their professional careers, as evidenced by teaching performance, development of new teaching methods, and curricular innovation in fields of interest to the IEEE Education Society. Nominations are evaluated on the basis of the candidate's statement of teaching philosophy and practice, letters of support from students and peers, and student evaluations.

The award includes an honorarium, plaque and certificate; and paid registration to the Frontiers in Education (FIE) Conference. Full-time (or equivalent) faculty who are within the first ten years following receipt of their Ph.D. (or other appropriate terminal degree), and have had a minimum of two academic years of appointment as a faculty member, may be nominated. Individuals nominated for this award must be members of the IEEE Education Society and members of the IEEE.

About Professor M. E. Van Valkenburg

Professor Van Valkenburg earned his BSEE at the University of Utah, his MSEE at the Massachusetts Institute of Technology, and his PhD at Stanford University. He was the author of three outstanding textbooks, *Network Analysis*, (First Edition 1955, followed by several editions), *Introduction to Modern Network Synthesis* (1960) and *Analog Filter Design* (1982).

Although he was recognized throughout his career for achievements in circuit theory, beacon antennas, servomechanisms, and computer science, Van Valkenburg was even more renowned for his commitment to engineering education and for his textbooks. In both undergraduate and postgraduate classrooms he was a master teacher. One of his students said, in effect, that he never left the postgraduate classes without ideas for thesis research. His PhD students have made many contributions to universities and industries throughout the world. . At his memorial service in 1997, Dr. Steven Sample remarked, "Mac Van Valkenburg was, first and foremost, a teacher—a teacher par excellence—one of the very best engineering teachers in the world."

In 1955, Van Valkenburg came to the University of Illinois as a member of the Electrical Engineering faculty and as Associate Director of the Coordinated Science Laboratory. In 1966, he went to Princeton as head of its Electrical Engineering department. Eight years later, he returned to the University of Illinois, and in 1982, he received the first endowed chair in the College of Engineering, the W. W. Grainger Chair in Electrical Engineering. Van Valkenburg served as Dean of the College of Engineering from 1984 until his retirement in 1988.

A member of the National Academy of Engineering and a Fellow of IEEE, Van Valkenburg received numerous awards and honors for his efforts in engineering education, including the Halliburton Engineering Education Leadership Award, the IEEE Education Medal, the ASEE Lamme Medal (ASEE's highest honor), the ASEE George Westinghouse Award, the IEEE Centennial Medal, the Guillemin Prize, and Distinguished Alumni awards from the University of Utah and the College of Engineering at Illinois.

Van Valkenburg also served in a number of capacities within the professional community: as Vice President of IEEE, as Editor of Proceedings of the IEEE and IEEE Transactions on Circuit Theory, and as Editor in Chief of IEEE Press.



Kavyashree Prakashan
St. Xavier's Catholic
College of Engineering

Past Recipients

- '09 Seiji Isotani
- '10 Emmanuel Gonzalez and
Kai-Pan Mark
- '11 Dario Schor
- '12 Elio San Cristobal Ruiz
and Sergio Martin
- '13 Subhamoy Mandal
- '14 Liang-Bi Chen
- '15 German Carro
Fernandez
- '16 Krishna Priya S.L
- '17 Ramon Carrasco

IEEE Education Society Student Leadership Award

For showing the lighted path of success to volunteers with the potential through the global platform of IEEE to enhance the skills within the Education Society and also for being an inspiration for peer groups to be an innovator that leads to leadership for better living

Ms. Kavyashree Prakashan, pursued her Bachelor Degree in Computer Science and Engineering from St. Xavier's Catholic College of Engineering, Nagercoil, India. She is one among the active volunteers in IEEE Madras Section and served as the immediate past chairperson of IEEE Education Society Student Branch Chapter – 62851. She showed her vibrancy by volunteering for all the events of her StB – 62851, together with the IEEE Education Society, WIE Affinity Group and Computer Society. The sign mark of her volunteer-ship was depicted through publishing a paper “Transformation of Health Care System using Internet of Things in Villages” in IEEE Xplore and also by organizing events like AISTA- '17, a National Level Technical Symposium, the preliminary of SS12 Project Contest-2017 and many more. She severed as a well-experienced volunteer that made her a good leader, creating her own vision of “Be the creators, not the followers because education is a way of exploring.” Apart from IEEE, she also served as the joint secretary for her department and executive member of many other clubs too, together with well-maintained academic background.

REVIEWERS

This year, FIE 2018 had over 600 papers and presentations submitted for consideration. The FIE2018 Program Committee wishes to thank the following individuals for acting as abstract and paper reviewers. The program committee asked these individuals to help control the quality of the presentations at this year's conference by reviewing the submissions for FIE2018. Their outstanding effort has helped maintain the high standard that has become the reputation of each FIE conference.

Mouna Abdelkefi, University of Sfax	Diego Aponte-Roa, Universidad del Turabo
Azim Abdool, The University of the West Indies	Daniel Apple, Pacific Crest
Abir Abid, REGIM-Lab: Research Groups in Intelligent Machines	George Aquino, California State University: Northridge
Nusaybah Abu-Mulaweh, Purdue University	Ana Liz Araujo, Federal University of Campina Grande
Ruth Agada, Bowie State University	Cristiano Araujo, UFPE
Ashish Agrawal, Virginia Tech	Luis Gustavo Araujo, UEFS - Universidade Estadual de Feira de Santana
Camila Aguiar, Federal University of Espirito Santo - UFES	Christopher Archibald, Mississippi State University
Sara Aguilar-Barrientos, Universidad EAFIT	Juan Arratia, Ana G. Méndez University System
Benjamin Ahn, Iowa State University	Fábio Arruda, UFPE
Tunde Akinlaja, Bowie State University	Mayra Artiles, Virginia Tech
Albatool Alamri, University of Illinois at Urbana-Champaign	Rukshan Athauda, University of Newcastle
Kamel Alboaoth, Colorado School of Mines	David Azcona, Dublin City University
Ella Albrecht, University of Goettingen	Asad Azemi, Pennsylvania State University
Melissa Aleman, James Madison University	Kyle Baboolal, University of the West Indies
Fisseha Alemayehu, West Texas A&M University	Patricia Backer, SJSU
Fayiq Al-Gahmdi, Uppsala University	Ferran Badia, University of Lleida
Hadi Ali, Arizona State University	Matthew Bahnson, North Carolina State University
Tareq Alkhalidi, The University of Newcastle	Xiaoying Bai, Tsinghua University
Emily Allen, California State University, Los Angeles	Mahesh Banavar, Clarkson University
Emily Allen, San Jose State University	Srividya Bansal, Arizona State University
Eyhab Al-Masri, University of Washington	Alexandre Barbosa, Federal University of Alagoas
Ricardo Almeida, Center of Social Support of Parents and Friends of School	Ellen Barbosa, University of São Paulo
Khalid Al-Olimat, Ohio Northern University	Waleska Barbosa, UFABC
Carl Alphonse, University at Buffalo	Andrés Barco Santa, Universidad de San Buenaventura
Moaath Alrajab, Farmingdale State College	Linda Barman, KTH, Royal Institute of Technology
Omar Alvarado, University of Azuay	David Barnes, Washington University in Saint Louis
Constanza Alvarado Mariño, Universidad El Bosque	Elise Barrella, Wake Forest University
Mohammed Alzaid, Arizona State University	Felipe Barros, UEFS - Universidade Estadual de Feira de Santana
Hector Amado-Salvatierra, Universidad Galileo	Luciana Barroso, Texas A&M University
Kashif Amanullah, University of Canterbury	Jeanette Bartley-Bryan, University of Technology
Luis Amaral, University of Minho - ALGORITMI	Prateek Basavaraj, University of Central Florida
Ana Paula Ambrosio, Federal University of Goias	Rebecca Bates, Minnesota State University, Mankato
Dinani Amorim, State University of Bahia (UNEB)	Anna Baynes, California State University, Sacramento
Ricardo Amorim, State University of Bahia (UNEB)	Miguel Bazdresch, Rochester Institute of Technology
Thalia Anagnos, San Jose State University	Phyllis Beck, Mississippi State University
David Anastasiu, San Jose State University	Luiz Begosso, Fundacao Educacional do Municipio de Assis
Robin Anderson, James Madison University	Luiz Begosso, Fundacao Educacional do Municipio de Assis - FEMA
Wilkerson Andrade, Federal University of Campina Grande	Laleh Behjat, University of Calgary
Ewa Andrejczuk, IIIA-CSIC	Scott Bell, Northwest Missouri State University

Tim Bell, University of Canterbury
 Paola Beltran, University of Cuenca
 Mounir Ben Ayed, REGIM
 Mounir Ben Ghalia, The University of Texas Rio Grande Valley
 Brianna Benedict, Purdue University
 Bedrich Benes, Purdue University
 Nagy Bengiamin, California State University Fresno
 Mohammed Ben-Idris, University of Nevada, Reno
 Bridget Benson, California Polytechnic State University
 Catherine Berdanier, Pennsylvania State University
 Edward Berger, Purdue University
 Mindy Bergman, Texas A&M University
 Shonda Bernadin, None
 Danielle Bevan, Texas A&M University
 Steven Beyerlein, University of Idaho
 Jean Luca Bez, Federal University of Rio Grande do Sul
 Gururaj Bhadri, B. V. Bhoomaraddi College of Engineering and Technology
 Sreyoshi Bhaduri, Virginia Tech
 Jyoti Bhardwaj, Edinburgh Napier University
 Sylvia Bhattacharya, Florida State University
 Ali Bicer, Texas A&M University
 Angela Bielefeldt, University of Colorado Boulder
 Steven Billis, New York Institute of Technology
 Halil Bisgin, The University of Michigan - Flint
 Susan Bitetti, Tufts Center for Engineering Education and Outreach
 Roberto Bittencourt, State University of Feira de Santana
 Manuel Blazquez, Universidad Antonio de Nebrija
 Brit-Maren Block, Leuphana University of Lueneburg
 Jorge Bobonis Trabal, University of Puerto Rico: Mayaguez Campus
 Iva Bojic, Massachusetts Institute of Technology
 Luciana Borges, Universidade Federal de Mato Grosso
 Josean Bosque Serrano, University of Puerto Rico - Mayaguez Campus
 Axel Böttcher, Munich University of Applied Sciences
 Laura Boucheron, New Mexico State University
 Todd Boudreau, Army Cyber School
 Jana Bouwma-Gearhart, Oregon State
 Karis Boyd-Sinkler, Virginia Tech
 Patricia Brackin, Rose-Hulman Institute of Technology
 Leônidas Brandão, University of São Paulo
 Farid Breidi, University of Southern Indiana
 Emma Brennan-Wydra, University of Michigan
 Andrew Brightman, Purdue University
 Elizabeth Briody, Cultural Keys, LLC
 Claudio Brito, Science and Education Research Organization
 Patrick Brito, Federal University of Alagoas
 Cory Brozina, Youngstown State University
 Eric Brubaker, Stanford University
 Samantha Brunhaver, Arizona State University
 Natalia Andrea Bueno Pizarro, Politécnico Grancolombiano
 Kevin Buffardi, California State University - Chico
 Kimberly Bui, Arizona State University
 Henriette Burns, Washington State University
 Joshua Burrridge, University of Sydney
 Karolina Burska, Masaryk University, Faculty of Informatics
 Natascha Buswell, University of California, Irvine
 Candido Cabo, New York City College of Technology/City University of New York
 Giordano Cabral, Paris 6
 Ma. Carmen Cabrera-Loayza, Universidad Técnica Particular de Loja
 Elizabeth Cadme, Universidad Técnica Particular de Loja
 Manuel Caeiro, University of Vigo
 Manuel Caeiro-Rodríguez, University of Vigo
 Sandra Cairncross, Edinburgh Napier University
 Julia Calabrese, Texas A&M University
 Benjamin Call, Utah State University
 Joseph Callenes-Sloan, California Polytechnic State University
 Livia Campos, Federal University of Campina Grande
 Edna Canedo, University of Brasilia
 Alberto Canela, University of Puerto Rico: Mayaguez Campus
 Nathan Canney, CYS Structural Engineers Inc.
 Michael Canu, Universidad El Bosque
 Mary Capraro, Texas A&M University
 Robert Capraro, Texas A&M University
 Adam Carberry, Arizona State University
 Monica Cardella, Purdue University
 Soraya Cardenas, Cascadia College
 Maria-Isabel Carnasciali, University of New Haven
 Dale Carnegie, Victoria University of Wellington
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 Venky Shankararaman, Singapore Management University
 Uday Shankar Shanthamallu, Arizona State University
 Randa Shehab, University of Oklahoma
 Maher Shehadi, Purdue University

Prateek Shekhar, University of Michigan
 Jianhua Shen, Nanjing University of Posts and Telecommunications
 Michael Sheppard, Arizona State University
 Sheri Sheppard, Stanford University
 Nathan Sherburn, Monash University
 Matthew Sherburne, University of California, Berkeley
 Ehsan Sheybani, University of South Florida
 Nate Siegel, Bucknell University
 Carles Sierra, Spanish Research Council
 Carlos Silla, Pontificia Universidade Católica do Paraná
 Francisco Silva, California State University: Northridge
 Yuri Silva, Federal University of Amazonas
 Pedro Silveira, UFES
 Simple Simon, The university of Newcastle
 James Sluss, University of Oklahoma
 Alan Smeaton, Dublin City University
 Karl Smith, University of Minnesota
 Lorenzo Smith, Sacramento State
 Michael Smith, University of Virginia
 Natasha Smith, Virginia Tech
 Sally Smith, Edinburgh Napier University
 Courtney Smith-Orr, University of North Carolina at Charlotte
 Nicola Sochacka, University of Georgia
 Sohum Sohoni, Arizona State University
 Michelle Soledad, Virginia Tech
 Yang Song, University of North Carolina Wilmington
 Yuen jien Soo, National University of Singapore
 Brandon Sorge, Indiana University-Purdue University Indianapolis
 Mauricio Souza, Federal University of Minas Gerais
 Wollace Souza, Federal University of Amazonas - UFAM
 Ana Sović, University of Zagreb, Faculty of Electrical Engineering and Computing
 Thomas Spangsberg, Aarhus University
 Madalene Spezialetti, Trinity College
 Maria Spichkova, RMIT University
 Amy Sprowles, Humboldt State University
 Thomas Staubitz, Hasso Plattner Institute for Digital Engineering
 Michael Steiner, Pedagogical University Vienna
 Christopher Stewart, The Ohio State University
 Jon Sticklen, Michigan Technological University
 Steve Stochaj, United States
 Jonathan Stolk, Olin College
 Rebecca Strachan, Northumbria University
 Alexandra Strong, Florida International University
 Anitha Sarah Subburaj, West Texas A&M University
 Vinitha Hannah Subburaj, West Texas A&M University
 Jaspal Subhlok, University of Houston
 Laura Sullivan-Green, San Jose State University
 Ramakrishnan Sundaram, Gannon University
 Valdemar Švábenský, Masaryk University
 Jessica Swenson, Tufts University
 Ville Taajamaa, University of Turku
 Mohsen Taheri, Florida International University
 Chandana Tamma, Marquette University
 Wagner Tanaka, UFABC
 Jon Tara, eGrove Education, LLC
 Yuichiro Tateiwa, Nagoya Institute of Technology
 Ashley Taylor, Virginia Tech
 Chris Taylor, Milwaukee School of Engineering
 Matti Tedre, University of Eastern Finland
 Katuscia Teixeira, University of Central Florida
 James Teresco, Siena College
 Ralf Teusner, Hasso Plattner Institute for Digital Engineering
 Julia Thompson, San Jose State University
 Veronika Thurner, Munich University of Applied Sciences
 Tian Tian, University of Central Florida
 Jin-Ning Tioh, Iowa State University
 DeLean Tolbert, University of Michigan-Dearborn
 Rebecca Torrey, Brandeis University
 Edmundo Tovar, Universidad Politécnica de Madrid
 Junko Toyoshima, Hosei University
 Deborah Trytten, University of Oklahoma
 Janet Tsai, University of Colorado Boulder
 Nolan Tsuchiya, California State Polytechnic University, Pomona
 Marissa Tsugawa-Nieves, University of Nevada, Reno
 Tayfun Tuna, University of Houston
 Benjamin Tyler, Nazarbayev University
 John Uhlar, University of Georgia
 Suleyman Uludag, The University of Michigan - Flint
 Anand Upender, Stanford University
 Joseph Urban, Arizona State University
 Leo Ureel, Michigan Technological University
 Tristan Utschig, Kennesaw State University
 Natasha Valentim, Federal University of Paraná
 Eduardo Valentin, Federal University of Amazonas
 Maartje van den Bogaard, Delft University of Technology
 Lelli Van Den Einde, University of California, San Diego
 Noe Vargas Hernandez, University of Texas Rio Grande Valley
 Rosa Vasconcelos, Minho University
 Carlos Vaz de Carvalho, Instituto Superior de Engenharia do Porto
 Katherine Vela, Texas A&M University
 Alejandro Velásquez-López, Universidad EAFIT
 Dina Verdín, Purdue University

María Jesús Verdú Pérez, Universidad de Valladolid
 Matthew Verleger, Embry-Riddle Aeronautical University
 Camilo Vieira, Purdue University
 Margot Vigeant, Bucknell University
 Marisel Villafañe-Delgado, Michigan State University
 Idalis Villanueva, Utah State University
 Vimal Viswanathan, San Jose State University
 Rachel Vitali, University of Michigan
 Tony Vo, Monash University
 Kristina von Hausswolff, Uppsala University
 Jan Vykopal, Masaryk University
 Jeremy Waisome, University of Florida
 Shin Wakitani, Hiroshima University
 Charles Wallace, Michigan Technological University
 Yoselyn Walsh, Purdue University
 Han Wan, Beihang University
 Chao Wang, Arizona State University
 Peng Wang, Tsinghua University
 Shaoping Wang, Beihang University
 Wei Wang, Northeast Normal University
 Zhaohong Wang, California State University, Chico
 Steven Weiner, Arizona State University
 Mark Weiss, Florida International University
 Maria Weurlander, KTH, Royal Institute of Technology
 Tim Wilkinson, The University of Sydney
 Gerold Willing, University of Louisville
 Jennifer Winikus, University at Buffalo
 Marco Winzker, Bonn-Rhein-Sieg University of Applied Sciences
 Elizabeth Wirtz, Purdue University
 Kim Wolfinbarger, University of Oklahoma
 W. Eric Wong, University of Texas, Dallas
 Cassandra Woodcock, University of Michigan

Wei Wu, California State University, Fresno
 Yi Wu, Penn State Erie, the Behrend College
 Ying Xie, Kennesaw State University
 Jing Xu, Huazhong University of Science and Technology
 Xiaolong Xu, Nanjing University of Posts & Telecommunications
 Guangwei Xue, Beihang University
 Nikhil Yadav, St. John's University
 Kohei Yamaguchi, Nagoya University
 Toru Yamamoto, Hiroshima University
 Jeong Yang, Texas A&M University-San Antonio
 Serge Yaskolko, CollegeBoard
 Aigerim Yessenbayeva, Nazarbayev University
 Kate Youmans, Utah State University
 Kathryn Youngblood, University of Georgia
 Xiaohong Yuan, North Carolina A & T State University
 Farshid Zabihian, California State University, Sacramento
 Luis Felipe Zapata Rivera, Florida Atlantic University
 Sina Zarrabian, SUNY Maritime College
 Daniela Zehetmeier, Technical University of Munich
 Amir Zeid, American University of Kuwait
 Zhen Zeng, Arizona State University
 Jingxiao Zhang, Chang'an University
 Mingshao Zhang, Southern Illinois University Edwardsville
 Zhou Zhang, New York City College of Technology
 Zhen Zhao, Arizona State University
 Jiaofei Zhong, California State University, East Bay
 Weiwei Zhu, University of Maryland Eastern Shore
 Weiying Zhu, Metropolitan State University of Denver
 Craig Zilles, University of Illinois at Urbana Champaign
 Tadeh Zirakian, California State University: Northridge
 Carla Zoltowski, Purdue University

SESSION CHAIRS

The conference committee would like to thank the people that have agreed to act as session chairs at the 2018 Frontiers in Education Conference. Session chairs play an important role in ensuring the conference runs smoothly and that the technical presentations are a valuable experience for both speakers and attendees. Session chairs also have served a critical role in helping with the Ben Dasher Award process.

The primary responsibilities of session chairs are to:

- Read the session's papers in advance and recommend papers for the Ben Dasher Best Paper committee.
- Contact the authors in the session and become familiar with the authors who are presenting.
- Introduce the session and make any FIE announcements that are needed.
- Briefly introduce each speaker and paper.
- Manage audience questions, and ensure that presentations begin and end within their time slots.

The program committee would like to thank the following individuals and those session chairs not listed for their efforts to help make FIE 2018 both informative and successful:

Code	Title	Start time	Room	Chair
T1C	Diversity & Inclusivity Research	2018-10-04 10:00	Willow Glen II	Eileen Cashman (Humboldt State University, United States)
T1D	2018 Thematic Track: Innovation in Software Engineering Education	2018-10-04 10:00	Willow Glen III	Chris Taylor (Milwaukee School of Engineering, United States)
T1E	Teaching & Learning Experiences in Engineering Education	2018-10-04 10:00	Guadalupe	Homero Murzi (Virginia Polytechnic Institute and State University, United States)
T1F	Infrastructure & Technologies for Engineering Education	2018-10-04 10:00	Blossom Hill I	Mounir Ben Ghalia (The University of Texas Rio Grande Valley, USA)
T1G	Game Based Learning	2018-10-04 10:00	Blossom Hill II	Qiang Hao (Western Washington University, United States)
T1H	Engineering Education Research	2018-10-04 10:00	Blossom Hill III	Jesus Alfonso Perez Gama (IEEE Life Senior - Education Society Colombia Chapter Chair, Colombia)
T1I	Innovation in Lab Experiences, Including Electrical & Communications Engineering	2018-10-04 10:00	Almaden	Mahesh Banavar (Clarkson University, United States)
T1J	WIP - Learning Analytics	2018-10-04 10:00	Convention Center 211 A	Henrique M. D. Santos (University of Minho, Portugal)
T1K	WIP - Curriculum Design	2018-10-04 10:00	Convention Center 211B	Alison Clear (EIT, New Zealand)
T2C	Diversity & Inclusivity: Women & Computing	2018-10-04 13:00	Willow Glen II	Amir Zeid (American University of Kuwait, Kuwait)
T2D	2018 Thematic Track: Innovation in Software Engineering Education	2018-10-04 13:00	Willow Glen III	Craig Zilles (University of Illinois at Urbana Champaign, USA)
T2E	Teaching & Learning Experiences in Engineering Education	2018-10-04 13:00	Guadalupe	Rukshan Athauda (University of Newcastle, Australia)
T2F	Student Beliefs, Motivation, & Persistence	2018-10-04 13:00	Blossom Hill I	Elise Barrella (Wake Forest University, United States)
T2G	Computer-Based Learning & Courseware Technologies	2018-10-04 13:00	Blossom Hill II	Christine King (University of California Irvine, United States)
T2H	Computer Science Education	2018-10-04 13:00	Blossom Hill III	Nasrin Dehbozorgi (University of North Carolina at Charlotte (UNCC), United States)
T2I	WIP - Engineering Education Research	2018-10-04 13:00	Almaden	Archie Holmes (University of Virginia, USA)
T2J	WIP - Design Education	2018-10-04 13:00	Convention Center 211 A	Tony Clear (Auckland University of Technology, New Zealand)
T3C	Primary & Secondary (pK-12) STEM Education	2018-10-04 15:30	Willow Glen II	Soraya Cardenas (Cascadia College, United States)
T3D	Teaching & Learning Experiences in Engineering Education	2018-10-04 15:30	Willow Glen III	Nathan Canney (CYS Structural Engineers Inc., United States)
T3E	Professional Skills	2018-10-04 15:30	Guadalupe	Zhaohong Wang (California State University Chico, USA)
T3F	Learning Analytics	2018-10-04 15:30	Blossom Hill I	Pramod Pathak (National College of Ireland, Ireland)

T3G	Engineering Education Research	2018-10-04 15:30	Blossom Hill II	Jillian J. Seniuk Cicek (University of Manitoba, Canada)
T3I	Curriculum Design	2018-10-04 15:30	Almaden	Reiner Martens (University of New Mexico, United States)
F1C	Teaching & Learning Experiences in Engineering Education	2018-10-05 10:00	Willow Glen II	Vinitha Hannah Subburaj (West Texas A&M University, United States)
F1D	Engineering Education Research	2018-10-05 10:00	Willow Glen III	Muztaba Fuad (Winston-Salem State University, United States)
F1E	Professional Skills	2018-10-05 10:00	Guadalupe	Richard Parker (University of Colorado at Boulder, United States)
F1F	Ed. Infrastructure & Technologies for Engineering Education	2018-10-05 10:00	Blossom Hill I	Julia E. Calabrese (Texas A&M University, United States)
F1G	Curriculum Design	2018-10-05 10:00	Blossom Hill II	David Reeping (Virginia Tech, United States)
F1H	Approaches to Student Centered Learning	2018-10-05 10:00	Blossom Hill III	Jaspal Subhlok (University of Houston, United States)
F1I	Diversity & Inclusivity - Working Together With All Abilities	2018-10-05 10:00	Almaden	Rebecca Strachan (Northumbria University, United Kingdom)
F2C	Teaching & Learning Experiences in Engineering Education	2018-10-05 13:00	Willow Glen II	Steve Chenoweth (Rose-Hulman Institute of Technology, United States)
F2D	Innovation & Creativity	2018-10-05 13:00	Willow Glen III	Asad Azemi (Pennsylvania State University, United States)
F2E	Engineering Education Research	2018-10-05 13:00	Guadalupe	Nikhil Yadav (St. John's University, United States)
F2F	Student Beliefs, Motivation, & Persistence	2018-10-05 13:00	Blossom Hill I	Ahmed Ibrahim (Johns Hopkins University, United States)
F2G	Learning Analytics	2018-10-05 13:00	Blossom Hill II	Cory Brozina (Youngstown State University, United States)
F2H	Approaches to Student Centered Learning	2018-10-05 13:00	Blossom Hill III	Thomas Staubit (Hasso Plattner Institute for Digital Engineering, Germany)
F2K	WIP - Professional Skills & Design Education	2018-10-05 13:00	Convention Center 211B	Stephen Frezza (Gannon University, USA)
F3C	Pathways to Engineering Degrees	2018-10-05 16:00	Willow Glen II	Joel Alejandro Mejia (University of San Diego, United States)
F3D	Student As Learner	2018-10-05 16:00	Willow Glen III	Mohsen Dorodchi (University of North Carolina, Charlotte, United States)
F3E	Open Educational Resources & Practices	2018-10-05 16:00	Guadalupe	Ralf Teusner (Hasso Plattner Institute for Digital Engineering, Germany)
F3F	Design Education	2018-10-05 16:00	Blossom Hill I	Jason Clark (Auburn University, USA)
F3G	Discipline Specific Issues: Computer Science	2018-10-05 16:00	Blossom Hill II	Jeong Yang (Texas A&M University-San Antonio, United States)
F3H	Professional Skills	2018-10-05 16:00	Blossom Hill III	William Schell (Montana State University, United States)
F3I	WIP - Laboratory Experiences (On-Campus & Remote)	2018-10-05 16:00	Almaden	PK Imbrie (University of Cincinnati, United States)
S1C	Teaching & Learning Experiences in Engineering Education	2018-10-06 08:30	Willow Glen II	Benjamin Ahn (Iowa State University, United States)
S1D	Assessment & Evaluation Strategies/Approaches	2018-10-06 08:30	Willow Glen III	Thalia Anagnos (San Jose State University, United States)
S1E	WIP - Service Learning & Student Centered Learning	2018-10-06 08:30	Guadalupe	Alison Clear (EIT, New Zealand)
S1F	Distance, Open & Flexible Education	2018-10-06 08:30	Blossom Hill I	Manuel Castro (Spanish University for Distance Education - UNED, Spain)
S1G	Miscellaneous Topics	2018-10-06 08:30	Blossom Hill II	Luciana Debs (Purdue University, United States)
S1H	WIP - Diversity & Inclusion Initiatives	2018-10-06 08:30	Blossom Hill III	Jinny Rhee (San Jose State University, United States)
S2C	Assessment & Evaluation Strategies/Approaches	2018-10-06 10:30	Willow Glen II	Yang Song (University of North Carolina Wilmington, United States)
S2D	Teaching & Learning Experiences in Engineering Education	2018-10-06 10:30	Willow Glen III	Milica Markovic (California State University Sacramento, United States)
S2E	Curriculum Design & PK-12	2018-10-06 10:30	Guadalupe	Farshid Zabihian (California State University, Sacramento, United States)
S2F	Approaches to Student Centered Learning	2018-10-06 10:30	Blossom Hill I	Divya Nalla (Nalla Malla Reddy Engineering College, India)
S3D	Philosophy of Learning & Mobile Applications	2018-10-06 13:00	Willow Glen III	Willie L. Brown (University of Maryland Eastern Shore, United States)
S3E	Professional Skills & Ethics	2018-10-06 13:00	Guadalupe	Rebecca Reck (Kettering University, United States)

S4C	Learning Analytics & Distance Education	2018-10-06 15:00	Willow Glen II	Sangit Sasidhar (National University of Singapore, Singapore)
S4D	Laboratory Experiences & Computer Technologies	2018-10-06 15:00	Willow Glen III	Thomas Fuhrmann (OTH Regensburg, Germany)
S4E	Student as Learner	2018-10-06 15:00	Guadalupe	Jon Sticklen (Michigan Technological University, United States)
S4F	Robotics & Supporting New Engineers	2018-10-06 15:00	Blossom Hill I	Quintana Clark (Purdue University, USA)
S4I	WIP - Assessment & Evaluation Strategies/Approaches	2018-10-06 15:00	Almaden	Elizabeth Eschenbach (Humboldt State University, USA)

SESSION GRID – WEDNESDAY, OCTOBER 3RD

Time		Guadalupe	Almaden	Willow Glen II	Willow Glen III
1:00 PM - 4:00 PM	Evidence Based Teaching: Principles and Practice	Software Engineering Department Heads Workshop	The student experience in an integrative, project-based course on quantitative engineering analysis	How to Prepare Competitive NSF Engineering Education Proposals	Writing an Engineering Education Proposal for the National Science Foundation: An Interactive Workshop
5:00 PM - 8:00 PM		Making MIDFIELD More Accessible: A Workshop for R Beginners	Tools for the 3C's of Entrepreneurially Minded Learning (EML)	Remote Laboratory Exercises and Tutorials for Spectrum-Agile Radio Frequency Systems	Integrating Systems Approaches into Education Using Active Case Studies

SESSION GRID – THURSDAY, OCTOBER 4TH

Time	Convention Center 211D	Convention Center 211C	Willow Glen II	Willow Glen III	Guadalupe	Blossom Hill I	Blossom Hill II	Blossom Hill III	Almaden	Convention Center 211A	Convention Center 211B
10:00 AM – 12:00 PM	T1A: Special Session - Research on Engineering Practice: Catalyzing a Scholarly Community	T1B: Panel - Building on the Past, Creating the Future: Where Are the New Frontiers?	T1C: Diversity & Inclusivity Research	T1D: 2018 Thematic Track: Innovation in Software Engineering Education	T1E: Teaching & Learning Experiences in Engineering Education	T1F: Infrastructure & Technologies for Engineering Education	T1G: Game Based Learning	T1H: Engineering Education Research	T1I: Innovation in Lab Experiences, Including Electrical & Communications Engineering	T1J: WIP - Learning Analytics	T1K: WIP - Curriculum Design
1:00 PM – 3:00 PM	T2A: Special Session - Using Magic in Computing Education and Outreach	T2B: Special Session - Playing the Role of Teamwork Facilitator: Using Role Play to Demonstrate Strategies to Facilitate Teamwork	T2C: Diversity & Inclusivity: Women & Computing	T2D: 2018 Thematic Track: Innovation in Software Engineering Education	T2E: Teaching & Learning Experiences in Engineering Education	T2F: Student Beliefs, Motivation, & Persistence	T2G: Computer-Based Learning & Courseware Technologies	T2H: Computer Science Education	T2I: WIP - Engineering Education Research	T2J: WIP - Design Education	T2K: WIP - Approaches to Student Centered Learning
3:30 PM – 5:30 PM	T3A: Special Session - Alternate-Verse FIE: An Engineering Education Conference Session from a World Where the Majority of Engineers are Deaf	T3B: Special Session - Innovative Computing Curricula and the CC2020 Project	T3C: Primary & Secondary (pK-12) STEM Education	T3D: Teaching & Learning Experiences in Engineering Education	T3E: Professional Skills	T3F: Learning Analytics	T3G: Engineering Education Research	T3H: Panel - Student Self-Perceptions Regarding Their First Position After Graduation: What Are They and How Do We Help?	T3I: Curriculum Design	T3J: WIP - First & Second Year programs	T3K: Ed. WIP - Distance, Open & Flexible Education & Approaches to Interdisciplinary Education

SESSION GRID – FRIDAY, OCTOBER 5TH

Time	Convention Center 211D	Convention Center 211C	Willow Glen II	Willow Glen III	Guadalupe	Blossom Hill I	Blossom Hill II	Blossom Hill III	Almaden	Convention Center 211A	Convention Center 211B
10:00 AM – 12:00 PM	F1A: Special Session - Put Me in Coach! Developing a Design Playbook for Instructors to Help Engineering Students Do Design	F1B: Special Session - Meet the Engineering Education Pioneers: Panel & Roundtable	F1C: Teaching & Learning Experiences in Engineering Education	F1D: Engineering Education Research	F1E: Professional Skills	F1F: Ed. Infrastructure & Technologies for Engineering Education	F1G: Curriculum Design	F1H: Approaches to Student Centered Learning	F1I: Diversity & Inclusivity - Working Together With All Abilities	F1J: WIP - Student Beliefs, Motivation, & Persistence	F1K: WIP - Computer-Based Learning & Courseware Technologies
1:00 PM – 3:00 PM	F2A: Special Session - See Something, Say Something: Redirecting Stories for Organizational Change	F2B: Special Session - Developing an Effective Propagation Plan for Educational Innovations	F2C: Teaching & Learning Experiences in Engineering Education	F2D: Innovation & Creativity	F2E: Engineering Education Research	F2F: Student Beliefs, Motivation, & Persistence	F2G: Learning Analytics	F2H: Approaches to Student Centered Learning		F2J: WIP - Teaching That Embraces Diversity & Inclusivity	F2K: WIP - Professional Skills & Design Education
4:00 PM – 6:00 PM	F3A: Special Session - Equality vs. Equity: Using Assets and Cultivating Students	F3B: Panel - Integrating Requirements Engineering Education into Core Engineering Disciplines	F3C: Pathways to Engineering Degrees	F3D: Student As Learner	F3E: Open Educational Resources & Practices	F3F: Design Education	F3G: Discipline Specific Issues: Computer Science	F3H: Professional Skills	F3I: WIP - Laboratory Experiences (On-Campus & Remote)	F3J: WIP - Diversity & Inclusion - PK12 & Pathways	F3K: WIP - Engineering Education Research, Assessment & Evaluation

SESSION GRID – SATURDAY, OCTOBER 6TH

Time	Ballroom Salon 1	Ballroom Salon 2	Willow Glen II	Willow Glen III	Guadalupe	Blossom Hill I	Blossom Hill II	Blossom Hill III	Almaden
8:30 AM – 10:10 PM	S1A: Special Session - Uncovering the Hidden Factors That Could Compromise Equitable and Effective Engineering Education	S1B: Panel - Panel on Service-Learning Practitioners Navigating Partnerships, Research, and Funding	S1C: Teaching & Learning Experiences in Engineering Education	S1D: Assessment & Evaluation Strategies/Approaches	S1E: WIP - Service Learning & Student Centered Learning	S1F: Distance, Open & Flexible Education	S1G: Miscellaneous Topics		S1I: WIP - Innovative & Creative Approaches to Engineering Education
10:30 AM – 12:10 PM	S2A: Special Session - Innovative Thinking: Encouraging Creative Diversity with Video Scenarios	S2B: Special Session - Applying Innovative Frameworks to Foster Inclusive Learning in Engineering Students	S2C: Assessment & Evaluation Strategies/Approaches	S2D: Teaching & Learning Experiences in Engineering Education	S2E: Curriculum Design & PK-12	S2F: Approaches to Student Centered Learning	S2G: WIP - Innovations in Software Engineering Education	S2H: WIP - Faculty Development & Philosophy	S2I: WIP - Students Beliefs, Motivations & Persistence
1:00 PM – 2:40 PM		S3B: Special Session - Rethinking Engineering Leadership		S3D: Philosophy of Learning & Mobile Applications	S3E: Professional Skills & Ethics		S3G: WIP - PK12 STEM Outreach	S3H: WIP - Teaching & Learning Experiences in Engineering Education	S3I: WIP - Engineering Education Research
3:00 PM – 4:40 PM	S4A: Special Session - Taking a Deep Dive: Qualitative Methods and Identity	S4B: Special Session - Learning and Practice of Engineering Fundamental Principles for Long-Term Retention	S4C: Learning Analytics & Distance Education	S4D: Laboratory Experiences & Computer Technologies	S4E: Student as Learner	S4F: Robotics & Supporting New Engineers		S4H: WIP - Teaching & Learning Experiences in Engineering Education	S4I: WIP - Assessment & Evaluation Strategies/Approaches

Technical Sessions Table of Contents

Wednesday, October 3rd

1A: Software Engineering Department Heads Workshop**1:00 - 4:00****Room:** Guadalupe

SOFTWARE ENGINEERING DEPARTMENT HEADS WORKSHOP

Stephen Frezza (Gannon University, USA)

Chris Taylor (Milwaukee School of Engineering, USA)

1B: The student experience in an integrative, project-based course on quantitative engineering analysis**1:00 - 4:00****Room:** Almaden

THE STUDENT EXPERIENCE IN AN INTEGRATIVE, PROJECT-BASED COURSE ON QUANTITATIVE ENGINEERING ANALYSIS

Siddhantan Govindasamy (F. W. Olin College of Engineering, USA)

Rebecca Christianson (F. W. Olin College of Engineering, USA)

John Geddes (Olin College of Engineering, USA)

1C: How to Prepare Competitive NSF Engineering Education Proposals**1:00 - 4:00****Room:** Willow Glen II

HOW TO PREPARE COMPETITIVE NSF ENGINEERING EDUCATION PROPOSALS

Abiodun Ilumoka (National Science Foundation, USA)

Julie Martin (National Science Foundation, USA)

Paige Smith (National Science Foundation, USA)

Alexandra Medina-Borja (National Science Foundation, USA)

Heather Watson (National Science Foundation, USA)

1D: Writing an Engineering Education Proposal for the National Science Foundation: An Interactive Workshop**1:00 - 4:00****Room:** Willow Glen III

WRITING AN ENGINEERING EDUCATION PROPOSAL FOR THE NATIONAL SCIENCE FOUNDATION: AN INTERACTIVE WORKSHOP

Julie Martin (National Science Foundation, USA)

Paige Smith (National Science Foundation, USA)

Abiodun Ilumoka (National Science Foundation, USA)

Heather Watson (National Science Foundation, USA)

Alexandra Medina-Borja (National Science Foundation, USA)

2A: Making MIDFIELD More Accessible: A Workshop for R Beginners

5:00 - 8:00

Room: Guadalupe

MAKING MIDFIELD MORE ACCESSIBLE: A WORKSHOP FOR R BEGINNERS

Richard Layton (Rose-Hulman Institute of Technology, USA)

Susan M. Lord (University of San Diego, USA)

Matthew W Ohland (Purdue University, USA)

Marisa K. Orr (Clemson University, USA)

Russell Long (Purdue University, USA)

Nichole Ramirez (Purdue University, USA)

2B: Tools for the 3C's of Entrepreneurially Minded Learning (EML)

5:00 - 8:00

Room: Almaden

TOOLS FOR THE 3CS OF ENTREPRENEURIAL MINDING LEARNING (EML)

Heath J. LeBlanc (Ohio Northern University, USA)

Kundan Nepal (University of St. Thomas, USA)

Greg Mowry (University of St. Thomas, USA)

R Cheville (Bucknell University, USA)

2C: Remote Laboratory Exercises and Tutorials for Spectrum-Agile Radio Frequency Systems

5:00 - 8:00

Room: Willow Glen II

REMOTE LABORATORY EXERCISES AND TUTORIALS FOR SPECTRUM-AGILE RADIO FREQUENCY SYSTEMS

Carl B. Dietrich (Virginia Tech & Wireless @ Virginia Tech, USA)

Richard Goff (Virginia Tech, USA)

Dimitri Dessources (Virginia Tech, USA)

Xavier Gomez (Virginia Tech, USA)

Joshua Garcia Sheridan (Virginia Tech, USA)

Nicholas Polys (Virginia Tech, USA)

R. Michael Beuhrer (Virginia Tech, USA)

Seungmo Kim (Georgia Southern University, USA)

Vuk Marojevic (Mississippi State University, USA)

Christian Hearn (Weber State University, USA)

2D: Integrating Systems Approaches into Education Using Active Case Studies

5:00 - 8:00

Room: Willow Glen III

INTEGRATING SYSTEMS APPROACHES INTO EDUCATION USING ACTIVE CASE STUDIES

Reid Bailey (University of Virginia, USA)

William Guilford (University of Virginia, USA)

Shawn D. Russell (University of Virginia, USA)

Thursday, October 4th

TIA: Special Session - Research on Engineering Practice: Catalyzing a Scholarly Community

10:00 – 12:00

Room: Convention Center 211 D

RESEARCH ON ENGINEERING PRACTICE: CATALYZING A SCHOLARLY COMMUNITY

Samantha Brunhaver (Arizona State University, USA)

Brent Jesiek (Purdue University, USA)

Alexandra C Strong (Florida International University, USA)

Russell Korte (The George Washington University, USA)

Reed Stevens (Northwestern University, USA)

TIB: Panel - Building on the Past, Creating the Future: Where Are the New Frontiers?

10:00 – 12:00

Room: Convention Center 211C

PANEL: BUILDING ON THE PAST, CREATING THE FUTURE WHERE ARE THE NEW FRONTIERS?

Larry Richards (University of Virginia, USA)

Karl Smith (University of Minnesota & Purdue University, USA)

Larry Shuman (University of Pittsburgh, USA)

TIC: Diversity & Inclusivity Research

10:00 – 12:00

Room: Willow Glen II

Chair: Eileen Cashman (Humboldt State University, USA)

TOWARDS MAKING THE INVISIBLE ENGINEER VISIBLE: A REVIEW OF LOW-SOCIOECONOMIC STUDENTS' BARRIERS EXPERIENCING COLLEGE STEM EDUCATION

Justin C Major (Purdue University, USA)

Allison Godwin (Purdue University, USA)

UNDERSTANDING HOW FIRST-GENERATION COLLEGE STUDENTS' OUT-OF-SCHOOL EXPERIENCES, PHYSICS AND STEM IDENTITIES RELATE TO ENGINEERING POSSIBLE SELVES AND CERTAINTY OF CAREER PATH

Dina Verdín (Purdue University, USA)

Allison Godwin (Purdue University, USA)

Gerhard Sonnert (Harvard-Smithsonian Center for Astrophysics, USA)

Phillip M. Sadler (Harvard-Smithsonian Center for Astrophysics, USA)

I DON'T FIT THE STEREOTYPE, BUT I SEE MYSELF AS AN ENGINEER: FIRST-YEAR ENGINEERING STUDENTS' ATTITUDES AND BELIEFS ABOUT THEIR ENGINEERING IDENTITIES

Brianna Benedict (Purdue University, USA)

Dina Verdín (Purdue University, USA)

Rachel Baker (Purdue University, USA)

Allison Godwin (Purdue University, USA)

Aaron Thielmeyer (Purdue University, USA)

THE EFFECT OF DIVERSITY ON FEELINGS OF BELONGINGNESS FOR NEW ENGINEERING STUDENTS

Nelson Pearson (University of Nevada, Reno, USA)

Allison Godwin (Purdue University, USA)

Adam Kirn (University of Nevada, Reno, USA)

COMPUTER PROGRAMMING WORKSHOPS WITH PLAYFUL ENVIRONMENTS FOR MIDDLE SCHOOL GIRLS

Suenny M Souza (State University of Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

TID: 2018 Thematic Track: Innovation in Software Engineering Education

10:00 – 12:00

Room: Willow Glen III

Chair: Chris Taylor (Milwaukee School of Engineering, USA)

FEASIBILITY AND ACCEPTABILITY OF PEER ASSESSMENT FOR CODING ASSIGNMENTS IN LARGE LECTURE BASED PROGRAMMING ENGINEERING COURSES

Christine King (University of California Irvine, USA)

SITUATION AWARENESS-ORIENTED CYBERSECURITY EDUCATION

Jun Dai (California State University, Sacramento, USA)

BUG HIDE-AND-SEEK: AN EDUCATIONAL GAME FOR INVESTIGATING VERIFICATION ACCURACY IN SOFTWARE TESTS

Kevin Buffardi (California State University - Chico, USA)

Pedro Valdivia (California State University, Chico, USA)

TOWARD INCREASING COLLABORATION AWARENESS IN SOFTWARE ENGINEERING TEAMS

Shuddha Chowdhury (University of Tulsa, USA)

Charles Walter (University of Tulsa, USA)

Rose Gamble (University of Tulsa, USA)

A REFLECTION ON DIVERSITY AND INCLUSIVITY EFFORTS IN A SOFTWARE ENGINEERING PROGRAM

David Janzen (California Polytechnic State University, San Luis Obispo, USA)

Motahareh Bahrami Zanjani (California Polytechnic State University, USA)

Bruno da Silva (California Polytechnic State University, USA)

Davide Falessi (California Polytechnic State University, USA)

TEXT CLASSIFICATION OF STUDENT PREDICATE USE FOR AUTOMATIC MISCONCEPTION CATEGORIZATION

Brian Landron (University of Puerto Rico Mayaguez Campus, USA)

Nayda G. Santiago (University of Puerto Rico, Mayaguez, USA)

Aidsa I. Santiago-Román (University of Puerto Rico at Mayaguez, Puerto Rico)

Jose Vega-Riveros (University of Puerto Rico, Puerto Rico)

TIE: Teaching & Learning Experiences in Engineering Education

10:00 – 12:00

Room: Guadalupe

Chair: Homero Murzi (Virginia Polytechnique Institute and State University, USA)

CHANGES IN ENGINEERING TECHNOLOGY STUDENTS PERCEPTION FROM FRESHMAN TO SENIOR YEAR

Anne M Lucietto (Purdue University, USA)

Eddy Efendy (Purdue University, USA)

Mark French (Purdue University, USA)

APPLYING PRODUCT MANUFACTURING TECHNIQUES TO TEACH DATA ANALYTICS IN INDUSTRIAL ENGINEERING: A PROJECT BASED LEARNING EXPERIENCE

Faisal Aqlan (Penn State Behrend, USA)
Joshua Nwokeji (Gannon University, USA)

STUDENT AND FACULTY PERSPECTIVES ON THE EFFECTIVENESS OF AN INTERDISCIPLINARY GRADUATE ENGINEERING PROGRAM

Courtney Lavadia (Texas A&M University, USA)
Chi-Ning Chang (Texas A&M University, USA)
Debra Fowler (Texas A&M University, USA)

UNDERSTANDING STUDENTS' ONLINE REVIEWS TO IMPROVE COLLEGE EXPERIENCE AND GRADUATION RATES OF STEM PROGRAMS AT THE LARGEST POST-SECONDARY INSTITUTION: A LEARNER-CENTERED STUDY

Killian Muollo (University of Central Florida, USA)
Prateek Basavaraj (University of Central Florida, USA)
Ivan Garibay (University of Central Florida, USA)

APPLIED LEARNING WITHIN THERMODYNAMICS: A PERSPECTIVE ON ENERGY CONCEPTS

Cole Maynard (Purdue University, USA)
Brittany Newell (Purdue University, USA)
Anne M Lucietto (Purdue University, USA)
William Hutzel (Purdue University, USA)
Jose Garcia-Bravo (Purdue University, USA)

TIF: Infrastructure & Technologies for Engineering Education

10:00 – 12:00

Room: Blossom Hill I

Chair: Mounir Ben Ghalia (The University of Texas Rio Grande Valley, USA)

A PHYSICALLY EMBODIED ROBOT TEACHER (PERT) AS A FACILITATOR FOR PEER LEARNING

Bosede I Edwards (Imagineering Institute, Malaysia & City, University of London, United Kingdom (Great Britain))
Idris Muniru (Imagineering Institute & Universiti Teknologi Malaysia, Malaysia)
Nosiba Khougali (Imagineering Institute & Universiti Teknologi Malaysia, Malaysia)
Adrian D Cheok (Imagineering Institute, Malaysia & City, University of London, United Kingdom (Great Britain))
Rui Prada (INESC-ID and Instituto Superior Técnico, Universidade de Lisboa, Portugal)

DIFFERENCES IN GRADE OUTCOMES BETWEEN ICT ENGINEERING AND COMPUTER SCIENCE DEGREES

Dale A Carnegie (Victoria University of Wellington, New Zealand)
Craig Watterson (Victoria University of Wellington, New Zealand)
Morgan A Atkins (Victoria University of Wellington, New Zealand)
James Eldridge (Victoria University of Wellington, New Zealand)

DESIGN OF A TRANSPARENT HYDRAULIC EDUCATIONAL DEMONSTRATOR UTILIZING ELECTRICALLY CONTROLLED VALVES

Keith Pate (University of Southern Indiana, USA)
Joseph Marx (University of Southern Indiana, USA)
Farid Breidi (University of Southern Indiana, USA)

EXPLORING THE RELEVANCE AND ENERGY USAGE IMPLICATIONS OF FIXED COMPUTER LABS IN ELECTRICAL ENGINEERING EDUCATION

Joseph Callenes-Sloan (California Polytechnic State University, USA)
Paul Hummel (California Polytechnic State University, USA)
Andrew Danowitz (California Polytechnic State University)
Bridget Benson (California Polytechnic State University, USA)

DEVELOPMENT OF A DISTRIBUTED PAIR EXERCISE SYSTEM FOR NETWORK CONSTRUCTION WITH A DIALOGUE SUPPORT FUNCTION

Yuichiro Tateiwa (Nagoya Institute of Technology, Japan)
Yoshiaki Ooka (Nagoya Institute of Technology, Japan)
Yonghwan Kim (Nagoya Institute of Technology, Japan)
Yoshiaki Katayama (Nagoya Institute of Technology, Japan)

EXPLORING ALIGNMENT BETWEEN ENGINEERING STUDENTS' JOB PLANS AND POST-GRADUATION OUTCOMES

Lenard Rüde (Stanford University & Technical University of Munich, USA)
Angela Harris (Stanford, USA)
Shannon Gilmartin (Stanford University, USA)
Sheri Sheppard (Stanford University, USA)

TIG: Game Based Learning

10:00 – 12:00

Room: Blossom Hill II

Chair: Qiang Hao (Western Washington University, USA)

DIGITAL BADGES FOR MOTIVATING INTRODUCTORY PROGRAMMERS: QUALITATIVE FINDINGS FROM FOCUS GROUPS

Lisa Facey-Shaw (University of Technology, Jamaica)
Marcus Specht (Open University of the Netherlands, The Netherlands)
Jeanette Bartley-Bryan (University of Technology, Jamaica)

UNDERGRADUATE ENGINEERING EDUCATION AND THE GAME-BASED LEARNING METHODS TO PROMOTE A CULTURE OF LABORATORY SAFETY

Willie L. Brown, Jr (University of Maryland Eastern Shore, USA)
I Dabipi (University of Maryland Eastern Shore, USA)
Lei Zhang (University of Maryland Eastern Shore, USA)
Weiwei Zhu (University of Maryland Eastern Shore, USA)
Dinesh Sharma (University of Maryland Eastern Shore, USA)
Ellis Lawrence (Elizabeth City State University, USA)
Yuanwei Jin (University of Maryland Eastern Shore, USA)

AUGMENTING EXPERIENTIAL LEARNING WITH A GAME-BASED STUDENT RESPONSE SYSTEM

Sangit Sasidhar (National University of Singapore, Singapore)
Arrchana Muruganatham (National University of Singapore, Singapore)
Wee-Seng Soh (National University of Singapore, Singapore)
Yuen jien Soo (National University of Singapore, Singapore)
Colin Tan (National University of Singapore, Singapore)
Ravi Suppiah (National University of Singapore, Singapore)

INVESTIGATING THE IMPACT OF AN IMMERSIVE COMPUTER-BASED MATH GAME ON THE LEARNING PROCESS OF UNDERGRADUATE STUDENTS

Cristina H Muntean (National College of Ireland, Ireland)
Nour El Mawas (National College of Ireland, Ireland)
Michael Bradford (National College of Ireland, Ireland)
Pramod Pathak (National College of Ireland, Ireland)

GAMES AND GAMIFICATION IN SOFTWARE ENGINEERING EDUCATION: A SURVEY WITH EDUCATORS

Pedro Campolina (Federal University of Minas Gerais (UFMG), Brazil)
Mauricio Souza (Federal University of Minas Gerais, Brazil)
Eduardo Figueiredo (Federal University of Minas Gerais (UFMG), Brazil)

SOL Y AGUA: A GAME-BASED LEARNING PLATFORM TO ENGAGE MIDDLE-SCHOOL STUDENTS IN STEM

Monika Akbar (University of Texas at El Paso, USA)
Elsa Villa (The University of Texas at El Paso, USA)
Ann Gates (University of Texas at El Paso, USA)
Mary Roy (University of Texas at El Paso, USA)
Lucia Dura (University of Texas at El Paso, USA)
Angel Ortega (University of Texas at El Paso, USA)
Jesus Tellez (University of Texas at El Paso, USA)
Claudia Santiago (University of Texas at El Paso, USA)

TIH: Engineering Education Research

10:00 – 12:00

Room: Blossom Hill III

Chair: Jesus Alfonso Perez Gama (IEEE Life Senior - Education Society Colombia Chapter Chair & Fundacion de Educacion Superior San Jose, Colombia)

AUTONOMOUS VEHICLE CONTROL: TEACHING TOOL AND SIMULATION

Marie O'Brien (University of British Columbia, Canada)
Kashish Gupta (University of British Columbia, Canada)
Bara Emran (University of British Columbia, Canada)
Homayoun Najjaran (University of British Columbia, Canada)

TOWARDS EDUCATION ALTERNATIVES TO TEACHING AND LEARNING OF PROGRAMMING: A COURSE EXPERIENCE USING OPEN HARDWARE TOOLS

Jonathan Alvarez (Universidad Minuto de Dios, Colombia)

"PARTICIPATING UNDER THE INFLUENCE": HOW ROLE MODELS AFFECT THE COMPUTING DISCIPLINE, PROFESSION, AND STUDENT POPULATION

Virginia Grande (Uppsala University, Sweden)
Anne-Kathrin Peters (Uppsala University, Sweden)
Mats Daniels (Uppsala University, Sweden)
Matti Tedre (University of Eastern Finland, Finland)

EVALUATION OF AN INSTRUMENT TO IDENTIFY FACTORS THAT IMPACT THE MOTIVATION AND ENGAGEMENT OF UNDERGRADUATE STUDENTS IN COMPUTING

Pablo Schoeffel (Federal University of Santa Catarina & University of Santa Catarina State, Brazil)
Raul Wazlawick (Federal University of Santa Catarina, Brazil)
Vinicius Faria Culmant Ramos (Federal University of Santa Catarina, Brazil)
Adilson Vahldick (University of Coimbra & Santa Catarina State University, Portugal)
Marcelo de Souza (Universidade do Estado de Santa Catarina, Brazil)

GOING BEYOND GENDER BALANCE: UNDERSTANDING THE INTERSECTION OF GENDER AND THE ENGINEERING EXPERIENCES OF ALUMNI

Matthew Brucker (Olin College of Engineering, USA)
Emma Price (Olin College of Engineering, USA)
David Freeman (Olin College of Engineering, USA)
Jeremy M Goodman (Olin College of Engineering, USA)
Yevgeniya V Zastavker (F. W. Olin College of Engineering, USA)

LOST FOR WORDS! DEFINING THE LANGUAGE AROUND ROLE MODELS IN ENGINEERING

Virginia Grande (Uppsala University, Sweden)

TII: Innovation in Lab Experiences, Including Electrical & Communications Engineering

10:00 – 12:00

Room: Almaden

Chair: Mahesh Banavar (Clarkson University, USA)

MEASURING HARDWARE IMPAIRMENTS WITH SOFTWARE-DEFINED RADIOS

Vuk Marojevic (Mississippi State University, USA)
Aditya V Padaki (Virginia Tech)
Raghunandan M Rao (Virginia Tech & Wireless@Virginia Tech, USA)
Jeffrey Reed (Virginia Tech, USA)

A SMALL NETWORK SIMULATOR FOR LEARNING ROUTING FUNDAMENTALS

Miguel Bazdresch (Rochester Institute of Technology, USA)

PERSONALIZED LEARNING IN A VIRTUAL HANDS-ON LAB PLATFORM FOR COMPUTER SCIENCE EDUCATION

Yuli Deng (Arizona State University, USA)
Duo Lu (Arizona State University, USA)
Chun-Jen Chung (Arizona State University, USA)
Dijiang Huang (Arizona State University, USA)
Zhen Zeng (Arizona State University, USA)

TURTLEMCU: A PLATFORM FOR TEACHING A HOLISTIC VIEW INTO EMBEDDED COMPUTER ARCHITECTURE AND SECURITY

Nathaniel Graff (California Polytechnic State University San Luis Obispo, USA)

A SOFTWARE RADIO CHALLENGE ACCELERATING EDUCATION AND INNOVATION IN WIRELESS COMMUNICATIONS

Marta González-Rodríguez (Universitat Politècnica de Catalunya (UPC), Spain)

Antoni Gelonch (Polytechnic University of Catalonia, Spain)

Vuk Marojevic (Dept. Electrical and Computer Engineering, Mississippi State University, Mississippi State, MS)

CONNECTING THEORY TO PRACTICE IN AN ONLINE INTRODUCTORY SIGNALS AND SYSTEMS COURSE

Chao Wang (Arizona State University, USA)

Stephen Phillips (Arizona State University, USA)

TIJ: WIP - Learning Analytics

10:00 – 12:00

Room: Convention Center 211 A

Chair: Henrique M. D. Santos (University of Minho, Portugal)

VISUAL ANALYTIC WORKFLOW TO UNDERSTAND STUDENTS' PERFORMANCE IN COMPUTER SCIENCE COURSES

Ravali Gampa (California State University, Sacramento, USA)

Anna Baynes (California State University, Sacramento, USA)

EVALUATION OF ACADEMIC PERFORMANCE BASED ON LEARNING ANALYTICS AND ONTOLOGY: A SYSTEMATIC MAPPING STUDY

Laécio Araújo Costa (Federal Institute of Education, Science and Technology of Sertão Pernambucano - Campus Petrolina, Brazil)

Laís Salvador (Federal University of Bahia, Brazil)

Ricardo José Rocha Amorim (State University of Bahia (UNEB) & Faculty of Applied and Social Sciences of Petrolina (FACAPE), Brazil)

FEATURE EXTRACTION AND CLASSIFICATION OF LEARNERS USING NEURAL NETWORKS

Tomohiro Hayashida (Hiroshima University, Japan)

Toru Yamamoto (Hiroshima University, Japan)

Shin Wakitani (Hiroshima University, Japan)

Ichiro Nishizaki (Hiroshima University, Japan)

Shinya Sekizaki (Hiroshima University, Japan)

Yusuke Tanimoto (Hiroshima University, Japan)

REAL-TIME METACOGNITION FEEDBACK FOR INTRODUCTORY PROGRAMMING USING MACHINE LEARNING

Phyllis Beck (Mississippi State University, USA)

Mahnas Jean Mohammadi-Aragh (Mississippi State University, USA)

Christopher Archibald (Mississippi State University, USA)

Bryan Jones (Mississippi State University, USA)

Amy Barton (Mississippi State University, USA)

IMPROVING STUDENT LEARNING PERFORMANCE IN A VIRTUAL HANDS-ON LAB SYSTEM IN CYBERSECURITY EDUCATION

Zhen Zeng (Arizona State University, USA)

Yuli Deng (Arizona State University, USA)

IHan Hsiao (Arizona State University, USA)

Dijiang Huang (Arizona State University, USA)

Chun-Jen Chung (Arizona State University, USA)

MACHINE LEARNING BASED DIRECTED SELF STUDY IN CALCULUS WITH CALCTUTOR

Kristian Kime (Brandeis & Telepathy Labs, USA)
Timothy Hickey (Brandeis University, USA)
Rebecca Torrey (Brandeis University, USA)

EXTENDING ACADEMIC ANALYTICS TO ENGINEERING EDUCATION

Anthony M DeRocchis (New Mexico State University, USA)
Ashley Michalenko (New Mexico State University, USA)
Laura Boucheron (New Mexico State University, USA)
Steve Stochaj (United States, USA)

EXAMINATION THE IMPACT OF VARIOUS FACTORS ON STUDENT SUCCESS IN AN INTRODUCTION TO CIRCUIT ANALYSIS COURSE

David Parent (San Jose State University, USA)

THE DEVELOPMENT OF A FRAMEWORK FOR CURRICULUM INTEGRATION

Michele H Miller (Campbell University, USA)
Anastasia Rynearson (Campbell University, USA)

TOKEN-BASED APPROACH FOR REAL-TIME PLAGIARISM DETECTION IN DIGITAL DESIGNS

Han Wan (Beihang University, P.R. China)
Kangxu Liu (Beihang University, P.R. China)
Xiaopeng Gao (Beihang University, P.R. China)

TIK: WIP - Curriculum Design

10:00 – 12:00

Room: Convention Center 211B

Chair: Alison Clear (EIT, New Zealand)

UN-MUDDLING IMPLEMENTATION FROM DESIGN VIA ALGORITHMIC DESIGN PATTERNS

Carolyn Rosiene (University of Hartford, USA)
Joel Rosiene (Eastern Connecticut State University, USA)

CO-CREATIVE ENGINEERING CURRICULUM DESIGN - CASE EAST AFRICA

Ville Taaajamaa (University of Turku, Finland)
Antero Järvi (University of Turku, Finland)
Samuli Laato (University of Turku, Finland)
Johannes Holvitie (University of Turku, Finland)

A FOUR-YEAR AUTOMATION AND INTEGRATION CONCENTRATION FOR MANUFACTURING ENGINEERING

Jeffrey L. Newcomer (Western Washington University, USA)

A HANDS-ON, SYSTEM-LEVEL ANALOG ELECTRONICS COURSE

Meghdad Hajimorad (California State University - Chico, USA)
Tony Pirc (Analog Devices, Inc., USA)

EXAMINING THE EFFECT OF A GAME-LIKE PRACTICE TOOL ON THE QUALITY OF STUDENT PEER EVALUATIONS

Daniel M Ferguson (Purdue University, USA & EDI GROUP Canada, Canada)
Elizabeth Shu (Purdue University, USA)
Yuchen Cao (Purdue University, USA)
Matthew W Ohland (Purdue University, USA)

"WE'VE ALWAYS DONE IT THAT WAY," AN EXPLORATION OF ELECTRICAL AND COMPUTER ENGINEERING FACULTY CURRICULAR DECISIONS

David Reeping (Virginia Tech, USA)
Lisa D. McNair (Virginia Tech, USA)
Liesl Baum (Virginia Tech, USA)
Matthew Wisnioski (Virginia Tech, USA)
Annie Patrick (Virginia Tech, USA)
Thomas L. Martin (Virginia Tech, USA)
Luke Lester (Virginia Tech, USA)
Benjamin Knapp (Virginia Tech, USA)

REDESIGNING A COMPUTER SCIENCE CAPSTONE COURSE WITH MICRO-CREDENTIALS

Yang Song (University of North Carolina Wilmington, USA)

AN INNOVATIVE MODULAR APPROACH OF TEACHING CYBER SECURITY ACROSS COMPUTING CURRICULA

Akhtar Lodgher (Texas A&M, San Antonio, USA)
Jeong Yang (Texas A&M University-San Antonio, USA)
Ummugul Bulut (Texas A&M University - San Antonio, USA)

ACADEMIC SYNERGY THROUGH INTEGRATED MECHATRONIC PROJECTS

Alejandro Velásquez-López (Universidad EAFIT, Colombia)
Alberto Rodriguez (Universidad EAFIT, Colombia)

A CURRICULUM DESIGN ON ELECTRONIC DEVICES DESIGN LABORATORY

Shabnam Ghotbi (Purdue University, USA)
Seyedali Ghahari (Purdue University, USA)

T2A: Special Session - Using Magic in Computing Education and Outreach

1:00 - 3:00

Room: Convention Center 211 D

USING MAGIC IN COMPUTING EDUCATION AND OUTREACH

Ronald I. Greenberg (Loyola University Chicago, USA)
Dale F. Reed (University of Illinois at Chicago, USA)

T2B: Special Session - Playing the Role of Teamwork Facilitator: Using Role Play to Demonstrate Strategies to Facilitate Teamwork

1:00 - 3:00

Room: Convention Center 211C

PLAYING THE ROLE OF TEAMWORK FACILITATOR: USING ROLE PLAY TO DEMONSTRATE STRATEGIES TO FACILITATE TEAMWORK

Stephanie L Cutler (Penn State, USA)
Alexa Kottmeyer (Penn State, USA)
James Pembridge (Embry-Riddle Aeronautical University, USA)

T2C: Diversity & Inclusivity: Women & Computing

1:00 - 3:00

Room: Willow Glen II

Chair: Amir Zeid (American University of Kuwait, Kuwait)

EXPLORING WOMEN'S MOTIVATIONS TO STUDY COMPUTER SCIENCE

Sally Smith (Edinburgh Napier University, United Kingdom (Great Britain))

Emilia Sobolewska (Edinburgh Napier University, United Kingdom (Great Britain))

Jyoti Bhardwaj (Edinburgh Napier University, United Kingdom (Great Britain))

Khristin Fabian (Edinburgh Napier University, United Kingdom (Great Britain))

FEMALE AND FEMALE UNDERREPRESENTED ENGINEERING TECHNOLOGY STUDENTS: BACKGROUND, AND INFLUENCES

Anne M Lucietto (Purdue University, USA)

Lesley Berhan (University of Toledo, USA)

GIRLS, MUSIC AND COMPUTER SCIENCE

Carlos Silla (Pontificia Universidade Católica do Paraná, Brazil)

André Luiz Przybysz (Federal University of Technology of Parana (UTFPR), Brazil)

Adriano Rivolli (Federal University of Technology of Parana (UTFPR), Brazil)

Thayna Gimenez (Federal University of Technology of Parana (UTFPR), Brazil)

Caroline Barroso (Federal University of Technology of Parana (UTFPR), Brazil)

Jéssika Pereira (Federal University of Technology of Parana (UTFPR), Brazil)

SOCIOLOGY A GAME CHANGER IN COMPUTER SCIENCE PROGRAMS

Soraya Cardenas (Cascadia College & Wild Noodle Corp., USA)

REFLECTING ON THE IMPACT OF A COURSE ON INCLUSIVE STRATEGIES FOR TEACHING COMPUTER SCIENCE

Alark Joshi (University of San Francisco, USA)

Amit Jain (Boise State University, USA)

T2D: 2018 Thematic Track: Innovation in Software Engineering Education

1:00 - 3:00

Room: Willow Glen III

Chair: Craig Zilles (University of Illinois at Urbana Champaign, USA)

WHAT SOFTWARE ENGINEERING "BEST PRACTICES" ARE WE TEACHING STUDENTS - A SYSTEMATIC LITERATURE REVIEW

Maíra Marques Samary (Universidad de Chile, Chile)

Javier Robledo (Universidad de Chile, Chile)

WHAT LANGUAGE? - THE CHOICE OF AN INTRODUCTORY PROGRAMMING LANGUAGE

Onyeka Ezenwoye (Augusta University, USA)

IMPROVING STUDENT'S LEARNING AND COOPERATION SKILLS USING CODING DOJOS (IN THE WILD!)

Edna Dias Canedo, Sra (University of Brasilia & UNB, Brazil)

Rodrigo de Almeida (Furg, Brazil)

Caio de Oliveira (Furg, Brazil)

Luis Henrique Amaral (Furg, Brazil)

Henrique Faria (University of Brasília (UnB), Brazil)

ELECTRICKS: PRE-COLLEGE HANDS-ON ACTIVITIES IN ELECTROMECHANICS

Theresa Odun-Ayo (Missouri University of Science and Technology, USA)
Anna Buckthorpe (Missouri S and T, USA)
Mariessa Crow (Missouri S and T, USA)

WHY THERE IS STILL FEW WOMEN IN ENGINEERING? A PERSPECTIVE FROM FEMALE STUDENTS AND PROFESSORS IN AN ENGINEERING CAMPUS

Edna Dias Canedo, Sra (University of Brasilia & UNB, Brazil)
Giovanni Santos (University of Brasilia, Brazil)
Fabiana Mendes (Universidade de Brasília, Brazil)
Elaine Venson (Universidade de Brasília, Brazil)
Rejane Costa Figueiredo (Universidade de Brasília, Brazil)

CAN STUDENTS HELP THEMSELVES? AN INVESTIGATION OF STUDENTS' FEEDBACK ON THE QUALITY OF THE SOURCE CODE

José Raul Andrade (Federal University of Campina Grande, Brazil)
João Monteiro (Universidade Federal de Campina Grande, Brazil)

T2E: Teaching & Learning Experiences in Engineering Education

1:00 - 3:00

Room: Guadalupe

Chair: Rukshan Athauda (University of Newcastle, Australia)

THE IMPACT OF INTEGRATED TUTORIALS IN SUPPORTING FIRST YEAR STUDENT PROGRESSION

Howard Lukefahr (Victoria University of Wellington, New Zealand)
Dale A Carnegie (Victoria University of Wellington, New Zealand)
Craig Watterson (Victoria University of Wellington, New Zealand)

BLOOM'S TAXONOMY BASED APPROACH TO LEARN BASIC PROGRAMMING LOOPS

Anabela Gomes (Polytechnic Institute of Coimbra & University of Coimbra, Portugal)
Fernanda Brito Correia (Polytechnic Institute of Coimbra / IEETA Aveiro University & Institute of Electronics and Informatics Engineering of Aveiro, Portugal)

METHOD MATTERS: REFLECTIONS FROM STUDENT-MADE SYSTEMATIC MAPPING STUDIES

Ville Isomottonen (University of Jyväskylä, Finland)
Sari Rynnänen (University of Jyväskylä, Finland)
Niko Mononen (University of Jyväskylä, Finland)

INCORPORATING A MODEL-BASED APPROACH IN AN INTRODUCTORY ELECTRONICS COURSE USING SIMSCAPE

Diego Aponte-Roa (Universidad del Turabo, Puerto Rico)
Mark A Lau (Universidad del Turabo, Puerto Rico)

BEHIND THE SCENES: COURSE SYLLABI EXPLAINED

Natascha T Buswell (University of California, Irvine, USA)

STUDENT MOTIVATION TOWARDS LEARNING TO PROGRAM

Anabela Gomes (Polytechnic Institute of Coimbra & University of Coimbra, Portugal)
Maria José Marcelino (University of Coimbra, Portugal)
Wei Ke (Lecturer, Macao)
Chan-Tong Lam (Macao Polytechnic Institute, Macao)
António José Mendes (University of Coimbra & Center for Informatics and Systems - University of Coimbra, Portugal)

T2F: Student Beliefs, Motivation, & Persistence

1:00 - 3:00

Room: Blossom Hill I

Chair: Elise Barrella (Wake Forest University, USA)

TOWARDS A CATALOG OF GESTURES FOR M-LEARNING APPLICATIONS FOR THE TEACHING OF PROGRAMMING

Anderson Marcolino (University of São Paulo, Brazil)

Alef Santos (University of São Paulo, Brazil)

Marco Schaefer (University of São Paulo, Brazil)

Ellen Barbosa (University of São Paulo, Brazil)

THE DISSERTATION INSTITUTE: EVALUATION OF A DOCTORAL STUDENT WRITING WORKSHOP

Juan Cruz (Virginia Tech, USA & Unive, Colombia)

Mayra S. Artiles (Virginia Tech, USA)

Gwen Lee-Thomas (Quality Measures LLC & Old Dominion University, USA)

Holly Matusovich (Virginia Tech, USA)

Stephanie Adams (Old Dominion University, USA)

EXAMINING THE VALUE OF MENTORING IN YOUTH ENGINEERING PROGRAMS: WHAT MOTIVATES A MENTOR TO MENTOR?

Racheida S Lewis (Virginia Tech, USA)

Cherie Edwards (Virginia Tech, USA)

Walter C. Lee (Virginia Tech, USA)

David Knight (Virginia Tech, USA)

Kayla R. Maxey (Purdue University, USA)

Jessica Rush Leeker (Purdue University, USA)

Monica E Cardella (Purdue University, USA)

Morgan Hynes (Purdue University, USA)

SHIFT IN MID-YEAR ENGINEERING STUDENTS' PERCEPTIONS OF THEIR FUTURE CAREERS OVER TIME

Catherine McGough (Clemson University, USA)

Marisa K. Orr (Clemson University, USA)

Adam Kirn (University of Nevada, Reno, USA)

Lisa Benson (Clemson University & Clemson University, USA)

AN INITIAL ANALYSIS OF THE RESEARCH ON INTEREST AND INTRODUCTORY PROGRAMMING

Pasqueline Dantas Scaico (UFPB, Brazil)

Alexandre Scaico (UFPB, Brazil)

Ruy De Queiroz (UFPE, Brazil)

GENDERED INFLUENCES ON PEER ASSESSMENTS OF TEAM BEHAVIOR

Emily Miller (University of Virginia, USA)

Reid Bailey (University of Virginia, USA)

VISUO-HAPTIC SIMULATIONS TO IMPROVE STUDENTS' UNDERSTANDING OF FRICTION CONCEPTS

Luis Neri (Tecnologico de Monterrey & Escuela de Educacion, Humanidades y Ciencias Sociales (EEHCS), Mexico)

Alejandra J. Magana (Purdue University, USA)

Julieta Noguez (Tecnologico de Monterrey & Escuela de Ingeniería y Ciencias, Mexico)

Yoselyn Walsh (Purdue University, USA & Costa Rican Institute of Technology, Costa Rica)

Andres Gonzalez-Nucamendi (Tecnologico de Monterrey, Escuela de Diseño Ingeniería y Arquitectura, Mexico)

Victor Robledo-Rella (Escuela de Ingeniería y Ciencias, Tecnológico de Monterrey, Mexico)

Bedrich Benes (Purdue University, USA)

DESIGNING A VISUOHAPTIC SIMULATION TO PROMOTE GRAPHICAL REPRESENTATIONS AND CONCEPTUAL UNDERSTANDING OF STRUCTURAL ANALYSIS

Yoselyn Walsh (Purdue University, USA & Costa Rican Institute of Technology, Costa Rica)

Alejandra J. Magana (Purdue University, USA)

Jenny Patricia Quintana (Purdue University, USA)

Vojtech Krs (Purdue University, USA)

Genisson Silva Coutinho (Purdue University, USA & Instituto Federal de Educacao, Ciencia e Tecnologia da Bahia, Brazil)

Edward Berger (Purdue University, USA)

Ida Ngambeki (Purdue University, USA)

Eddy Efendy (Purdue University, USA)

Bedrich Benes (Purdue University, USA)

DESIGNING VISUALLY INTERACTIVE LEARNING MODULES TO PROMOTE STUDENTS' CRITICAL THINKING IN MATHEMATICS

Linda Vu (Kennesaw State University, USA)

Ying Xie (Kennesaw State University, USA)

Meng Han (Kennesaw State University, USA)

CLOUD-BASED LABS AND PROGRAMMING ASSIGNMENTS IN NETWORKING AND CYBERSECURITY COURSES

Weiying Zhu (Metropolitan State University of Denver, USA)

ADDRESSING TECHNICAL AND ORGANIZATIONAL PITFALLS OF USING REMOTE LABORATORIES IN A COMMERCIAL ENVIRONMENT

Pablo Orduña (Deusto Institute of Technology - DeustoTech, University of Deusto & LabsLand, Spain)

Luis Rodriguez-Gil (LabsLand, Spain)

Ignacio Angulo (University of Deusto, Spain)

Gabriel Martinez (University of Deusto, Spain)

Aitor Villar (LabsLand, Spain)

Unai Hernández-Jayo (University of Deusto, Spain)

Paola Buitrago (UNAD, Colombia)

Raúl Camacho (UNAD, Colombia)

Paola Marmolejo (UNAD, Colombia)

Javier Garcia-Zubia (University of Deusto, Spain)

T2H: Computer Science Education

1:00 - 3:00

Room: Blossom Hill III

Chair: Nasrin Dehbozorgi (University of North Carolina at Charlotte (UNCC), USA)

PREDICTING STUDENT SUCCESS IN COMPUTER SCIENCE - A REPRODUCIBILITY STUDY

Amruth N. Kumar (Ramapo College of New Jersey, USA)

EXPERIENCE WITH ACTIVE LEARNING AND FORMATIVE FEEDBACK FOR A SQL UNIT

Christine F Reilly (Skidmore College, USA)

THE ADOPTION OF OPEN SOURCE PROJECTS IN ENGINEERING EDUCATION: A REAL SOFTWARE DEVELOPMENT EXPERIENCE

Debora M. C. Nascimento (Federal University of Sergipe & Federal University of Bahia, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

Christina von Flach Garcia Chavez (Federal University of Bahia (UFBA), Brazil)

INCREASING MOTIVATION OF CSI NON-MAJORS THROUGH AN APPROACH CONTEXTUALIZED BY GAMES AND MEDIA

Bianca L Santana (State University of Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

DELINEATING FACTORS THAT INFLUENCE STUDENT PERFORMANCE IN A DATA STRUCTURES COURSE

Halil Bisgin (The University of Michigan - Flint, USA)

Murali Mani (University of Michigan Flint, USA)

Suleyman Uludag (The University of Michigan - Flint, USA)

PROMOTING STUDENTS' SOCIAL INTERACTIONS RESULTS IN AN IMPROVEMENT IN PERFORMANCE, CLASS ATTENDANCE AND RETENTION IN FIRST YEAR COMPUTING COURSES

Candido Cabo (New York City College of Technology/City University of New York, USA)

Ashwin Satyanarayana (New York City College of Technology & CUNY, USA)

T2I: WIP - Engineering Education Research

1:00 – 3:00

Room: Almaden

Chair: Archie Holmes (University of Virginia, USA)

WORK-IN-PROGRESS: WHAT RECENT ARTIFICIAL INTELLIGENCE BREAKTHROUGHS IN THE GAME OF GO MEAN FOR HUMAN LEARNING AND ENGINEERING EDUCATION

Yuetong Lin (Embry-Riddle Aeronautical University Worldwide, USA)

Chris Janke (Embry-Riddle Aeronautical University, USA)

A. Mehran Shahhosseini (Indiana State University, USA)

SOLDIER TO STUDENT: EXPLORING THE UNIQUE SKILLS AND CHALLENGES VETERANS WITH DISABILITIES BRING TO COLLEGE

Michael S. Sheppard (Arizona State University, USA)

Nadia Kellam (Arizona State University, USA)

Samantha Brunhaver (Arizona State University, USA)

STARTING PROBLEMS IN MECHANICAL ENGINEERING

Hao Li (MIT, USA)

Anette Hosoi (MIT, USA)

TURNED FROM KNOWLEDGE-BASED TO INNOVATION-BASED: INTRODUCTION OF EMERGING ENGINEERING EDUCATION IN CHINA

Ying Li (Beijing University of Aeronautics and Astronautics, P.R. China)
Zhang Jiong (Beijing University of Aero. & Astro, P.R. China)
Tianyi Qi (Beihang University, P.R. China)
Shicheng Yu (Beihang University, P.R. China)

MAKERSPACES VS ENGINEERING SHOPS: INITIAL UNDERGRADUATE STUDENT IMPRESSIONS

Kate Youmans (Utah State University, USA)
Idalis Villanueva (Utah State University, USA)
Louis Nadelson (University of Central Arkansas, USA)
Jana Bouwma-Gearhart (Oregon State, USA)
Adam Lenz (Oregon State, USA)
Sarah Lanci (Colorado Mesa University, USA)

WIP: FACTORS AFFECTING GRADUATE STEM STUDENT ATTRITION RATES

Derrick Satterfield (University of Nevada, Reno, USA)
Marissa Tsugawa-Nieves (University of Nevada, Reno, USA)
Adam Kirn (University of Nevada, Reno, USA)

WIP: INFLUENCE OF LABORATORY GROUP MAKEUP ON RECOGNITION AND IDENTITY DEVELOPMENT IN THE ENGINEERING GRADUATE STUDENT POPULATION

Heather Perkins (North Carolina State University, USA)
Matthew Bahnson (North Carolina State University, USA)
Marissa Tsugawa-Nieves (University of Nevada, Reno, USA)
Adam Kirn (University of Nevada, Reno, USA)
Cheryl Cass (North Carolina State University, USA)

INFLUENCE OF RESEARCH EXPERIENCE ON RECOGNITION AND IDENTITY DEVELOPMENT IN THE ENGINEERING GRADUATE STUDENT POPULATION

Matthew Bahnson (North Carolina State University, USA)
Heather Perkins (North Carolina State University, USA)
Marissa Tsugawa-Nieves (University of Nevada, Reno, USA)
Adam Kirn (University of Nevada, Reno, USA)
Cheryl Cass (North Carolina State University, USA)

INTEGRATING ELECTRICAL MACHINES AND ANTENNAS VIA SCALAR AND VECTOR MAGNETIC POTENTIALS; AN APPROACH FOR ENHANCING UNDERGRADUATE EM EDUCATION

Seemein Shayesteh (IUPUI, USA)
Maryam Rahmani (IUPUI, USA)
Lauren Christopher (IUPUI & IUPUI, USA)
Maher Rizkalla (Indiana University-Purdue University Indianapolis, USA)

PARTNERSHIPS TO CREATE SYNERGISTIC STEM COMMUNITIES

Ramakrishnan Sundaram (Gannon University, USA)

T2J: WIP - Design Education

1:00 – 3:00

Room: Convention Center 211 A

Chair: Tony Clear (Auckland University of Technology, New Zealand)

ON THE IMPACT OF STEM SUSTAINED ACTIONS ON THE FUTURE OF YOUNG STUDENTS

Francisco Fernández de Vega (University of Extremadura, Spain)

Francisco Chavez (Universidad de Extremadura, Spain)

M^a Concepción García Román (Fundación Universidad Sociedad Uex, Spain)

IMPROVING STEM'S CALCULUS EDUCATION USING CROSS-COUNTRIES BEST TEACHING PRACTICES

Serge Yaskolko (CollegeBoard, USA)

Genady Ya. Grabarnik (St. John's University, USA)

Luiza Kim-Tyan (MIS&S, Russia)

EDUCATING CHANGEMAKERS: CROSS DISCIPLINARY COLLABORATION BETWEEN A SCHOOL OF ENGINEERING AND A SCHOOL OF PEACE

Gordon Hoople (University of San Diego, USA)

Austin Choi-Fitzpatrick (University of San Diego, USA)

Elizabeth Reddy (University of San Diego, USA)

TEACHING SPATIAL VISUALIZATION: A CONTROLLED TRIAL OF A TOUCHSCREEN APP IMPLEMENTED AS HOMEWORK

Gordon Hoople (University of San Diego, USA)

Elizabeth Cowan (eGrove Education, LLC, USA)

Lelli Van Den Einde (University of California, San Diego & eGrove Education, USA)

Jon Tara (eGrove Education, LLC, USA)

Nathan Delson (University of California at San Diego & eGrove Education, USA)

A BLENDED LEARNING APPROACH TO ENHANCE STUDENT LEARNING FOR AN INTRODUCTORY POWER SYSTEMS COURSE

Sangit Sasidhar (National University of Singapore, Singapore)

Sanjib Sahoo (National University of Singapore, Singapore)

ASSESSING LEARNING BEHAVIOR AND COGNITIVE BIAS FROM WEB LOGS

Christopher Stewart (The Ohio State University, USA)

Rashmi Jayathirtha Rao (The Ohio State University, USA)

INTEGRATING HARDWARE PROTOTYPING PLATFORMS INTO THE CLASSROOM

Eyhab Al-Masri (University of Washington & UW, USA)

TEENAGERS NEED TO AWARE THEIR PERSONAL RESPONSIBILITY IN INTERNET SOCIETY: OUR APPROACH IN INFORMATION ENTRANCE COURSE

Yuanxin Ouyang (Beihang University, P.R. China)

Shanbo Cui (Beihang University, P.R. China)

Shiyuan Xiao (Beihang University, P.R. China)

Yue Qu (Beihang University, P.R. China)

Wenge Rong (Beihang University, P.R. China)

Zhang Xiong (Beihang University, P.R. China)

EFFECTIVELY TRANSFORMING STUDENTS THROUGH FIRST YEAR ENGINEERING STUDENT EXPERIENCES

Noe Vargas Hernandez (University of Texas Rio Grande Valley, USA)
Arturo Fuentes (The University of Texas Rio Grande Valley, USA)
Stephen Crown (UTRGV, USA)

STUDENT-MENTOR VIEWS ON INQUIRY-BASED LEARNING: A CHALLENGE FOR DESIGNING EFFECTIVE INQUIRY-BASED CLASSES WITH MENTORS

Neelam Prabhu Gaunkar (Iowa State University, USA)
Mani Mina (Iowa State University, USA)

T2K: WIP - Approaches to Student Centered Learning

1:00 – 3:00

Room: Convention Center 211B

Chair: Arnold Pears (KTH Royal Institute of Technology, Sweden)

WORK IN PROGRESS: ASSESSING THE DEVELOPMENT OF STUDENT OUTCOMES IN PROJECT-BASED LEARNING ENGINEERING DESIGN AND ENTREPRENEURSHIP COURSES

Prateek Shekhar (University of Michigan, USA)
Cassandra Woodcock (University of Michigan, USA)
Aileen Huang-Saad (University of Michigan & University of Michigan, USA)

EFFECTS OF IMMEDIATE FEEDBACK USING ICT IN A CSI COURSE THAT IMPLEMENTS MASTERY LEARNING

Yolanda Martinez-Trevino (Tecnologico de Monterrey, Mexico)
María Raquel Landa (Tecnológico de Monterrey, Mexico)

WHAT BELONGS IN A COMPUTER SCIENCE SYLLABUS?

Mitchell Duncan (Kettering University, USA)
James K. Huggins (Kettering University, USA)

COMBINING CHALLENGE-BASED LEARNING AND DESIGN THINKING TO TEACH MOBILE APP DEVELOPMENT

Kiev Gama (Federal University of Pernambuco, Brazil)
Fernando Castor (CIn/UFPE, Brazil)
Pedro Alessio (CAC/UFPE, Brazil)
Andre Neves (Universidade Federal de Pernambuco, Brazil)
Cristiano Araujo (UFPE, Brazil)
Rafael Formiga (Apple Developer Academy - UFPE, Brazil)
Francisco Soares-Neto (Apple Developer Academy - UFPE, Brazil)
Higor Oliveira (CIn/UFPE, Brazil)

ENGAGING CSI STUDENTS WITH PROJECT BASED LEARNING

Michael Cassens (University of Montana, USA)
Yolanda J Reimer (University of Montana, USA)

ANALYZING THE EFFECTS OF A FLIPPED CLASSROOM PEDAGOGY ON FRESHMEN AND SOPHOMORE STEM COURSES

Laura Sullivan-Green (San Jose State University, USA)
Patricia Backer (SJSU, USA)
Andrew H. Feinstein (University of Northern Colorado, USA)

A NIFTY INTER-CLASS PEER LEARNING MODEL FOR ENHANCING STUDENT-CENTERED COMPUTING EDUCATION, AND FOR GENERATING STUDENT INTERESTS IN CO-CURRICULAR PROFESSIONAL DEVELOPMENT

Ankur Chattopadhyay (University of Wisconsin - Green Bay (UWGB), USA)
Bobby Chindaphone (University of Wisconsin-Green Bay, USA)

SUSTAINABLE EDUCATIONAL INNOVATION THROUGH ENGAGED PEDAGOGY AND ORGANIZATIONAL CHANGE

Tonya Frevert (University of North Carolina at Charlotte, USA)
Audrey Rorrer (University of North Carolina at Charlotte & College of Computing and Informatics, USA)
Daniel Davis (University of North Carolina at Charlotte, USA)
Celine Latulipe (University of North Carolina at Charlotte, USA)
Mary Lou Maher (University of North Carolina at Charlotte, USA)
Bojan Cukic (University of North Carolina at Charlotte, USA)
Larry Mays (University of North Carolina at Charlotte, USA)
Steven Rogelberg (University of North Carolina at Charlotte, USA)

SMART BLOCKCHAIN BADGES FOR DATA SCIENCE EDUCATION

Alexander Mikroyannidis (The Open University, United Kingdom (Great Britain))
John Domingue (The Open University, United Kingdom (Great Britain))
Michelle Bachler (The Open University, United Kingdom (Great Britain))
Kevin Quick (The Open University, United Kingdom (Great Britain))

SUPERVISING MULTIDISCIPLINARY FINAL-YEAR ENGINEERING STUDENTS TO DEVELOP CUBESATS WITH AN INNOVATIVE PROJECT MANAGEMENT METHOD

Sha Luo (National University of Singapore, Singapore)
Ai Poh Loh (National University of Singapore, Singapore)
Soh Eng Keng (Instructor, Singapore)

T3A: Special Session - Alternate-Universe FIE: An Engineering Education Conference Session from a World Where the Majority of Engineers are Deaf

3:30 - 5:30

Room: Convention Center 211 D

ALTERNATE-UNIVERSE FIE: AN ENGINEERING EDUCATION CONFERENCE SESSION FROM A WORLD WHERE THE MAJORITY OF ENGINEERS ARE DEAF

Mel Chua (Rochester Institute of Technology & National Technical Institute for the Deaf, USA)
Ian Smith (Project Alloy, USA)
Samir Jain (Abbott Structural Heart, USA)

T3B: Special Session - Innovative Computing Curricula and the CC2020 Project

3:30 - 5:30

Room: Convention Center 211C

INNOVATIVE COMPUTING CURRICULA AND THE CC2020 PROJECT

John Impagliazzo (Hofstra University, USA)
Alison Clear (EIT, New Zealand)
Stephen Frezza (Gannon University, USA)

T3C: Primary & Secondary (pK-12) STEM Education

3:30 - 5:30

Room: Willow Glen II

Chair: Soraya Cardenas (Cascadia College & Wild Noodle Corp., USA)

SPATIAL ABILITIES IN EARLY CHILDHOOD

Vyshnavi Malathi Ramesh (Independent Reseacher, USA)

USING THE EXPERIENTIAL LEARNING MODEL TO INTRODUCE K-12 TEACHERS TO CONTROL SYSTEMS ENGINEERING

Mounir Ben Ghalia (The University of Texas Rio Grande Valley, USA)

Miguel Ramirez (Edinburg Independent School District, USA)

Gordon Moore (Sharyland Independent School District, USA)

A MIDDLE-SCHOOL CASE STUDY: PILOTING A NOVEL VISUAL PRIVACY THEMED MODULE FOR TEACHING SOCIETAL AND HUMAN SECURITY TOPICS USING SOCIAL MEDIA APPS

Ankur Chattopadhyay (University of Wisconsin - Green Bay (UWGB), USA)

David Christian (University of Wisconsin - Green Bay (UWGB), USA)

Adam Ulman (University of Wisconsin - Green Bay (UWGB), USA)

Caleb Sawyer (University of Wisconsin - Green Bay (UWGB), USA)

DESIGNING FOR ALL: EXPLORING GENDER DIVERSITY AND ENGAGEMENT WITH DIGITAL EDUCATIONAL GAMES BY YOUNG PEOPLE

Opeyemi Dele-Ajayi (Northumbria University, United Kingdom (Great Britain))

Rebecca Strachan (Northumbria University, United Kingdom (Great Britain))

Alison Pickard (Northumbria University, United Kingdom (Great Britain))

Jonathan Sanderson (Northumbria University, United Kingdom (Great Britain))

A MAPPING STUDY OF COMPUTATIONAL THINKING AND PROGRAMMING IN BRAZILIAN K-12 EDUCATION

Priscila S C Santos (State University of Feira de Santana, Brazil)

Luis Gustavo J Araujo (UEFS - Universidade Estadual de Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

CONTEXTUALIZED SPIRAL LEARNING OF COMPUTER PROGRAMMING IN BRAZILIAN VOCATIONAL SECONDARY EDUCATION

Luis Gustavo J Araujo (UEFS - Universidade Estadual de Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

David M B Santos (State University of Feira de Santana, Brazil)

T3D: Teaching & Learning Experiences in Engineering Education

3:30 - 5:30

Room: Willow Glen III

Chair: Nathan Canney (CYS Structural Engineers Inc., USA)

INVESTIGATING THE BENEFITS OF INTRODUCING PROCESS-ORIENTED LIFE CYCLE DEVELOPMENT MODELS TO IMPROVE STUDENTS APPRECIATION FOR AGILE METHODS

Omar Ochoa (Embry-Riddle Aeronautical University, USA)

Miralda Rodney (Embry-Riddle Aeronautical University, USA)

Massood Towhidnejad (Embry-Riddle Aeronautical University, USA)

Salamah Salamah (UTEP, USA)

AUGMENTING THE TEACHER'S PERSPECTIVE ON PROGRAMMING STUDENT'S PERFORMANCE VIA PERMANENT MONITORING

Nuno Gil Fonseca (College of Technology and Management of Oliveira do Hospital, Polytechnic Institute of Coimbra & Center for Informatics and Systems of the University of Coimbra, Portugal)
Luis Macedo (CISUC, Portugal)
Maria José Marcelino (University of Coimbra, Portugal)
António José Mendes (University of Coimbra & Center for Informatics and Systems - University of Coimbra, Portugal)

A HACKATHON METHODOLOGY FOR UNDERGRADUATE COURSE PROJECTS

Kiev Gama (Federal University of Pernambuco, Brazil)
Breno Gonçalves (UFPE, Brazil)
Filipe C A Calegario (UFPE, Brazil)
Andre Neves (Universidade Federal de Pernambuco, Brazil)
Pedro Alessio (CAC/UFPE, Brazil)

A SPIRAL BILINGUAL-PROGRAMMING APPROACH FOR TEACHING CONCURRENCY AND PARALLELISM

Dhananjai M. Rao (Miami University, USA)

MIDOAA: INCLUSIVE MODEL FOR DEVELOPMENT OF ACCESSIBLE LEARNING OBJECTS

Andreza Mourão (Federal University of Amazonas, Brazil)
José Francisco Magalhães, Netto (Federal University of Amazonas, Brazil)

FRAMEWORK FOR TEACHING EVALUATION

Divya Nalla (Nalla Malla Reddy Engineering College, India)

T3E: Professional Skills

3:30 - 5:30

Room: Guadalupe

Chair: Zhaohong Wang (California State University Chico, USA)

SERVICE-ORIENTED BUSINESS DESIGN FOR IT STUDENTS

Blagovesta Pirelli (École Polytechnique Fédérale de Lausanne, Switzerland)
Alain Wegmann (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland)

THE GAP BETWEEN ENGINEERING SCHOOLS AND INDUSTRY: A STRATEGIC INITIATIVE

Kamel Alboaouh (Colorado School of Mines, USA)

MINI-CASE STUDY PEDAGOGY: EXPERIENCE FROM A TECHNICAL COURSE IN AN INFORMATION SYSTEMS PROGRAM

Venky Shankaraman (Singapore Management University & School of Information Systems, Singapore)
Swapna Gottipati (Singapore Management University, Singapore)
Alan Megargel (Singapore Management University, Singapore)

AUTHENTIC KNOWLEDGE, LEARNING OUTCOMES, AND PROFESSIONAL IDENTITY: A MIXED-METHODS STUDY OF A SUCCESSFUL ENGINEERING COURSE

Claudia Interiano (University of North Carolina-Charlotte, USA)
Peter T. Tkacik (University of North Carolina-Charlotte, USA)
Jerry Dahlberg (University of North Carolina-Charlotte, USA)
Jae Hoon Lim (University of North Carolina at Charlotte, USA)

WHO I AM BECOMING, NOW: TOWARD A COMPUTER SCIENCE PROFESSIONAL IDENTITY INSTRUMENT

Richard Parker (University of Colorado at Boulder, USA)

INVESTIGATING THE INTERSECTION OF CAREER ASPIRATIONS AND ENGINEERING BELIEFS IN FIRST YEAR ENGINEERING STUDENTS

Jacqueline A Rohde (Purdue University, USA)

Dina Verdín (Purdue University, USA)

Jacqueline Doyle (Florida International University, USA)

Allison Godwin (Purdue University, USA)

Adam Kirn (University of Nevada, Reno, USA)

Lisa Benson (Clemson University & Clemson University, USA)

Geoff Potvin (Florida International University, USA)

T3F: Learning Analytics

3:30 - 5:30

Room: Blossom Hill I

Chair: Pramod Pathak (National College of Ireland, Ireland)

AUTOMATIC IDENTIFICATION OF INEFFECTIVE ONLINE STUDENT QUESTIONS IN COMPUTING EDUCATION

Qiang Hao (Western Washington University, USA)

April Galyardt (Carnegie Mellon University, USA)

Bradley Barnes (University of Georgia, USA)

Robert Branch (University of Georgia, USA)

Ewan Wright (University of Hong Kong, USA)

GENERATIVE MODEL OF KNOWLEDGE GAPS DISCOVERY FROM MULTIPLE CHOICE TESTS

Dymitr Ruta (Etisalat British Telecom Innovation Centre, United Arab Emirates)

Yousef Abosalem (Khalifa University of Science and Technology, United Arab Emirates)

Ling Cen (EBTIC, Khalifa University, United Arab Emirates)

SUFAT - AN ANALYTICS TOOL FOR GAINING INSIGHTS FROM STUDENT FEEDBACK COMMENTS

Siddhant Pyasi (Singapore Management University, Singapore)

Swapna Gottipati (Singapore Management University, Singapore)

Venky Shankararaman (Singapore Management University & School of Information Systems, Singapore)

FROM EXPLAINING HOW RANDOM FOREST CLASSIFIER PREDICTS LEARNING OF SOFTWARE ENGINEERING TEAMWORK TO GUIDANCE FOR EDUCATORS

Dragutin Petkovic (San Francisco State University, USA)

Rainer Todtenhoefer (Fulda University of Applied Sciences, Germany)

Sabiha Barlasakar (San Francisco State University, USA)

Jizhou Yang (San Francisco State University, USA)

STUDENT REFLECTION TO IMPROVE ACCESS TO STANDARDS-BASED GRADING FEEDBACK

Heidi A. Diefes-Dux (Purdue University, USA)

Laura Cruz (Purdue University, USA)

THE INTEGRATION OF DATA ANALYTICS TO ASSESS MULTI-COMPLEX ENVIRONMENTS OF RESEARCH TO PRACTICES IN ENGINEERING EDUCATION

Willie L. Brown, Jr (University of Maryland Eastern Shore, USA)
I Dabipi (University of Maryland Eastern Shore, USA)
Lei Zhang (University of Maryland Eastern Shore, USA)
Weiwei Zhu (University of Maryland Eastern Shore, USA)
Dinesh Sharma (University of Maryland Eastern Shore, USA)
Ellis Lawrence (Elizabeth City State University, USA)
Yuanwei Jin (University of Maryland Eastern Shore, USA)

T3G: Engineering Education Research

3:30 - 5:30

Room: Blossom Hill II

Chair: Jillian J. Seniuk Cicek (University of Manitoba, Canada)

MEASURING SELF-EFFICACY IN DIVERSE FIRST-YEAR ENGINEERING STUDENTS EXPOSED TO ENTREPRENEURIAL MINDED LEARNING

James Thomas (New Mexico State University, USA)
Jessica Houston (New Mexico State University, USA)
Laura Boucheron (New Mexico State University, USA)

INFLUENCE OF INTERNSHIPS ON ENGINEERING STUDENTS' ATTITUDES ABOUT SOCIALLY RESPONSIBLE ENGINEERING

Greg Rulifson (Colorado School of Mines, USA)
Angela Bielefeldt (University of Colorado Boulder, USA)

BUTTING HEADS: COMPETITION AND POSTURING IN A PAIRED PROGRAMMING TEAM

John Uhlar (University of Georgia, USA)
Stephen Secules (University of Georgia, USA)

TOPICAL CONCERNS AND CRITICAL QUESTIONS ENGINEERING STUDENTS WANT/NEED ANSWERS TO: DEPENDENCE ON KEY GROUPS

Armando Rodriguez (Arizona State University, USA)
Pragyan Pradhan (Arizona State University, USA)
Karan Puttannaiah (Arizona State University, USA)
Nirangkush Das (Arizona State University, USA)
Kaustav Mondal (Arizona State University, USA)
Aratrik Sarkar (Arizona State University, USA)

A CASE FOR THE STUDENT RESEARCHER: EXPANDING THE ROLE OF UNDERGRADUATE RESEARCH IN THE PROFESSIONAL FORMATION OF ENGINEERS

Kathryn Youngblood (University of Georgia, USA)
Julie Roseberry (University of Georgia, USA)
Aubree Van Winkle (University of Georgia, USA)
Nicola Sochacka (University of Georgia, USA)
Linda Vanasupa (California Polytechnic State University SLO, USA)
Carol Thurman (Georgia Institute of Technology, USA)
Patrice Torcivia Prusko (Cornell University, USA)

A STRUCTURAL EQUATION MODEL ANALYSIS OF COMPUTING IDENTITY SUB-CONSTRUCTS AND STUDENT ACADEMIC PERSISTENCE

Mohsen Taheri (Florida International University, USA)
Monique Ross (Florida International University, USA)
Zahra Hazari (Florida International University, USA)
Mark Weiss (Florida International University, USA)
Michael Georgiopoulos (University of Central Florida, USA)
Ken Christensen (University of South Florida, USA)
Atalie Garcia (Florida International University, USA)
Deepa Chari (Florida International University, USA)

T3H: Panel - Student Self-Perceptions Regarding Their First Position After Graduation: What Are They and How Do We Help?

4:00 – 5:30

Room: Blossom Hill III

PANEL: STUDENT SELF-PERCEPTIONS REGARDING THEIR FIRST POSITION AFTER GRADUATION: WHAT ARE THEY AND HOW DO WE HELP?

Cheryl Carrico (Virginia Tech, USA)
Holly Matusovich (Virginia Tech, USA)
Jinny Rhee (San Jose State University, USA)
Samantha Brunhaver (Arizona State University, USA)
Sheri Sheppard (Stanford University, USA)
Helen L. Chen (Stanford University, USA)

T3I: Curriculum Design

3:30 – 5:30

Room: Almaden

Chair: Reiner Martens (University of New Mexico, USA)

A SURVEY ON GRADUATES' CURRICULUM-BASED KNOWLEDGE GAPS IN SOFTWARE TESTING

Lilian Passos Scatalon (University of Sao Paulo, Brazil)
Maria Lydia Fioravanti (University of São Paulo, Brazil)
Jorge Marques Prates (University of Sao Paulo & University of Mato Grosso do Sul, Brazil)
Rogério Garcia (São Paulo State University & Faculty of Science and Technology, Brazil)
Ellen Barbosa (University of São Paulo, Brazil)

TRADE-OFFS IN CURRICULUM DESIGN: IMPLEMENTATION OF AN INTEGRATED CURRICULUM IN CHEMICAL ENGINEERING

Jennifer Case (Virginia Tech, USA & University of Cape Town, South Africa)
Hilton Heydenrych (University of Cape Town, South Africa)

EXPERIENCE-BASED LECTURE OF VIBRATION ENGINEERING USING DUAL SCALE EXPERIMENTS: FEELING THE FREE VIBRATION OF 5,600-TON SEISMIC BUILDING AND CONTROLLING THE VIBRATION OF SCALE-DOWN EXPERIMENTAL MODEL

Kohei Yamaguchi (Nagoya University & Graduate School of Engineering, Japan)
Susumu Hara (Nagoya University, Japan)

LEARNING TO THINK LIKE A TRAINER: BRINGING SCRATCH FOR EDUCATIONAL SCIENCES PROFESSIONAL'S FORMATION

Ricardo Almeida (Center of Social Support of Parents and Friends of School, Portugal)
Anabela Gomes (Polytechnic Institute of Coimbra & University of Coimbra, Portugal)
Maria Pessoa (University of Coimbra, Portugal)

EVOLVING A DATA STRUCTURES CLASS TOWARD INCLUSIVE SUCCESS

Celine Latulipe (University of North Carolina at Charlotte, USA)

Stephen MacNeil (UNC at Charlotte & Purdue University, USA)

Brian Thompson (UNC at Charlotte, USA)

INTEGRATION OF AN ELECTRICAL ENGINEERING CAPSTONE COURSE WITH SOCIAL JUSTICE AND GLOBAL STUDIES

David Parent (San Jose State University, USA)

Patricia Backer (SJSU, USA)

T3J: WIP - First & Second Year programs

3:30 – 5:30

Room: Convention Center 211 A

AN APPROACH TO ASSESSING LEARNING OUTCOMES OVER CONSECUTIVE COURSES IN THE STUDY ENTRY PHASE

Irene Rothe (Bonn-Rhine-Sieg University, Germany)

Marco Winzker (Bonn-Rhein-Sieg University of Applied Sciences, Germany)

Cathleen Salega (Bonn-Rhein-Sieg University of Applied Sciences, Germany)

EXAMINING SOFTWARE DESIGN PROJECTS IN A FIRST-YEAR ENGINEERING COURSE: THE IMPACT OF THE PROJECT TYPE ON PROGRAMMING COMPLEXITY AND PROGRAMMING FUNDAMENTALS REQUIRED

Krista M. Kecskemety (The Ohio State University, USA)

Zachary Dix (The Ohio State University, USA)

Benjamin Kott (The Ohio State University, USA)

CHALLENGES IN DESIGNING A MENTORSHIP PROGRAM FOR ELECTRICAL ENGINEERING FRESHMEN

Branimir Pejcinovic (Portland State University, USA)

Melinda Holtzman (Portland State University, USA)

ENGINEERING IDENTITIES OF CHEMICAL AND INDUSTRIAL MAJORS AFTER STUDENTS' FIRST YEAR

Jacqueline McNeil (University of Louisville & Speed School of Engineering, USA)

Erin L Gerber (University of Louisville, USA)

Gerold Willing (University of Louisville, USA)

Mary E Mills (University of Louisville, USA)

IMPROVING FIRST-YEAR ENGINEERING STUDENTS' DESIGN AND TEAMWORK SKILLS

Jale Ulas (SJSU, USA)

Farshid Marbouti (San Jose State University, USA)

SUSTAINABLE CHANGE IN A FIRST-YEAR ENGINEERING PROGRAM

Jon Sticklen (Michigan Technological University, USA)
A J Hamlin (Michigan Technological University, USA)
Amber Kempainen (Michigan Technological University, USA)
Brett Hamlin (Michigan Technological University, USA)
Doug Opplinger (Michigan Technological University, USA)

DCLAB: A WEB-BASED SYSTEM FOR DIGITAL LOGIC EXPERIMENT TEACHING

Yuhui Ding (Tsinghua University, P.R. China)
ShanShan Li (Tsinghua University, P.R. China)
Jinghan Liu (Tsinghua University, P.R. China)
Xiaojun Wu (Tsinghua University, P.R. China)

LEARNING AND ACADEMIC SUCCESS IN ENGINEERING COURSES: COMPARING 1ST YEAR STUDENTS ACCORDING TO GENDER

Rosa Maria Vasconcelos (Minho University, Portugal)
Leandro Almeida (University of Minho, Portugal)

EFFECTS OF CORNERSTONE DESIGN EXPERIENCE ON INNOVATIVE BEHAVIOR AND PERCEPTIONS IN ENGINEERING FOR FIRST-YEAR ENGINEERING STUDENTS

Jac Leung (Hong Kong University of Science and Technology, Hong Kong)

T3K: Ed. WIP - Distance, Open & Flexible Education & Approaches to Interdisciplinary Education

3:30 – 5:30

Room: Convention Center 211B

HOW DO ACADEMICS EXPERIENCE USE OF RECORDED AUDIO FEEDBACK IN HIGHER EDUCATION? A THEMATIC ANALYSIS

Anneli Heimbürger (University of Jyväskylä, Finland)
Ville Isomottonen (University of Jyväskylä, Finland)
Paavo Nieminen (University of Jyväskylä, Finland)
Harri Keto (Tampere University of Technology, Unit of Pori, Finland)

THE OPEN NETWORKING LAB: HANDS-ON VOCATIONAL LEARNING IN COMPUTER NETWORKING

Alexander Mikroyannidis (The Open University, United Kingdom (Great Britain))
Karen Kear (The Open University, United Kingdom (Great Britain))
Andrew Smith (The Open University, United Kingdom (Great Britain))
Allan Jones (The Open University, United Kingdom (Great Britain))
Jon Rosewell (The Open University, United Kingdom (Great Britain))
Helen Donelan (The Open University, United Kingdom (Great Britain))
Michel Wermelinger (The Open University, United Kingdom (Great Britain))
Chris Sanders (The Open University, United Kingdom (Great Britain))
Allan Third (The Open University, United Kingdom (Great Britain))
Teresa Connolly (The Open University, United Kingdom (Great Britain))

PROMOTING STUDENT COMPLETION IN A MOOC ON INFORMATION THEORY

Celia Xiaoxi Lyu (The Chinese University of Hong Kong, Hong Kong)
Rosanna Yuen-Yan Chan (The Chinese University of Hong Kong, Hong Kong)
Raymond W. Yeung (The Chinese University of Hong Kong, Hong Kong)

DYSGU: A MOBILE-BASED ADAPTIVE SYSTEM TO REDESIGN OUT-OF-CLASS ACTIVITIES

Muztaba Fuad (Winston-Salem State University, USA)

Monika Akbar (University of Texas at El Paso, USA)

Lynn R. Zubov (Winston-Salem State University, USA)

ONLINE MACHINE LEARNING EXPERIMENTS IN HTML5

Abhinav Dixit (Arizona State University, USA)

Uday Shankar Shanthamallu (Arizona State University, USA)

Andreas Spanias (ASU / SenSIP Center / School of ECEE, USA)

Visar Berisha (Arizona State University, USA)

Mahesh Banavar (Clarkson University, USA)

MOBILE APPS FOR INCORPORATING SCIENCE AND ENGINEERING PRACTICES IN K-12 STEM LABS

Mahesh Banavar (Clarkson University, USA)

Seema Rivera (Clarkson University, USA)

Dana Barry (Clarkson University, USA)

LAB-AS-A-SERVICE (LAAS): A MIDDLEWARE APPROACH FOR INTERNET-ACCESSIBLE LABORATORIES

Eyhab Al-Masri (University of Washington & UW, USA)

ACTIVELY ENGAGE STUDENTS WITH DIVERSE BACKGROUND USING A MORE PERSONALIZED APPROACH

Jiaofei Zhong (California State University, East Bay, USA)

ENGINEERING TEACHERS' APPROACHES TO DESIGN AND DELIVER INCLUSIVE TEACHING IN FLEXIBLE LEARNING SPACES

Linda Barman (KTH, Royal Institute of Technology & Karolinska Institutet, Sweden)

Ida Naimi-Akbar (KTH Royal Institute of Technology, Sweden)

Cormac McGrath (Stockholm University, Sweden)

Maria Weurlander (KTH, Royal Institute of Technology, Sweden)

Friday, October 5th

F1A: Special Session - Put Me in Coach! Developing a Design Playbook for Instructors to Help Engineering Students Do Design

10:00 – 12:00

Room: Convention Center 211 D

SPECIAL SESSION: PUT ME IN COACH! DEVELOPING A DESIGN PLAYBOOK FOR INSTRUCTORS TO HELP ENGINEERING STUDENTS DO DESIGN

Alexandra C Strong (Florida International University, USA)

Micah Lande (Arizona State University & Ira A. Fulton Schools of Engineering, USA)

Robin Adams (Purdue University, USA)

F1B: Special Session - Meet the Engineering Education Pioneers: Panel & Roundtable

10:00 – 12:00

Room: Convention Center 211C

MEET THE ENGINEERING EDUCATION PIONEERS - PANEL & ROUNDTABLE

Samantha Brunhaver (University of Washington, USA)

Adam R Carberry (Arizona State University, USA)

Jeremi London (Virginia Tech, USA)

Ken Yasuhara (University of Washington, USA)

Cheryl Allendoerfer (University of Washington, USA)

Cynthia Atman (University of Washington, USA)

Jennifer Case (Virginia Tech, USA & University of Cape Town, South Africa)

Cynthia J Finelli (University of Michigan, USA)

Ann McKenna (Arizona State University, USA)

Wendy Newstetter (Georgia Institute of Technology, USA)

Sheri Sheppard (Stanford University, USA)

Karl Smith (University of Minnesota & Purdue University, USA)

Jennifer Turns (University of Washington, USA)

Karan Watson (Texas A&M University, USA)

F1C: Teaching & Learning Experiences in Engineering Education

10:00 – 12:00

Room: Willow Glen II

Chair: Vinitha Hannah Subburaj (West Texas A&M University, USA)

USING MULTIPLE ACTIVE TEACHING-LEARNING APPROACHES IN SOFTWARE PROJECT MANAGEMENT: A LONGITUDINAL ANALYSIS OF STUDENTS' MOTIVATION AND LEARNING

Pablo Schoeffel (Federal University of Santa Catarina & University of Santa Catarina State, Brazil)

Raul Wazlawick (Federal University of Santa Catarina, Brazil)

Vinicius Faria Culmant Ramos (Federal University of Santa Catarina, Brazil)

AN EXPERIENCE REPORT ON THE USE OF EXPERIENCE MAPS AND SKETCHES IN A DATABASE COURSE PROJECT

Alexandra Martinez (Universidad de Costa Rica & Escuela de Ciencias de la Computación e Informática, Costa Rica)

INTEGRATING HACKATHONS WITH SOFTWARE ENGINEERING COURSES: BEST PRACTICES AND LESSONS LEARNED

Amir Zeid (American University of Kuwait, Kuwait)

EVALUATING THE INFLUENCE OF PBL ON THE DEVELOPMENT OF SOFT SKILLS IN A COMPUTER ENGINEERING UNDERGRADUATE PROGRAM

Felipe Barros (UEFS - Universidade Estadual de Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

DEVELOPMENT OF A PLACEMENT EXAM TO INCREASE STUDENT SUCCESS IN A JUNIOR LEVEL CIRCUITS AND SYSTEMS CLASS

David Parent (San Jose State University, USA)

FID: Engineering Education Research

10:00 – 12:00

Room: Willow Glen III

Chair: Muztaba Fuad (Winston-Salem State University, USA)

AN ETHNOGRAPHIC INVESTIGATION INTO THE DEVELOPMENT OF ENGINEERS WITHOUT BORDERS USA STUDENTS DURING THE MONITORING AND MAINTENANCE OF A POTABLE WATER SYSTEM IN PERU

Sarah Savage (University of Colorado Boulder, USA)

Daniel Knight (University of Colorado Boulder, USA)

DEVELOPING POSTDOCTORAL SCHOLAR AND GRADUATE STUDENT MENTORSHIP ABILITY

Zhen Zhao (Arizona State University, USA)

Adam R Carberry (Arizona State University, USA)

ASSESSING THE DEMAND OF PROBLEMS IN AN UNDERGRADUATE ELECTRICAL ENGINEERING COURSE

Presentacion Rivera-Reyes (University at Buffalo SUNY, USA)

Lance C. Pérez (University of Nebraska-Lincoln, USA)

Thomas Delahunty (University of Nebraska-Lincoln, USA)

ENGINEERS' IMAGINARIES OF "THE PUBLIC": CONTENT ANALYSIS OF READER REACTIONS TO AN ENVIRONMENTAL INJUSTICE CONTROVERSY

Nathan Canney (CYS Structural Engineers Inc., USA)

Yanna Lambrinidou (Virginia Tech, USA)

EXPLORATION OF RELATIONSHIPS BETWEEN CONFORMITY TO MASCULINE SOCIAL NORMS AND DEMOGRAPHIC CHARACTERISTICS

Usenime Akpanudo (Harding University, USA)

James Huff (Harding University, USA)

Allison Godwin (Purdue University, USA)

THE RELATIONSHIP BETWEEN DEMOGRAPHIC CHARACTERISTICS AND ENGAGEMENT IN AN UNDERGRADUATE ENGINEERING ONLINE FORUM

Yuqin Duan (Purdue University, USA)

Rohit Kandakatla (Purdue University, USA)

Nick A. Stites (Purdue University, USA)

Edward Berger (Purdue University, USA)

Jennifer DeBoer (Purdue University, USA)

Jeffrey F. Rhoads (Purdue University, USA)

FIE: Professional Skills

10:00 – 12:00

Room: Guadalupe

Chair: Richard Parker (University of Colorado at Boulder, USA)

INTERNATIONALIZATION PROJECT TO FACE THE UNCERTAINTIES OF WORK MARKET

Claudio R Brito (Science and Education Research Organization, Portugal)

Melany M Ciampi (Safety, Health and Environment Research Organization & President, Portugal)

Henrique M. D. Santos (University of Minho, Portugal)

Rosa Maria Vasconcelos (Minho University, Portugal)

Luis Amaral (University of Minho - ALGORITMI, Portugal)

Victor Barros (Science and Education Research Organization, Brazil)

DOCTOR OF PROFESSIONAL STUDIES IN COMPUTING: A CATEGORIZATION OF APPLIED INDUSTRY RESEARCH

Lisa Ellrodt (Pace University, USA)

Ion Freeman (Pace University, USA)

Ashley Haigler (Pace University, USA)

Suzanna Schmeelk (Pace University, USA)

USING REAL INDUSTRY PROJECTS FOR AN ASSIGNMENT OF A MASTER LEVEL COURSE

Xiaosong Li (Unitec Institute of Technology, New Zealand)

Bahman A. Sarrafpour (Unitec Institute of Technology & Broadpak Corporation, New Zealand)

EFFECTS OF PROFESSIONAL DEVELOPMENT ON PROGRAMMING KNOWLEDGE AND SELF-EFFICACY

Yolanda J Reimer (University of Montana, USA)

Lisa M Blank (University of Montana, USA)

Jeffrey Braun (Montana Tech, USA)

Michael Coe (CedarLake Research Group, USA)

INDUSTRY AND ACADEMIA PARTNERSHIP FOR SHORT-TIME HIGH-LEVEL QUALIFICATION

Jose Reginaldo Hughes Carvalho (Federal University of Amazonas, Brazil)

Auri Vincenzi (UFG, Brazil)

José Maldonado (University of São Paulo, Brazil)

Marcel Gonçalves (SIDIA, Brazil)

INVESTIGATION INTO THE USE OF LEARNING AGREEMENTS TO ENHANCE STAKEHOLDER ENGAGEMENT AND PROMOTE SELF-EFFICACY IN COMPUTING EDUCATION

Roger McDermott (Robert Gordon University, United Kingdom (Great Britain))

Mats Daniels (Uppsala University, Sweden)

Mark Zarb (Robert Gordon University, United Kingdom (Great Britain))

William Ballew (Robert Gordon University, United Kingdom (Great Britain))

Tony Clear (Auckland University of Technology, New Zealand)

AN EMPIRICAL INVESTIGATION ON A PEDAGOGICAL PATTERN LANGUAGE FOR MOBILE LEARNING APPLICATIONS

Maria Lydia Fioravanti (University of São Paulo, Brazil)

Camila Oliveira (University of São Paulo, Brazil)

Lilian Passos Scatalon (University of São Paulo, Brazil)

Ellen Barbosa (University of São Paulo, Brazil)

AN ENVIRONMENT FOR TEACHING ENTERPRISE SOFTWARE EVOLUTION: USING PLAYFUL TECHNIQUES WITH ROBOTICS

João Ricardo Moreno Camilo (Universidade Tecnológica Federal do Paraná, Brazil)

Alexandre L'Erario (Universidade Tecnológica Federal do Paraná, Brazil)

José Augusto Fabri (Universidade Tecnológica Federal do Paraná, Brazil)

A COMPARATIVE ANALYSIS OF THE AUTOMATIC MODELING OF LEARNING STYLES THROUGH MACHINE LEARNING TECHNIQUES

Lucas Ferreira (University of São Paulo, Brazil)

Gabriel S. Souza (University of São Paulo, Brazil)

Andre Carvalho (University of São Paulo, Brazil)

Jose Rodrigues, Jr (University of São Paulo, Brazil)

TEACHING WITH VIDEO ASSISTANCE IN EMBEDDED REAL-TIME OPERATING SYSTEM

Zhaohong Wang (California State University, Chico, USA)

Kathleen Meehan (California State University, Chico, USA)

Jing Guo (California State University, Chico, USA)

ACCESSIBILITY IN MOBILE APPLICATIONS FOR ELDERLY USERS: A SYSTEMATIC MAPPING

Camila Oliveira (University of São Paulo, Brazil)

Maria Lydia Fioravanti (University of São Paulo, Brazil)

Renata Pontin M. Fortes (ICMC - University of São Paulo, Brazil)

Ellen Barbosa (University of São Paulo, Brazil)

QUADCOPTER DRONES - BEYOND THE HOBBY

Nagy Bengiamin (California State University Fresno, USA)

FIG: Curriculum Design

10:00 – 12:00

Room: Blossom Hill II

Chair: David Reeping (Virginia Tech, USA)

REIMAGINING AND EMPOWERING THE DESIGN OF PROJECTS: A PROJECT-BASED LEARNING GOALS FRAMEWORK

Jonathan Stolk (Olin College, USA)

Robert Martello (Franklin W. Olin College of Engineering, USA)

EVALUATING THE EFFECT OF DIFFERENT TEAMWORK TRAINING INTERVENTIONS ON THE QUALITY OF PEER EVALUATIONS

Daniel M Ferguson (Purdue University, USA & EDI GROUP Canada, Canada)
Matthew W Ohland (Purdue University, USA)
Chad Lally (Purdue University, USA)
Hilda Somnooma (Purdue University, USA)
Yuchen Cao (Purdue University, USA)

BEYOND SURVEYS: ANALYZING SOFTWARE DEVELOPMENT ARTIFACTS TO ASSESS TEACHING EFFORTS

Christoph Matthies (Hasso Plattner Institute, University of Potsdam, Germany)
Ralf Teusner (Hasso Plattner Institute for Digital Engineering, Germany)
Guenter Hesse (Hasso Plattner Institute, University of Potsdam, Germany)

EVALUATION OF INSTRUCTIONAL MODULE DEVELOPMENT SYSTEM

Vaishnavi Raj (Arizona State University, USA)
Preston Goulet (Arizona State University, USA)
Srividya K Bansal (Arizona State University, USA)

PROJECT-BASED LEARNING IN DIGITAL FUNDAMENTALS COURSE USING FPGAS

Dingjuan Chua (National University of Singapore, Singapore)
Jieyi Gao (National University of Singapore, Singapore)
Massimo Alioto (National University of Singapore, Singapore)
Yong Ping Xu (National University of Singapore, Singapore)
Sangit Sasidhar (National University of Singapore, Singapore)

FIH: Approaches to Student Centered Learning

10:00 – 12:00

Room: Blossom Hill III

Chair: Jaspal Subhlok (University of Houston, USA)

SYSTEMATIC LITERATURE REVIEW OF STUDENTS' AFFECTIVE RESPONSES TO ACTIVE LEARNING: OVERVIEW OF RESULTS

Maura Borrego (University of Texas at Austin, USA)
Kevin Nguyen (University of Texas, USA)
Caroline Crockett (University of Michigan, USA)
Matt DeMonbrun (University of Michigan & School of Education, USA)
Prateek Shekhar (University of Michigan, USA)
Sneha Tharayil (University of Texas, USA)
Cynthia J Finelli (University of Michigan, USA)
Robyn Rosenberg (Harvard University, USA)
Cindy Waters (NCA&T State University, USA)

FLIPPING UNPLUGGED: AN EXPERIENCE REPORT

James K. Huggins (Kettering University, USA)

THE THINKING LINE - A DOCUMENTATION METHOD TO IMPROVE STUDENTS' SUCCESS IN APPLIED MATHEMATICS

Reiner Martens (University of New Mexico, USA)

COMPUTER SCIENCE STUDENTS' EXPERIENCE OF REFLECTING ON TEAM LEADERSHIP - A CASE STUDY OF A STUDENT-CENTERED COURSE ON COMMUNICATION

David Haselberger (University of Vienna & Faculty of Computer Science, Austria)
Renate Motschnig (University of Vienna & Faculty of Computer Science, Austria)

APPLYING PBL IN TEACHING PROGRAMMING: AN EXPERIENCE REPORT

Simone Santos (Federal University of Pernambuco, Brazil)
Éden Santana (UFPE, Brazil)
Lucas Santana (UFPE, Brazil)
Pedro Rossi (UFPE, Brazil)
Lucas Cardoso (UFPE, Brazil)
Ullayne Fernandes (UFPE, Brazil)
Claudio Carvalho (UFPE, Brazil)
Pedro Tôrres (UFPE, Brazil)

STUDENT-CENTERED CLASSROOMS IN ENGINEERING EDUCATION: CONCEPT AND EVALUATION OF A LEARNING OFFICE FOR SOFTWARE DEVELOPMENT AND APPLIED MATHEMATICS

Dominik Dolezal (TGM - Vienna Institute of Technology & University of Applied Sciences Technikum Wien, Austria)
Alexandra Posekany (Danube University Krems, Austria)
Lisa Vittori (TGM - Vienna Institute of Technology, Austria)
Gottfried Koppensteiner (TGM - Vienna Institute of Technology, Austria)
Renate Motschnig (University of Vienna & Faculty of Computer Science, Austria)

FII: Diversity & Inclusivity - Working Together With All Abilities

10:00 – 12:00

Room: Almaden

Chair: Rebecca Strachan (Northumbria University, United Kingdom, Great Britain)

FACILITATING INTERCULTURAL DEVELOPMENT: PREPARING FUTURE ENGINEERS FOR MULTIDISCIPLINARY TEAMS AND MULTICULTURAL ENVIRONMENTS

Darshini Render (Purdue University, USA)
Horane Holgate (Purdue University, USA)
Charles Calahan (Purdue University, USA)

A FRAMEWORK TO FOSTER DIVERSITY IN COLLABORATIVE ACTIVITIES

Leandro Luque (Sao Paulo State Technological College, Brazil)
Leônidas O Brandão (University of São Paulo, Brazil)
Anarosa A. F. Brandão (Universidade de São Paulo & Escola Politécnica, Brazil)

GLOSSARY OF COMPUTATIONAL TERMS AS A STIMULUS TO PROGRAMMING LOGIC: A CASE STUDY WITH DEAF STUDENTS

Rafael Granada (Universidade Federal do Rio Grande, Brazil)
Regina Barwaldt (Universidade Federal do Rio Grande - FURG, Brazil)
Danúbia Espíndola (Universidade Federal do Rio Grande - FURG, Brazil)

TEACHING ALGORITHMS FOR VISUALLY IMPAIRED AND BLIND STUDENTS USING PHYSICAL FLOWCHARTS AND SCREEN READERS

Rodolfo Miranda Pereira (Pontifical Catholic University of Parana (PUC-PR) and Federal Institute of Parana (IFPR), Brazil)
Felippe Silva (State University of Maringa (UEM), Brazil)
Carlos Silla (Pontificia Universidade Católica do Paraná, Brazil)

CONTEXTUAL ANALYSIS OF ENGINEERING STUDENT ACADEMIC SUCCESS AT A HISPANIC SERVING INSTITUTION (HSI)

Farshid Marbouti (San Jose State University, USA)
Julia Thompson (San Jose State University, USA)
Jale Ulas (SJSU, USA)

DOCTORAL DEGREE COMPLETION: BLACK WOMEN AND THE ROLE OF FACULTY

Cathy Howell (University of North Carolina at Charlotte & Cato College of Education, USA)

FIJ: WIP - Student Beliefs, Motivation, & Persistence

10:00 – 12:00

Room: Convention Center 211 A

JUSTIFICATIONS ON THE BEHAVIOR IN RELATION TO THE CONSUMPTION OF ELECTRIC POWER AT HOME AND AT WORK: A QUALITATIVE ANALYSIS

F. Mota (Universidade Federal do Rio Grande, Brazil)

Viviani Kwecko (FURG, Brazil)

Fernando Pereira de Tolêdo (Furg, Brazil)

Sam Devincenzi (FURG, Brazil)

Pedro Núñez (Universidad de Extremadura, European Union)

S. Botelho (FURG, Brazil)

WIP: TESTING AN INTEGRATED FRAMEWORK OF MOTIVATION AND IDENTITY IN A DOCTORAL ENGINEERING CONTEXT

Marissa Tsugawa-Nieves (University of Nevada, Reno, USA)

Heather Perkins (North Carolina State University, USA)

Cheryl Cass (North Carolina State University, USA)

Adam Kirn (University of Nevada, Reno, USA)

BASIC PSYCHOLOGICAL NEED FULFILLMENT BY GENDER IN TEAM ENVIRONMENTS

Emily Miller (University of Virginia, USA)

Reid Bailey (University of Virginia, USA)

USING NEUROEDUCATION METHODS TO COMPARE ENGINEERING STUDENT PERFORMANCE ON LINEAR AND SYSTEMS TASKS

Elise Barrella (Wake Forest University, USA)

Charles Cowan, II (Wake Forest University)

Justyn Girdner (James Madison University, USA)

Robin Anderson (James Madison University, USA)

Mary Katherine Watson (The Citadel, USA)

MOTIVATION CENTERED LEARNING

Thomas Fuhrmann (OTH Regensburg, Germany)

APPLYING STAGES OF CHANGE IN AN ACADEMIC CONTEXT TO HELP STUDENTS ADOPT HEALTHY LEARNING DISPOSITIONS AND BEHAVIORS

Dong San Choi (University of Illinois at Urbana-Champaign, USA)

Michael C. Loui (Purdue University, USA)

WIP: EXPLORATION OF FIRST-YEAR STUDENTS' SOCIAL NETWORKS TO COMPLETE ENGINEERING HOMEWORK

Emily Diehl (University of Tennessee, USA)

Courtney J Faber (University of Tennessee, USA)

AN INNOVATIVE TEACHING APPROACH IN ENGINEERING EDUCATION TO IMPART REFLECTIVE DIGITIZATION COMPETENCES

Brit-Maren Block (Leuphana University of Lüneburg, Germany)

WHY MAKE IT? UNDERSTANDING UNDERGRADUATE ENGINEERING STUDENTS' CONCEPTIONS FOR THE PURPOSE OF PROTOTYPING IN ENGINEERING DESIGN ACTIVITIES

Hadi Ali (Arizona State University, USA)

Micah Lande (Arizona State University & Ira A. Fulton Schools of Engineering, USA)

FIK: WIP - Computer-Based Learning & Courseware Technologies

10:00 – 12:00

Room: Convention Center 211B

MAJOR UPGRADE OF THE PRESENTATION EDUCATION ASSISTANCE SYSTEM (PEAS) AND ITS EXTENSIVE APPLICATION TO EDUCATIONAL FIELDS

Junko Toyoshima (Hosei University & Seikei University, Japan)

Soichiro Fujii (Hosei University, Japan)

Yuji Tokiwa (Hosei University, Japan)

THE IMPACT OF ADDING AN INTERACTIVE TEXTBOOK ON STUDENT PERFORMANCE AND SATISFACTION IN A FRESHMAN INTRODUCTION TO PROGRAMMING COURSE

Susan Schneider (Marquette University, USA)

Chandana Tamma (Marquette University, USA)

Chris Perez (Marquette University, USA)

DEEPENING E-LEARNING THROUGH SOCIAL-COLLABORATIVE INTELLIGENCE

Matthew Montebello (University of Malta, Malta)

Bill Cope (University of Illinois, USA)

Mary Kalantzis (University of Illinois, USA)

Tabassum Amina (University of Illinois, USA)

Duane Sears Smith (University of Illinois, USA)

Anastasia Tzirides (University of Illinois, USA)

Samaa Haniya (University of Illinois, USA)

STUDENT AND FACULTY REFLECTIONS AFTER USING MATHWORKS' CODY COURSEWORK IN A CONTROL SYSTEMS COURSE

Rebecca Reck (Kettering University & University of Illinois at Urbana-Champaign, USA)

CAN VIRTUAL REALITY ENHANCE LEARNING: A CASE STUDY IN MATERIALS SCIENCE

Veronica Caro (University of Michigan, USA)

Brandon Carter (University of Michigan, USA)

Sahil Dagli (University of Michigan, USA)

Mark Schissler, Jr. (University of Michigan, USA)

Joanna Millunchick (University of Michigan, USA)

RASPBERRY PI BASED LEARNING CENTER USAGE TRACKING SYSTEM FOR OPTIMAL RESOURCE ALLOCATION

Aneet Dharmavaram Narendranath (Michigan Technological University, USA)

A LOW STAKES INTRODUCTION TO COMPUTER PROGRAMMING

Lori Carter (Point Loma Nazarene University, USA)

BUILDING A MUSIC PLAYER: TEACHING OPERATING SYSTEMS CONCEPTS VIA AN ARDUINO-POWERED MUSIC PLAYER

John Seng (California Polytechnic State University, San Luis Obispo, USA)

SEPARATION OF SYNTAX AND PROBLEM SOLVING IN INTRODUCTORY COMPUTER PROGRAMMING

John M Edwards (Idaho State University, USA)

Erika K Fulton (Idaho State University, USA)

Jonathan Holmes (Idaho State University, USA)

Joseph L Valentin (Idaho State University, USA)

David V Beard (Idaho State University, USA)

Kevin R Parker (Idaho State University, USA)

ANALYSING STUDENTS' SCRATCH PROGRAMS AND ADDRESSING ISSUES USING ELEMENTARY PATTERNS

Kashif Amanullah (University of Canterbury, New Zealand)

Tim Bell (University of Canterbury, New Zealand)

F2A: Special Session - See Something, Say Something: Redirecting Stories for Organizational Change

1:00 - 3:00

Room: Convention Center 211 D

SPECIAL SESSION: SEE SOMETHING, SAY SOMETHING: REDIRECTING STORIES FOR ORGANIZATIONAL CHANGE

Jennifer Karlin (Minnesota State University, Mankato, USA)

Cheryl Allendoerfer (Shoreline Community College, USA)

Rebecca Bates (Minnesota State University, Mankato, USA)

Dan Ewert (North Dakota State University, USA)

Ron Ulseth (Iron Range Engineering & Itasca Community College & Aalborg University, USA)

F2B: Special Session - Developing an Effective Propagation Plan for Educational Innovations

1:00 - 3:00

Room: Convention Center 211C

DEVELOPING AN EFFECTIVE PROPAGATION PLAN FOR EDUCATIONAL INNOVATIONS

Jeffrey E Froyd (The Ohio State University, USA)

F2C: Teaching & Learning Experiences in Engineering Education

1:00 - 3:00

Room: Willow Glen II

Chair: Steve Chenoweth (Rose-Hulman Institute of Technology, USA)

LEARNING OUTCOME OUTCOMES: AN EVALUATION OF QUALITY

Daniel Sigurgeirsson (Reykjavik University, Iceland)

Marta Lárusdóttir (Reykjavik University, Iceland)

Mohammad Hamdaga (Reykjavik University, Sweden)

Mats Daniels (Uppsala University, Sweden)

Björn Jónsson (Reykjavík University, Iceland)

USING RESEARCH PROJECTS IN THE CLASSROOM TO IMPROVE ENGINEERING EDUCATION

Natalia Andrea Bueno Pizarro (Politécnico Grancolombiano, Colombia)

THE CONSTANTLY EVOLVING FRESHMAN ENGINEERING COURSE: THE CASE OF THE DUALSHOCK4 GAME CONTROLLER TO INCREASE ENGAGEMENT WITH LABORATORY EXERCISES FOR AN INTRODUCTORY PROBLEM SOLVING COURSE

Julie Rursch (Iowa State University, USA)
Paul Pfister (Iowa State University, USA)
Andy Luse (Oklahoma State University, USA)
Tyler Tran (Iowa State University, USA)

FACULTY APPRENTICE AS A MENTORSHIP MODEL FOR ENGINEERING GRADUATE STUDENTS INTERESTED IN TEACHING

Rohit Kandakatla (Purdue University, USA)
Juan D Ortega-Alvarez (Purdue University, USA & Universidad EAFIT, Colombia)
Ruth Streveler (Purdue University, USA)
Karl Smith (University of Minnesota & Purdue University, USA)

EXPLORING EXPERIENTIAL LEARNING MODEL AND RISK MANAGEMENT PROCESS FOR AN UNDERGRADUATE SOFTWARE ARCHITECTURE COURSE

Ouh Eng Lieh (Singapore Management University, Singapore)
Yunghans Irawan (National University Of Singapore, Singapore)

IMPROVING THE TEACHING OF VECTOR GROUP THREE-PHASE TRANSFORMER BY INTEGRATING SOFTWARE AND HARDWARE TOOLS INTO A CLASSROOM

Prechanon Kumkratug (Kasetsart University at Sriracha Campus, Thailand)

F2D: Innovation & Creativity

1:00 - 3:00

Room: Willow Glen III

Chair: Asad Azemi (Pennsylvania State University, USA)

ENHANCING STANFORD DESIGN THINKING FOR KIDS WITH DIGITAL TECHNOLOGIES - A PARTICIPATORY ACTION RESEARCH APPROACH TO CHALLENGE-BASED LEARNING

Renate Motschnig (University of Vienna & Faculty of Computer Science, Austria)
Daniel Pfeiffer (University of Vienna, Austria)
Anna Gawin (DaVinciLab, Austria)
Peter Gawin (DaVinciLab, Austria)
Lisa Streli (University of Vienna, Austria)
Michael Steiner (Pedagogical University Vienna, Austria)

GETTING THINGS DONE IN ACADEMIA: THE CHALLENGES WITH INSTITUTIONAL BUREAUCRACY & THE NEED FOR PROJECT MANAGEMENT

Angela Goldenstein (Purdue University, USA)
Elizabeth Wirtz (Purdue University, USA)
Edward Berger (Purdue University, USA)

DON'T LEAVE ANYONE BEHIND: ACHIEVING TEAM PERFORMANCE THROUGH DIVERSITY

Ewa Andrejczuk (IIIA-CSIC & CMT SL, Spain)
Juan Rodriguez-Aguilar (IIIA-CSIC, Spain)
Carles Sierra (Spanish Research Council, Spain)
Carme Roig (Ministry of Education, Spain)
Yolanda Parejo Romero (Institut Mare de Déu de la Mercè, Spain)

ENGINEERING EMOTION: STUDENTS TELL STORIES ABOUT THE COSTS OF BEING INNOVATIVE

Barbara A. Karanian (Stanford University, USA)
Andrew Parlier (Stanford University, USA)
Ville Taajamaa (University of Turku, Finland)
Gloria Monaghan (Wentworth Institute of Technology, USA)

TOWARDS INNOVATIVE TEACHING WITH EDUCATIONAL PERSUASIVE INTERFACES

Raquel Leite (Federal University of Rio Grande, Brazil)
Regina Barwaldt (Universidade Federal do Rio Grande - FURG, Brazil)
Danúbia Espíndola (Federal University of Rio Grande, Brazil)
Marcelo Pias (Cambridge University, United Kingdom (Great Britain))

EXTENDED ADDIE MODEL FOR IMPROVED DISTANCE LEARNING COURSES

Fernando Constancio (Universidade de Brasília & Laboratório Latitude, Brazil)
Maria F. K. B. Couras (Universidade de Brasília - UnB & Campus Universitário Darcy Ribeiro, Brasília, Brazil)
Danielle Nogueira (Universidade de Brasília, Brazil)
João Paulo Carvalho Lustosa da Costa (Universidade de Brasília (UnB), Brazil)
Mateus R Zanatta (University of Brasilia, Brazil)
Rafael Timoteo de Sousa Junior (University of Brasilia, Brazil)
Stela Faiad (University of Brasilia, Brazil)
Natalia Teixeira (National School of Public Administration - Enap, Brazil)

F2E: Engineering Education Research

1:00 - 3:00

Room: Guadalupe

Chair: Nikhil Yadav (St. John's University, USA)

BREAKING DOWN THE LABORATORY SUPERTYPE CONFLATION

Joshua Burrige (University of Sydney, Australia)
David Lowe (The University of Sydney, Australia)

OPPORTUNITIES FOR NATURAL LANGUAGE PROCESSING IN QUALITATIVE ENGINEERING EDUCATION RESEARCH: TWO EXAMPLES

Catherine Berdanier (Pennsylvania State University, USA)
Eric Baker (Pennsylvania State University, USA)
Weiqin Wang (Pennsylvania State University, USA)
Christopher McComb (Pennsylvania State University, USA)

HIERARCHIES OF UNDERSTANDING FOR HUMAN LEARNING

Scott Carpenter (CognitiveCybernetics.com, USA)
Catherine Liu (Compasspoint Mentorship, USA)
Weixun Cao (Arixin Electronics, Inc., USA)
Allen Yao (Compasspoint Mentorship, USA)

A REVIEW OF LITERATURE ON CONNECTIONS BETWEEN ENGINEERING EDUCATION AND COGNITIVE DEVELOPMENT IN K-12 STUDENTS

Joshua Garcia Sheridan (Virginia Tech, USA)

COLLABORATIVE SURVEY CONSTRUCTION FOR NATIONAL DATA COLLECTION: COORDINATION, NEGOTIATION, AND DELIVERY

Edward Berger (Purdue University, USA)
Allison Godwin (Purdue University, USA)
Matthew Scheidt (Purdue University, USA)
John Chen (California Polytechnic State University, USA)
Ryan Senkpeil (Purdue, USA)
Julianna Ge (Purdue University, USA)
Brian Self (California Polytechnic State University, USA)
James Widmann (California Polytechnic State University, USA)
Ann Gates (University of Texas at El Paso, USA)

GRADUATE STUDENT PROGRAM OF ELECTRICAL ENGINEERING BASED ON INDUSTRY-UNIVERSITY COOPERATION

Guangwei Xue (Beihang University, P.R. China & Politecnico di Milano, Italy)
Shaoping Wang (Beihang University, P.R. China)
Xingjian Wang (Beihang University, P.R. China)
Sergio A Pignari (Politecnico di Milano, Italy)
Mileta Tomovic (Old Dominion University, USA)

F2F: Student Beliefs, Motivation, & Persistence

1:00 - 3:00

Room: Blossom Hill I

Chair: Ahmed Ibrahim (Johns Hopkins University, USA)

ESTABLISHING AN AGILE MINDSET AND CULTURE FOR WORKFORCE PREPAREDNESS: A BASELINE STUDY

Gerald Gannod (Tennessee Technological University, USA)
William Eberle (Tennessee Tech University, USA)
Robert Cooke (Human Synergistics, USA)
Doug Talbert (Tn Tech, USA)
Kathy Hagler (K2ohSolutions, USA)
Kathy Opp (K2OH Solutions, USA)
Jasmin Baniya (Tennessee Technological University, USA)

EXAMINING SELF-EFFICACY AND GROWTH MINDSET IN AN INTRODUCTORY COMPUTING COURSE

James Pembridge (Embry-Riddle Aeronautical University, USA)
Kelsey J Rodgers (Embry-Riddle Aeronautical University, USA)

THE INFLUENCE PARENT SOCIALIZATION AND SCHOOL ENVIRONMENT HAS ON AFRICAN-AMERICAN ADOLESCENT MALES' MATHEMATICS SELF-EFFICACY AND ENGINEERING CAREER TRAJECTORY

David Barnes (Washington University in Saint Louis, USA)
Odis Johnson Jr. (Washington University in Saint Louis, USA)

STUDENTS' PERCEPTIONS OF APPLYING REAL-WORLD PROBLEM SOLVING IN COMPUTER SCIENCE EDUCATION

Deller Ferreira (Federal University of Goias, Brazil)
Tatiane F. N. Melo (Federal University of Goiás, Brazil)
Ana Paula Ambrosio (Federal University of Goias, Brazil)
Tiago Nogueira (IGMT, Brazil)
Matheus R. D. Ullmann (Federal University of Goiás, Brazil)

IDENTIFICATION OF PRE-UNIVERSITY FACTORS THAT AFFECT THE INITIAL MOTIVATION OF STUDENTS IN COMPUTING PROGRAMS: A MULTI-INSTITUTIONAL CASE STUDY

Pablo Schoeffel (Federal University of Santa Catarina & University of Santa Catarina State, Brazil)

Vinicius Faria Culmant Ramos (Federal University of Santa Catarina, Brazil)

Raul Wazlawick (Federal University of Santa Catarina, Brazil)

Adilson Vahldick (University of Coimbra & Santa Catarina State University, Portugal)

Marcelo de Souza (Universidade do Estado de Santa Catarina, Brazil)

WHAT MATTERS TO MY FUTURE: STEM INT-HER-EST AND EXPECTATIONS

Katherine N Vela (Texas A&M University, USA)

Ali Bicer (Texas A&M University, USA)

Robert M Capraro (Texas A&M University, USA)

Luciana R Barroso (Texas A&M University, USA)

Cassidy Caldwell (Texas A&M University, USA)

F2G: Learning Analytics

1:00 - 3:00

Room: Blossom Hill II

Chair: Cory Brozina (Youngstown State University, USA)

A PRINCIPLED APPROACH TO USING MACHINE LEARNING IN QUALITATIVE EDUCATION RESEARCH

Alejandra J. Magana (Purdue University, USA)

Mireille Boutin (Purdue University, USA)

PERSONALIZING COMPUTER SCIENCE EDUCATION BY LEVERAGING MULTIMODAL LEARNING ANALYTICS

David Azcona (Dublin City University, Ireland & Arizona State University, USA)

IHan Hsiao (Arizona State University, USA)

Alan Smeaton (Dublin City University, Ireland)

A MULTIDIMENSIONAL ELO MODEL FOR MATCHING LEARNING OBJECTS

André Prisco (Universidade Federal do Rio Grande - FURG, Brazil)

Rafael dos Santos (Federal University of Rio Grande, Brazil)

Jean Luca Bez (Federal University of Rio Grande do Sul & URI Online Judge, Brazil)

Neilor Tonin (URI - Campus Erechim, Brazil)

Silvia Botelho (Federal University of Rio Grande, Brazil)

Evandro Junior (FURG, Brazil)

OBTAINING EVIDENCE OF LEARNING IN DIGITAL GAMES THROUGH A DEEP LEARNING NEURAL NETWORK TO CLASSIFY FACIAL EXPRESSIONS OF THE PLAYERS

Heraclito A Pereira, Jr. (Universidade Federal do Espírito Santo, Brazil)

Crediné Silva de Menezes (Universidade Federal do Rio Grande do Sul, Brazil)

Alberto De Souza (Universidade Federal do Espírito Santo, Brazil)

EEG MARKERS OF STEM LEARNING

Xiaodong Qu (Brandeis University, USA)

Yixin Sun (Brandeis University, USA)

Robert Sekuler (Brandeis University, USA)

Timothy Hickey (Brandeis University, USA)

CLASSROOM ORCHESTRATION WITH PROBLEM SOLVING MARKOV MODELS

Fatima Abu Deeb (King Saud bin AbdulAziz University for Health Sciences, Saudi Arabia)

Timothy Hickey (Brandeis University, USA)

F2H: Approaches to Student Centered Learning

1:00 - 3:00

Room: Blossom Hill III

Chair: Thomas Staubitz (Hasso Plattner Institute for Digital Engineering, Germany)

A COMPARISON OF LECTURE-BASED AND ACTIVE LEARNING DESIGN PATTERNS IN CS EDUCATION

Nasrin Dehbozorgi (University of North Carolina at Charlotte (UNCC), USA)

Stephen MacNeil (UNC at Charlotte & Purdue University, USA)

Mary Lou Maher (University of North Carolina at Charlotte, USA)

Mohsen Dorodchi (University of North Carolina, Charlotte, USA)

PEER-FORMULATED ASSIGNMENT METHOD FOR EXPERIMENTAL PROJECTS IN CS COURSES

Xin Zhang (National University of Defense Technology, P.R. China)

Libo Huang (National University of Defence Technology, P.R. China)

Zhiying Wang (National University of Defense Technology, P.R. China)

Qi Yu (National University of Defense Technology, P.R. China)

A PBL-BASED, INTEGRATED LEARNING EXPERIENCE OF OBJECT-ORIENTED PROGRAMMING, DATA STRUCTURES AND SOFTWARE DESIGN

Ayala L Ribeiro (State University of Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

PLANNING PBL IN COMPUTING EDUCATION: AN APPROACH BASED ON A COLLABORATIVE TOOLKIT

Gustavo Alexandre (Federal University of Pernambuco & CESAR, Brazil)

Simone Santos (Federal University of Pernambuco, Brazil)

Pedro Rossi (UFPE, Brazil)

DESIGN AND IMPLEMENTATION OF AN ACTIVITY-BASED INTRODUCTORY COMPUTER SCIENCE COURSE (CSI) WITH PERIODIC REFLECTIONS VALIDATED BY LEARNING ANALYTICS

Mohsen Dorodchi (University of North Carolina, Charlotte, USA)

Aileen Benedict (University of North Carolina at Charlotte, USA)

Devansh Desai (University of North Carolina at Charlotte, USA)

Mohammad Javad Mahzoon (University of North Carolina at Charlotte, USA)

Stephen MacNeil (UNC at Charlotte & Purdue University, USA)

Nasrin Dehbozorgi (University of North Carolina at Charlotte (UNCC), USA)

SUPPLEMENTAL INSTRUCTION IN A FIRST-YEAR ENGINEERING COURSE: A STUDY FROM THE LEARNING WITH ACADEMIC PARTNERS (LEAP) PROGRAM

Amber Kemppainen (Michigan Technological University, USA)

A J Hamlin (Michigan Technological University, USA)

Nathan Manser (Michigan Technological University, USA)

WORK-IN-PROGRESS: INTEGRATION OF INCLUSIVITY ACTIVITY IN CIVIL ENGINEERING MATERIALS COURSE

Tiago Forin (Rowan University, USA)
Parth Bhavsar (Rowan University, USA)
Aaron Nolan (Rowan University, USA)
Harsh Pandya (Rowan University, USA)
Yusuf Mehta (Rowan University, USA)

THE DEVELOPMENT AND EVALUATION OF A SERIES OF NEW FIRST-YEAR ENGINEERING COURSES

Evelyn Laffey (Princeton University, USA)
Catherine Riihimaki (Princeton University, USA)
Paul Durst (Princeton University, USA)
Mei Chai Zheng (Princeton University, USA)

COMBATTING STEREOTYPES IN COMPUTING USING PERSONALITY TYPE

Linda Ott (Michigan Technological University, USA)

DO GREAT MINDS THINK ALIKE? RACIAL/ETHNIC AND GENDER DIFFERENCES IN MINDSET OF UNDERGRADUATE ENGINEERING STUDENTS

Julianna Ge (Purdue University, USA)
Edward Berger (Purdue University, USA)
John Chen (California Polytechnic State University, USA)
Brian Self (California Polytechnic State University, USA)

MEET-UP: AN ORIENTATION PROGRAM FOR STUDENTS WITH AUTISM SPECTRUM DISORDER

David Lopez (Universitat Politècnica de Catalunya - BarcelonaTech, Spain)
Lidia Montero (Universitat Politècnica de Catalunya - BarcelonaTech, Spain)
Montserrat Vilalta Porta (Universitat Politècnica de Catalunya - BarcelonaTech, Spain)

WITHIN-GROUP DIFFERENCES OF ENGINEERING IDENTITY FOR LATINX ENGINEERING STUDENTS

Renata A Revelo (University of Illinois at Chicago, USA)
Nikolay Stepin (University of Illinois at Chicago, USA)

FACTORS MEDIATING LEARNING AND APPLICATION OF COMPUTATIONAL MODELING BY LIFE SCIENTISTS

Aasakiran Madamanchi (Purdue University, USA)
Monica E Cardella (Purdue University, USA)
James Glazier (Indiana University, USA)
David Umulis (Purdue University, USA)

INTEGRATING SOCIAL SKILLS PRACTICE WITH COMPUTER PROGRAMMING FOR STUDENTS ON THE AUTISM SPECTRUM

Kurt Eiselt (University of California, Davis, USA)
Paul Carter (University of British Columbia, Canada)

AN ANALYTICAL APPROACH TO UNDERSTANDING UNDERREPRESENTED JUSTICE-INVOLVED YOUTH POTENTIAL IN STEM

Jamie L Kennedy (The College of New Jersey, USA)
Jennica Janssen (Drexel University, USA)

EXPLORING I-POEMS TO EXPLORE THE IDENTITY OF UNDERREPRESENTED ENGINEERING STUDENT MAKERS

Nadia Kellam (Arizona State University, USA)
Anna Cirell (Arizona State University, USA)
Audrey Boklage (Arizona State University, USA)
Brooke Coley (Arizona State University, USA)

F2K: WIP - Professional Skills & Design Education

1:00 - 3:00

Room: Convention Center 211B

Chair: Stephen Frezza (Gannon University, USA)

DEVELOPMENT OF LEADERSHIP SELF-EFFICACY: COMPARING ENGINEERS, OTHER STEM, AND NON STEM MAJORS

Bryce Hughes (Montana State University, USA)
William Schell, IV (Montana State University, USA)
Brett Tallman (Montana State University, USA)

DEVELOPING AND APPLYING AN UNDERGRADUATE CROSS-COURSE TEAM ASSIGNMENT

Luciana Debs (Purdue University, USA)
Mark Zimpfer (Purdue University, USA)

IMPLEMENTING PROJECT BASED LEARNING: SOME CHALLENGES FROM A REQUIREMENTS ENGINEERING PERSPECTIVE

Joshua Nwokeji (Gannon University, USA)
Faisal Aqlan (Penn State Behrend, USA)
Ayodele Olagunju (University of Saskatchewan, Canada)
Terry S Holmes (Gannon University, USA)
Nkiruka Okolie (Lagos State University, Nigeria)

USING REFLECTION AND DIGITAL STORYTELLING VIA EPORTFOLIOS TO SUPPORT THE PROFESSIONAL DEVELOPMENT OF ENGINEERING GRADUATE STUDENTS

Helen L. Chen (Stanford University, USA)
Sheetal J. Patel (Stanford University, USA)

SE+20: IMPROVING SOFTWARE TESTING EDUCATION VIA INDUSTRY SPONSORED CONTESTS

W. Eric Wong (University of Texas, Dallas, USA)
Linghuan Hu (University of Texas at Dallas, USA)
Haoliang Wang (University of Texas at Dallas, USA)
Zhenyu Chen (Nanjing University, P.R. China)

REFLECTIVE DESIGN PRACTICE: A NOVEL ASSESSMENT OF THE IMPACT OF DESIGN-BASED COURSES ON STUDENTS

Adam Royalty (Stanford University, USA)
Helen L. Chen (Stanford University, USA)
Sheri Sheppard (Stanford University, USA)

COLLABORATIVE NEED IDENTIFICATION AND DEFINITION OF MACHINE DESIGN CLASS PROJECTS

Fisseha Alemayehu (West Texas A&M University, USA)
Kenneth Leitch (West Texas A&M University, USA)

HELPING STUDENTS GET MORE THAN THEIR MONEY FROM AN ENGINEERING SCHOLARSHIP PROGRAM

Thalia Anagnos (San Jose State University, USA)

Eva Schiorring (RP Group, USA)

ESTIMATING SERVICE LIFE FOR CORRUGATED STEEL PIPE CULVERTS

George Aquino (California State University: Northridge, USA)

John Copello (California State University: Northridge, USA)

David Pucio (California State University: Northridge, USA)

Hani Salhab (California State University: Northridge, USA)

Jorge Sanchez (California State University: Northridge, USA)

Francisco Silva (California State University: Northridge, USA)

David Boyajian (California State University: Northridge, USA)

Sami Maalouf (California State University: Northridge, USA)

Tadeh Zirakian (California State University: Northridge, USA)

PRELIMINARY EFFORTS TO DEFINE, ASSESS AND IMPROVE STUDENTS' ABILITY TO MAKE "CONNECTIONS" AS PART OF DEVELOPING AN ENTREPRENEURIAL MINDSET

Margot Vigeant (Bucknell University, USA)

Alan Cheville (Bucknell University, USA)

Charles Kim (Bucknell University, USA)

Michael Prince (Bucknell University, USA)

Erin Jablonski (Bucknell University, USA)

Joseph Tranquillo (Bucknell University, USA)

F3A: Special Session - Equality vs. Equity: Using Assets and Cultivating Students

4:00 - 6:00

Room: Convention Center 211 D

EQUALITY VS. EQUITY: USING ASSETS AND CULTIVATING STUDENTS

Melissa Salazar (Escala Educational Services LLC, USA)

Eileen Cashman (Humboldt State University, USA)

Elizabeth A. Eschenbach (Humboldt State University, USA)

F3B: Panel - Integrating Requirements Engineering Education into Core Engineering Disciplines

4:00 - 6:00

Room: Convention Center 211C

PANEL: INTEGRATING REQUIREMENTS ENGINEERING EDUCATION INTO CORE ENGINEERING DISCIPLINES

Joshua Nwokeji (Gannon University, USA)

Faisal Aqlan (Penn State Behrend, USA)

Jorge Martinez (Purdue University, USA)

Terry S Holmes (Gannon University, USA)

Stephen Frezza (Gannon University, USA)

Rita Orji (Dalhousie University, Canada)

CRACKING THE CODE: THE EFFECTS OF USING MICROCONTROLLERS TO CODE ON STUDENTS' INTEREST IN COMPUTER AND ELECTRICAL ENGINEERING

Ali Bicer (Texas A&M University, USA)

Yujin Lee (Texas A&M University, USA)

Robert M Capraro (Texas A&M University, USA)

Mary M Capraro (Texas A&M University, USA)

Luciana R Barroso (Texas A&M University, USA)

Katherine N Vela (Texas A&M University, USA)

Danielle Bevan (Texas A&M University, USA)

THE RELATIONSHIP BETWEEN BREADTH OF PREVIOUS ACADEMIC STUDY AND ENGINEERING STUDENTS' PERFORMANCE

David Lowe (The University of Sydney, Australia)

Tim Wilkinson (The University of Sydney, Australia)

Archie Johnston (The University of Sydney, Australia)

Tania Machet (The University of Sydney, Australia)

CORRELATIONS BETWEEN GRADUATE STUDENT WRITING CONCEPTS AND PROCESSES AND CERTAINTY OF CAREER TRAJECTORIES

Ellen Zerbe (Pennsylvania State University, USA)

Catherine Berdanier (Pennsylvania State University, USA)

STUDY ON DISTRIBUTED COGNITION PROCESSES AND PARTICIPATION IN COLLABORATIVE CONSTRUCTION ACTIVITIES IN DIGITAL MEDIA

Viviani Kwecko (FURG, Brazil)

F. Mota (Universidade Federal do Rio Grande, Brazil)

Sam Devincenzi (FURG, Brazil)

Fernando Pereira de Tolêdo (Furg, Brazil)

Mauren Porciúncula (Furg, Brazil)

Silvia Botelho (Federal University of Rio Grande, Brazil)

INFORMAL STEM EXPERIENCES: IMPACT ON DIVERSE GROUPS OF STUDENTS AND TEACHERS

Sandra B Nite (Texas A&M University, USA)

Devyn C Rice (Texas A&M University, USA)

James Morgan (Charles Sturt University, Australia)

MAKERSPACE INVOLVEMENT AND ACADEMIC SUCCESS IN MECHANICAL ENGINEERING

Ethan Hilton (Georgia Institute of Technology, USA)

Robert Nagel (James Madison University, USA)

Julie Linsey (Georgia Institute of Technology, USA)

F3D: Student As Learner

4:00 - 6:00

Room: Willow Glen III

Chair: Mohsen Dorodchi (University of North Carolina, Charlotte, USA)

ENGINEERING AND INFORMATICS STUDENT MULTIDISCIPLINARY LEARNING USING 3D VISUALIZATION AND 3D DISPLAY OF RADIO FREQUENCY (RF) CONCEPTS

Lauren Christopher (IUPUI & IUPUI, USA)

Albert William (IUPUI, USA)

Anusha S Rao (IUPUI, USA)

Ashley Dale (IUPUI, USA)

Mihir Joshi (IUPUI, USA)

Anthony Chase (IUPUI, USA)

Bree Abernathy (IUPUI, USA)

Wendy Krogg (IUPUI, USA)

TEACHING ADULT LEARNERS ON SOFTWARE ARCHITECTURE DESIGN SKILLS

Ouh Eng Lih (Singapore Management University, Singapore)

Yunghans Irawan (National University Of Singapore, Singapore)

DIDACTIC FRAMEWORK FOR TEACHING C PROGRAMMING LANGUAGE: A PROPOSAL BASED ON COOPERATIVE AND COMPETITIVE LEARNING TECHNIQUES

Wollace Souza, S (Federal University of Amazonas - UFAM, Brazil)

Juliana M.V.M. de Lucena (Federal Institute of Education, Science, and Technology of Amazonas - IFAM, Brazil)

Antonio Lira (Federal Institute of Education, Science and Technology of Amazonas -IFAM, Brazil)

Vicente F. Lucena, Jr. (Federal University of Amazonas, Brazil)

HOW ENGINEERING AND COMPUTING STUDENTS DEMONSTRATE CRITICAL THINKING DURING REQUIRED CO-OP WORK EXPERIENCES

Adrienne Decker (Rochester Institute of Technology, USA)

Jennifer L Schneider (Rochester Institute of Technology, USA)

Lauren E Margulieux (Georgia State University, USA)

CORRELATION BETWEEN PROCEDURAL AND CONCEPTUAL TEST IN A STATICS COURSE

Jaime Barbosa (EAFIT University, Colombia)

Jorge L. Restrepo (EAFIT University, Colombia)

Carlos Restrepo (EAFIT University, Colombia)

SURVEY ON PEDAGOGICAL RESOURCES RECOMMENDATION USING COGNITIVE COMPUTING SYSTEMS

Gabriel de Souza Leitão (Federal University of Amazonas, Brazil)

Eduardo Valentin (Federal University of Amazonas, Brazil)

Raimundo Barreto (Universidade Federal do Amazonas, Brazil)

Elaine H. T. de Oliveira (Federal University of Amazonas, Brazil)

PRACTICAL EDUCATION IN IOT THROUGH COLLABORATIVE WORK ON OPEN-SOURCE PROJECTS WITH INDUSTRY AND ENTREPRENEURIAL ORGANIZATIONS

Vladimir Podolskiy (Technical University of Munich, Germany)

Yesika Ramirez (Technical University of Munich, Germany)

Atakan Yenel (Technical University of Munich, Germany)

Shumail Mohyuddin (Technical University of Munich, Germany)

Hakan Uyumaz (Technical University of Munich, Germany)

Ali Naci Uysal (Technical University of Munich, Germany)

Moawiah Assali (Technical University of Munich, Germany)

Sergei Drugalev (Technical University of Munich, Germany)

Matthias Friessnig (UnternehmerTUM MakerSpace, Germany)

Anastasia Myasnichenko (UnternehmerTUM, Germany)

Michael Gerndt (Technical University of Munich, Germany)

LECTURE VIDEO ANALYTICS AS AN INSTRUCTIONAL RESOURCE

Ryan Long (University of Houston, USA)

Tayfun Tuna (University of Houston, USA)

Jaspal Subhlok (University of Houston, USA)

MOOCS ON THE CONTEXT OF SOFTWARE ENGINEERING TEACHING AND TRAINING: TRENDS AND CHALLENGES

Jorge Marques Prates (University of Sao Paulo)

José Maldonado (University of São Paulo, Brazil)

Rogério Garcia (São Paulo State University & Faculty of Science and Technology, Brazil)

DEFINING REQUIREMENTS FOR A REPOSITORY TO MEET THE NEEDS OF K-12 COMPUTER SCIENCE EDUCATORS, RESEARCHERS, AND EVALUATORS

Monica M. McGill (Knox College, USA)

Adrienne Decker (Rochester Institute of Technology, USA)

EDUCATION OF ELECTRICAL ENGINEERING STUDENTS ABOUT ETHICS AND SOCIETAL IMPACTS IN COURSES AND CO-CURRICULAR ACTIVITIES

Angela Bielefeldt (University of Colorado Boulder, USA)

Madeline Polmear (University of Colorado at Boulder, USA)

Daniel Knight (University of Colorado Boulder, USA)

Chris Swan (Tufts University, USA)

Nathan Canney (CYS Structural Engineers Inc., USA)

GAMING PROJECTS FOR COGNITIVE TESTING IN AN UNDERGRADUATE MOBILE HEALTHCARE TECHNOLOGY COURSE

Nikhil Yadav (St. John's University, USA)

Joan E DeBello (St. John's University, USA)

Celeste Gallardo (St. John's University, USA)

Sherice Jackson (St. John's University, USA)

F3F: Design Education

4:00 - 6:00

Room: Blossom Hill I

Chair: Jason Clark (Auburn University, USA)

USABILITY TESTING FOR TEACHERS' LESSON PLANNING SERVICES

Leandro Marques Queiros (Federal University of Pernambuco, Brazil)

Nicolau Jofilsan (Federal University of Pernambuco, Brazil)

Amadeu Campos (Federal University of Pernambuco, Brazil)

Carlos José da Silva (Federal University of Pernambuco, Brazil)

Francisco Kelsen de Oliveira (Federal University of Pernambuco & Federal Institute of Education, Science and Technology of Sertão Pernambucano, Brazil)

Alex Sandro Gomes (Federal University of Pernambuco, Brazil)

STUDENTS' PERCEPTIONS OF BEST AND WORST ASPECTS OF DESIGN COURSES: A QUALITATIVE ANALYSIS OF 87 COURSES AND 5591 STUDENTS

Ahmed Ibrahim (Johns Hopkins University, USA)

Michael Reese (Johns Hopkins University, USA)

INTELLIGENT EDUCATIONAL DUAL ARCHITECTURE FOR UNIVERSITY DIGITAL TRANSFORMATION

Jesus Alfonso Perez Gama (IEEE Life Senior - Education/Computer Societies Past Chapter Chair)

APPLYING HOL/PBL TO PREPARE UNDERGRADUATE STEM STUDENTS INTO GRADUATE LEVEL STUDIES IN THE FIELD OF AEROSPACE ENGINEERING USING THE PUERTO RICO CUBESAT PROJECT INITIATIVE

Rachid Darbali-Zamora (University of Puerto Rico-Mayaguez, Puerto Rico)

Nicolas Cobo Yepes (University of Puerto Rico-Mayaguez & Mayaguez Campus, Puerto Rico)

Eduardo Ortiz-Rivera (University of Puerto Rico-Mayaguez, Puerto Rico)

Amilcar A. Rincon-Charris (Inter American University of Puerto Rico-Bayamon, Puerto Rico)

Erick Aponte-Bezares (University of Puerto Rico-Maaguez, Puerto Rico)

CONSUMER ELECTRONICS DESIGN AS PREPARATION FOR CAPSTONE DESIGN

John Lund (Western Washington University, USA)

INSTRUMENT DEVELOPMENT TO ASSESS DESIGN PROJECT APPROPRIATENESS FOR DOMAIN RELATEDNESS, AMBIGUITY TOLERANCE, AND GENDEREDNESS

Kathy Jackson (Penn State University, USA)

Jordan Blair (Penn State University, USA)

Gul Kremer (Iowa State, USA)

Xinli Wu (Penn State University, USA)

F3G: Discipline Specific Issues: Computer Science

4:00 - 6:00

Room: Blossom Hill II

Chair: Jeong Yang (Texas A&M University-San Antonio, USA)

PREPARING K-12 TEACHERS TO INSPIRE FUTURE CODERS: IT DOESN'T HAVE TO BE COMPLEX

Lori Carter (Point Loma Nazarene University, USA)

Catherine Crockett (Point Loma Nazarene University, USA)

MOTIVATION OF ENGINEERING STUDENTS WITH A MIXED-CONTEXTS APPROACH TO INTRODUCTORY PROGRAMMING

Bianca L Santana (State University of Feira de Santana, Brazil)

Jose Solenir L Figueredo (State University of Feira de Santana, Brazil)

Roberto A Bittencourt (State University of Feira de Santana, Brazil)

INNOVATIVE APPROACH TO ONLINE ARGUMENTATION AND MODELS FOR STRUCTURING THE ARGUMENTS

Neelam Soundarajan (Ohio State University, USA)

Swaroop Joshi (The Ohio State University, USA)

EFFECTS OF ERROR MESSAGES ON STUDENTS' ABILITY TO UNDERSTAND AND FIX PROGRAMMING ERRORS IN ASSEMBLY LANGUAGE PROGRAMMING

Harsha Kadekar (Arizona State University, USA)

Sohum Sohoni (Arizona State University, USA)

Scotty Craig (Arizona State University, USA)

NON-TRADITIONAL NOVICES' PERCEPTIONS OF LEARNING TO PROGRAM: A FRAMEWORK OF DEVELOPING MENTAL MODELS

Thomas Spangsberg (Aarhus University, Denmark)

Sally Fincher (University of Kent, United Kingdom (Great Britain))

Sebastian Dziallas (University of Kent, United Kingdom (Great Britain))

VISUAL PROGRAMMING AND INTERACTIVE LEARNING BASED DYNAMIC INSTRUCTIONAL APPROACHES TO TEACH AN INTRODUCTORY PROGRAMMING COURSE

Mahmudur Rahman (Morgan State University & Morgan State University, USA)

Roshan Paudel (Morgan State University, USA)

F3H: Professional Skills

4:00 - 6:00

Room: Blossom Hill III

Chair: William Schell, IV (Montana State University, USA)

ACHIEVING EFFECTIVE COMMUNICATION BETWEEN DIVERSE DISCIPLINES IN SMALL TEAMS

Robert Pastel (Michigan Technological University, USA)

Wei Zhang (Michigan Technological University, USA)

USING GAMIFICATION IN OUTREACH CAMPS: EXPERIENCE FROM AN INFORMATION SYSTEMS PROGRAM

Swapna Gottipati (Singapore Management University, Singapore)

Venky Shankararaman (Singapore Management University & School of Information Systems, Singapore)

INTEGRATING ENGINEERING LEADERSHIP THROUGHOUT AN UNDERGRADUATE ENGINEERING DEGREE

Meagan R. Kendall (University of Texas at El Paso, USA)

Evelyn Martinez (University of Texas at El Paso, USA)

Caroline Salas (University of Texas at El Paso, USA)

Roger Gonzalez (University of Texas at El Paso & LIMBS International, USA)

COMPARING ENGINEERING LEADERSHIP CURRICULA IN CANADA AND THE UNITED STATES: THE ROLE OF EXTERNAL AND INTERNAL INFLUENCES

John Donald (University of Guelph, Canada)

Michael Klassen (University of Toronto, Canada)

"OUR LITTLE WORLD": (UN)ENVISIONING THE SOCIAL AND ETHICAL IMPLICATIONS OF ENGINEERING

Jae Hoon Lim (University of North Carolina at Charlotte, USA)
Nickcoy Findlater (University of North Carolina at Charlotte, USA)
Claudia Interiano (University of North Carolina-Charlotte, USA)
Peter T. Tkacik (University of North Carolina-Charlotte, USA)
Jerry Dahlberg (University of North Carolina-Charlotte, USA)
Lauren Faw (University of North Carolina at Charlotte, USA)
Brittany Hunt (University of North Carolina at Charlotte, USA)
Nhu Nguyen (University of North Carolina at Charlotte, USA)

EXPLORING THE RANGE OF METHODS USED TO ASSESS ENGINEERING STUDENTS' EDUCATION ON ETHICAL AND SOCIETAL IMPACT ISSUES

Daniel Knight University of Colorado Boulder, USA)
Angela Bielefeldt (University of Colorado Boulder, USA)
Nathan Canney (CYS Structural Engineers Inc., USA)
Chris Swan (Tufts University, USA)
Madeline Polmear (University of Colorado at Boulder, USA)

F3I: WIP - Laboratory Experiences (On-Campus & Remote)

4:00 - 6:00

Room: Almaden

Chair: PK Imbrie (University of Cincinnati, United States)

CONTACTLESS SMART CARD EXPERIMENTS IN A CYBERSECURITY COURSE

Xiaojun Wu (Tsinghua University, P.R. China)
Yongqiang Chen (Tsinghua University, P.R. China)
ShanShan Li (Tsinghua University, P.R. China)

DESIGN OF A TECHNOLOGY-ENHANCED PEDAGOGICAL FRAMEWORK FOR A SYSTEMS AND NETWORKING ADMINISTRATION COURSE INCORPORATING A VIRTUAL LABORATORY

Rukshan Athauda (University of Newcastle, Australia)
Tareq Alkhaldi (The University of Newcastle, Australia)
Ilung Pranata (The University of Newcastle, Australia)
Daniel Conway (The University of Newcastle, Australia)
Charles Frank (The University of Newcastle, Australia)
William Thorne (The University of Newcastle, Australia)
Ryan Dean (The University of Newcastle, Australia)

A TOOL FOR THE AUTOMATIC SELECTION OF MECHATRONICS REMOTE LABORATORIES BASED ON THEIR ACTUAL EFFECTIVE COSTS

Guido Machado (Federal University of Amazonas, Brazil)
Yuri Silva (Federal University of Amazonas, Brazil)
Vicente F. Lucena, Jr. (Federal University of Amazonas, Brazil)

MULTI-DIMENSION TRAINING SCHEME TO IMPROVE THE INNOVATION CAPACITY OF POSTGRADUATE AND UNDERGRADUATE STUDENTS COLLABORATIVELY

Xiaolong Xu (Nanjing University of Posts & Telecommunications, P.R. China)
Jianhua Shen (Nanjing University of Posts and Telecommunications, P.R. China)

EXPLORING DIVERSITY AND INCLUSION IN THE PROFESSIONAL FORMATION OF ENGINEERS THROUGH DESIGN SESSIONS

Carla B. Zoltowski (Purdue University, USA)
Sean M Eddington (Purdue University, USA)
Andrew O. Brightman (Purdue University, USA)
Patrice Buzzanell (Purdue University, USA)
Rucha Joshi (Purdue University, USA)

INTRODUCTION TO COMPUTING: INTERDISCIPLINARY COURSE DESIGN

Vinitha Hannah Subburaj (West Texas A&M University, USA)
Anitha Sarah Subburaj (West Texas A&M University, USA)
Joseph Urban (Arizona State University, USA)

IMPROVING RETENTION AND CONFIDENCE THROUGH CROSS-COURSE COLLABORATIVE PROJECT-BASED LEARNING

Jennifer Winikus (University at Buffalo, USA)
Lukasz Ziarek (University at Buffalo, USA)
Carl Alphonse (University at Buffalo, USA)
Jesse Hartloff (University at Buffalo, USA)

UNPLUGGED ROBOTICS TO INCREASE K-12 STUDENTS' ENGINEERING INTEREST AND ATTITUDES

Blanca Miller (University of Nevada, Reno, USA)
Justin C Major (Purdue University, USA)
Adam Kirn (University of Nevada, Reno, USA)
David Feil-Seifer (University of Nevada, Reno, USA)
Mercedes Anderson (University of Nevada, Reno, USA)
Melissa Jurkiewicz (Mercer University, USA)

MEASURING COMMUTER STUDENT SUPPORT AND SUCCESS THROUGH ACADEMIC INTEGRATION

Cory Brozina (Youngstown State University, USA)

F3J: WIP - Diversity & Inclusion - PK12 & Pathways

4:00 - 6:00

Room: Convention Center 211 A

BENEFITS OF EXPOSING K-12 STUDENTS TO COMPUTER SCIENCE THROUGH SUMMER CAMP PROGRAMS

Miller Jeffrey (University of Southern California, USA)
Saty Raghavachary (University of Southern California, USA)
Andrew Goodney (University of Southern California, USA)

AN INNOVATIVE PROFESSIONAL DEVELOPMENT MODEL FOR TEACHING ROBOTICS TO NOVICE EDUCATORS

Bryan Choate (Worcester Polytechnic Institute, USA)
Mia Dubosarsky (Worcester Polytechnic Institute (WPI), USA)
Katherine C. Chen (Worcester Polytechnic Institute, USA)

EVALUATING THE USE OF GAMIFICATION IN MATHEMATICS LEARNING IN PRIMARY SCHOOL CHILDREN

Geovania Cunha (Escola Municipal do Ensino Fundamental Eber Louzada Zippinotti, Brazil)
Luciana Barraqui (Escola Municipal do Ensino Fundamental Eber Louzada Zippinotti, Brazil)
Sergio A. A. Freitas (University of Brasilia, Brazil)

CREATING A METACOGNITION COMMUNITY OF PRACTICE: TRANSFORMING THE ENGINEERING LEARNING COMMUNITY

Rachel McCord (The University of Tennessee & Tickle College of Engineering, USA)
Patrick Cunningham (Rose-Hulman Institute of Technology, USA)
Holly Matusovich (Virginia Tech, USA)
Cheryl Carrico (Virginia Tech, USA)

STEMULATE-K12: AUTOMATING STEM ATTRACTION

Quintana Clark (Purdue University, USA)
Jason Clark (Auburn University, USA)

"NOT ALL THOSE WHO WANDER ARE LOST." EXAMINING OUTCOMES FOR MIGRATING ENGINEERING STUDENTS USING ECOSYSTEM METRICS

Susan M. Lord (University of San Diego, USA)
Matthew W Ohland (Purdue University, USA)
Richard Layton (Rose-Hulman Institute of Technology, USA)
Michelle Madsen Camacho (Sociology Department, USA)

EDUCATIONAL NANOTECHNOLOGY VIDEO GAME TO INSPIRE MIDDLE AND HIGH SCHOOL STUDENTS TO PURSUE STEM RELATED PROFESSIONAL CAREERS

Sujeily P. Fonseca-Gonzalez (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Samuel González Ortiz (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Brian Rodriguez Badillo (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Melody Seda Marotte (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Jorge Bobonis Tralbal (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Alberto Canela (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Chaliana Rolon (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Josean Bosque Serrano (University of Puerto Rico - Mayaguez Campus, Puerto Rico)
Lexdyel Mendez Rios (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Annamary Cartagena (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Tahiri Fuentes Davila (University of Puerto Rico: Mayaguez Campus, Puerto Rico)
Nayda G. Santiago (University of Puerto Rico, Mayaguez, USA)
Ana Nieves-Rosa (University of Puerto Rico, Mayaguez, Puerto Rico)

FOSTERING HOLISTIC COMPETENCIES, GLOBAL CITIZENSHIP, AND INNOVATION IN ENGINEERING STUDENTS THROUGH COMMUNITY OUTREACH TO DISADVANTAGED USER GROUPS

Rosanna Yuen-Yan Chan (The Chinese University of Hong Kong, Hong Kong)
Vincent Choy (The Chinese University of Hong Kong, Hong Kong)
Cecilia Chan (The University of Hong Kong, Hong Kong)

QUALITATIVE FINDINGS FROM STUDY OF INTERDISCIPLINARY EDUCATION IN COMPUTATIONAL MODELING FOR LIFE SCIENCES STUDENT RESEARCHERS FROM EMERGING RESEARCH INSTITUTIONS

Aasakiran Madamanchi (Purdue University, USA)
Shenika Poindexter (Xavier University of Louisiana, USA)
Monica E Cardella (Purdue University, USA)
James Glazier (Indiana University, USA)
David Umulis (Purdue University, USA)

VISUALIZATION SKILLS AND STUDENT SUCCESS IN ENGINEERING DISCIPLINES

Gareth Figgess (California State University, Sacramento, USA)

Julie Fogarty (California State University, Sacramento, USA)

EXAMINATION OF THE EFFECTIVENESS OF A CRITERIA-BASED TEAM FORMATION TOOL

Albatool Alamri (University of Illinois at Urbana-Champaign & University of Jeddah, USA)

Brian Bailey (University of Illinois at Urbana-Champaign, USA)

APPLYING MACHINE LEARNING TECHNIQUES TO IDENTIFY THE INFLUENTIAL FACTORS OF STUDENTS' ABILITIES TO APPLY STATISTICS MATHEMATICS AND ENGINEERING KNOWLEDGE

Wen Cheng (California State Polytechnic Univ, Pomona, USA)

Gurdiljot Gill (Research Associate, USA)

EMBEDDED CONTENT ASSESSMENT

Jacqueline Burgher (Campbell University, USA)

Anastasia Rynearson (Campbell University, USA)

SAT DOES NOT SPELL SUCCESS: HOW NON-COGNITIVE FACTORS CAN EXPLAIN VARIANCE IN THE GPA OF UNDERGRADUATE ENGINEERING AND COMPUTER SCIENCE STUDENTS

Matthew Scheidt (Purdue University, USA)

Ryan Senkpeil (Purdue, USA)

John Chen (California Polytechnic State University, USA)

Allison Godwin and Edward Berger (Purdue University, USA)

RECLAIMING THE LARGE FOUNDATIONAL ENGINEERING CLASSROOM: INSTRUCTORS' NEEDS AND ASPIRATIONS

Michelle Soledad (Virginia Tech & Ateneo de Davao University, USA)

Homero Murzi (Virginia Polytechnic Institute and State University, USA)

Jacob Grohs (Virginia Tech, USA)

David Knight (Virginia Tech, USA)

Natasha Smith (Virginia Tech, USA)

Scott Case (Virginia Tech, USA)

CLOSING THE SKILLS GAP: CONSTRUCTION AND ENGINEERING EDUCATION USING MIXED REALITY - A CASE STUDY

Wei Wu (California State University, Fresno, USA)

Aaron Tesei (California State University, Fresno, USA)

Steven Ayer (Arizona State University, USA)

Jeremi London (Virginia Tech, USA)

Yupeng Luo (California State University - Fresno, USA)

Venkata Gunji (California State University, Fresno, USA)

LIBERATORY METHODOLOGIES: PARTICIPATORY ACTION RESEARCH STRATEGIES FOR DISCOVERING INCLUSIVE MAKER SPACE PRACTICES

Adam S Masters (Virginia Tech, USA)

Lisa D. McNair (Virginia Tech, USA)

Donna Riley (Purdue, USA)

BIAS-AWARE GUIDELINES AND FAIRNESS-PRESERVING TAXONOMY IN SOFTWARE ENGINEERING EDUCATION

Paola Spoletini (Kennesaw State University, USA)

Reza M. Parizi (Kennesaw State University, USA)

ANALYZING MAIN CHARACTERISTICS IN SOFTWARE ENGINEERING PROJECTS

Jakeline Marcos-Abed (Tecnologico de Monterrey, Mexico)

Saturday, October 6th

SIA: Special Session - Uncovering the Hidden Factors That Could Compromise Equitable and Effective Engineering Education

8:30 - 10:10

Room: Ballroom Salon 1

UNCOVERING THE HIDDEN FACTORS THAT COULD COMPROMISE EQUITABLE AND EFFECTIVE ENGINEERING EDUCATION

Idalis Villanueva (Utah State University, USA)

Joel Alejandro Mejia (University of San Diego, USA)

Renata A Revelo (University of Illinois at Chicago, USA)

SIB: Panel - Panel on Service-Learning Practitioners Navigating Partnerships, Research, and Funding

8:30 - 10:10

Room: Convention Center 211C

PANEL ON SERVICE-LEARNING PRACTITIONERS NAVIGATING PARTNERSHIPS, RESEARCH, AND FUNDING

Julia Thompson (San Jose State University, USA)

James Huff (Harding University, USA)

Andrew Pierce (Purdue University, USA)

SIC: Teaching & Learning Experiences in Engineering Education

8:30 - 10:10

Room: Willow Glen II

Chair: Benjamin Ahn (Iowa State University, USA)

APPLICATION OF THE INCLUSIVE MODEL FOR THE DEVELOPMENT AND EVALUATION OF ACCESSIBLE LEARNING OBJECTS FOR GRADUATION IN COMPUTING: A CASE STUDY

Andreza Mourão (Federal University of Amazonas, Brazil)

José Francisco Magalhães, Netto (Federal University of Amazonas, Brazil)

PLATFORM FOR TEACHING HANDS-ON END-TO-END ANONYMITY ALGORITHMS

Emil Salib (James Madison University, USA)

Grant Hobar (James Madison University, USA)

EFFECTIVENESS OF FLOWCHARTING AS A SCAFFOLDING TOOL TO LEARN PYTHON

Candido Cabo (New York City College of Technology/City University of New York, USA)

DEMONSTRATION OF THREE-PHASE ARMATURE WINDING IN CLASSROOM USING A PROPOSED PORTABLE HARDWARE TOOL

Prechanon Kumkratug (Kasetsart University at Sriracha Campus, Thailand)

WHY ARE WE HERE? THE EDUCATIONAL VALUE MODEL (EVM) AS A FRAMEWORK TO INVESTIGATE THE ROLE OF STUDENTS' PROFESSIONAL IDENTITY DEVELOPMENT

Aletta Nylén (Uppsala University, Sweden)

Mats Daniels (Uppsala University, Sweden)

Arnold N Pears (KTH Royal Institute of Technology & Uppsala University, Sweden)

Åsa Cajander (Uppsala University, Sweden)

Roger McDermott (Robert Gordon University, United Kingdom (Great Britain))

Ville Isomottonen (University of Jyväskylä, Finland)

SID: Assessment & Evaluation Strategies/Approaches

8:30 - 10:10

Room: Willow Glen III

Chair: Thalia Anagnos (San Jose State University, USA)

ABET CRITERION 3 AS A MEASURE OF ENGINEERING SELF-EFFICACY

Mark Schar (Stanford University, USA)

Patricia Brackin (Rose-Hulman Institute of Technology, USA)

KJ Chew (Stanford University, USA)

Sheri Sheppard (Stanford University, USA)

MEASURING CURRICULAR IMPACT USING AN ABET-BASED ENGINEERING SELF EFFICACY SCALE

Mark Schar (Stanford University, USA)

Patricia Brackin (Rose-Hulman Institute of Technology, USA)

KJ Chew (Stanford University, USA)

Sheri Sheppard (Stanford University, USA)

USING BAYESIAN ANALYSIS TO REFINE THE MEASUREMENT OF THE INNOVATIVE CAPACITIES OF ENGINEERS

Daniel M Ferguson (Purdue University, USA & EDI GROUP Canada, Canada)

Michael L Thompson (Procter and Gamble, USA)

Diane Navin (Procter & Gamble, USA)

Amy Phillips (Procter & Gamble, USA)

Matthew W Ohland (Purdue University, USA)

Kathryn Jablokow (Penn State University, USA)

LOCKDOWN COMPUTERIZED TESTING INTERWOVEN WITH RAPID REMEDIATION: A CROSSOVER STUDY WITHIN A MECHANICAL ENGINEERING CORE COURSE

Tian Tian (University of Central Florida, USA)

Ronald DeMara (University of Central Florida, USA)

Su Gao (University of Central Florida, USA)

ENHANCING ELECTRICAL SCIENCE LEARNING WITHIN A NOVEL PRACTICE TESTING LEARNING FRAMEWORK

James Eustace (National College of Ireland & Educational and Training Boards Ireland, Ireland)

Pramod Pathak (National College of Ireland, Ireland)

SIE: WIP - Service Learning & Student Centered Learning

8:30 - 10:10

Room: Guadalupe

Chair: Alison Clear (EIT, New Zealand)

A CLOSER LOOK AT CAMPUS-COMMUNITY PARTNERSHIPS IN ENGINEERING EDUCATION

Eric Brubaker (Stanford University, USA)

Marsie Trego (Stanford University, USA)

Kofi Taha (Massachusetts Institute of Technology, USA)

Sheri Sheppard (Stanford University, USA)

ENGINEERING GENDER IDENTITIES OF WOMEN IN A SERVICE-LEARNING CONTEXT

Danielle Corple (Purdue University, USA)

Megan Feister (CSU, Channel Islands, USA)

Carla B. Zoltowski (Purdue University, USA)

Patrice Buzzanell (Purdue University, USA)

***LESSONS LEARNED FROM INTERNATIONAL ENGINEERING SERVICE LEARNING PARTNERSHIPS:
STUDENTS PERSPECTIVES***

Neha Choudhary (Purdue University, USA)

William Oakes (Purdue University, USA)

***A MIXED METHODS APPROACH TO UNDERSTANDING HOW COLLEGES, UNIVERSITIES, AND
EMPLOYERS PREPARE AND SUPPORT UNDERGRADUATES IN ENGINEERING INTERNSHIPS***

Helen L. Chen (Stanford University, USA)

Kayla Powers (Stanford University, USA)

Krishnaswamy V Prasad (Ford Motor Company, USA)

Mary Anderson (Ford Motor Company, USA)

Adam Royalty (Stanford University & Columbia University, USA)

Mizrahy Aquino (Stanford University, USA)

Shannon Gilmartin (Stanford University, USA)

Sheri Sheppard (Stanford University, USA)

***A CONTEXTUALIZED, EXPERIENTIAL LEARNING APPROACH TO QUANTITATIVE ENGINEERING
ANALYSIS***

Siddharta Govindasamy (F. W. Olin College of Engineering, USA)

Rebecca Christianson (F. W. Olin College of Engineering, USA)

John Geddes (Olin College of Engineering, USA)

Christopher Lee (Franklin W. Olin College of Engineering, USA)

Samantha Michalka (Franklin W. Olin College of Engineering, USA)

Paul Ruvolo (Olin College of Engineering, USA)

Mark Somerville (Olin College, USA)

Alexandra C Strong (Florida International University, USA)

***CAPSTONE SEMINAR: A ONE-CREDIT HOUR COURSE COVERING THE DESIGN PROCESS
IMPLEMENTATION***

Khalid Al-Olimat (Ohio Northern University, USA)

Firas Hassan (Ohio Northern University, USA)

***A COMPARISON OF FLIPPED PROGRAMMING CLASSROOM MODELS - RESULTS BY GENDER AND
MAJOR***

Aigerim Yessenbayeva (Nazarbayev University, Kazakhstan)

Benjamin Tyler (Nazarbayev University, Kazakhstan)

***A FRAMEWORK FOR MODELING PERSUASIVE TECHNOLOGIES BASED ON THE FOGG BEHAVIOR
MODEL***

Fernando Pereira de Tolêdo (Furg, Brazil)

Sam Devincenzi (FURG, Brazil)

Viviani Kwecko (FURG, Brazil)

F. Mota (Universidade Federal do Rio Grande, Brazil)

Silvia Botelho (Federal University of Rio Grande, Brazil)

SIF: Distance, Open & Flexible Education

8:30 - 10:10

Room: Blossom Hill I

Chair: Manuel Castro (Spanish University for Distance Education - UNED, Spain)

COMPARISON OF LIVE, LATE AND ARCHIVED MODE LEARNER BEHAVIOR IN AN ADVANCED ENGINEERING MOOC

Kerrie A. Douglas (Purdue University, USA)

Harsh Wardhan Aggarwal (Purdue University, USA)

Taylor Williams (Purdue University & Harding University, USA)

Yichen Fan (Purdue University, USA)

Peter Bermel (Purdue University, USA)

COLLABORATIVE LEARNING IN MOOCS - APPROACHES AND EXPERIMENTS

Thomas Staubitz (Hasso Plattner Institute for Digital Engineering, Germany)

Christoph Meinel (Hasso Plattner Institute, University of Potsdam, Germany)

A METHOD FOR BUILDING MASSIVE OPEN ONLINE COURSES FOR ELDERLY PEOPLE - MOOCEP: FROM THE USER'S PERCEPTIONS

Priscila Cedillo (Universidad de Cuenca, Ecuador)

Alexandra Bermeo (Universidad de Cuenca, Ecuador)

Paola Beltran (University of Cuenca, Ecuador)

Paul Rodriguez-Ch (Universidad de Cuenca, Ecuador)

Freddy Serrano (Universitat de Valencia, Spain)

QUALITATIVE FINDINGS FROM AN ONLINE COURSE ON MACHINE LEARNING

Steve Chenoweth (Rose-Hulman Institute of Technology, USA)

Panagiotis (Panos) Linos (Butler University, USA)

WHAT STAYS IN MIND? - RETENTION RATES IN PROGRAMMING MOOCS

Ralf Teusner (Hasso Plattner Institute for Digital Engineering, Germany)

Christoph Matthies (Hasso Plattner Institute, University of Potsdam, Germany)

Thomas Staubitz (Hasso Plattner Institute for Digital Engineering, Germany)

SIG: Miscellaneous Topics

8:30 - 10:10

Room: Blossom Hill II

Chair: Luciana Debs (Purdue University, USA)

ASSESSING STUDENTS' MATHEMATICAL CHALLENGES IN AN INTRODUCTION TO SIGNAL PROCESSING COURSE AND THE EFFECTS OF INFORMAL COOPERATIVE LEARNING

Marisel Villafañe-Delgado (Michigan State University, USA)

Rama Mukkamala (Michigan State University, USA)

CHANGING THE EDUCATIONAL EPISTEMOLOGIES OF COMPUTER SCIENCE TEACHERS - A CASE STUDY OF THE KINGDOM OF SAUDI ARABIA

Fayiq Al-Gahmdi (Uppsala University, Sweden & AL-Baha University, Saudi Arabia)

Aletta Nylén (Uppsala University, Sweden)

Arnold N Pears (KTH Royal Institute of Technology & Uppsala University, Sweden)

CAN ADDING DISCUSSION-ONLY ACTIVE LEARNING INCREASE STUDENT LEARNING IN MATERIALS SCIENCE CLASS?

Amir Saeidi (University of California, Irvine, USA)
Daniel Mumm (University of California, Irvine, USA)
Adrienne Williams (University of California, Irvine, USA)
Kameryn Denaro (University of California, Irvine, USA)
Natascha T Buswell (University of California, Irvine, USA)

"SO FAR BACK, I'M ANONYMOUS": EXPLORING STUDENT IDENTITY USING PHOTOVOICE

Debbie Meharg (Edinburgh Napier University, United Kingdom (Great Britain))
Sandra Cairncross (Edinburgh Napier University, United Kingdom (Great Britain))
Alison Varey (Edinburgh Napier University, United Kingdom (Great Britain))

ENGINEERING EDUCATION IN SPAIN: HAS IT IMPROVED WITH THE BOLOGNA PROCESS?

Martín Llamas-Nistal (University of Vigo, Spain)
Fernando Mikic-Fonte (Universidad de Vigo, Spain)
Manuel Caeiro-Rodríguez (University of Vigo, Spain)
Inmaculada Plaza (EduQTech & D&I group University of Zaragoza & EU Politecnica de Teruel, Spain)
Edmundo Tovar (Universidad Politécnica de Madrid & Facultad de Informática, Spain)
Manuel Castro (Spanish University for Distance Education - UNED, Spain)

SIH: WIP - Diversity & Inclusion Initiatives

8:30 - 10:10

Room: Blossom Hill III

TOWARD A NATIONAL AGENDA FOR BROADENING PARTICIPATION OF AFRICAN AMERICANS IN ENGINEERING & COMPUTER SCIENCE: A METHODOLOGICAL OVERVIEW OF PHASE II

Chanee Hawkins Ash (Arizona State University, USA)
Walter C. Lee (Virginia Tech, USA)
Jeremi London (Virginia Tech, USA)
Teirra Holloman (Virginia Polytechnic Institute and State University, USA)
Gilbert Jew (Arizona State University, USA)
Atota Halkiyo (Arizona State University, USA)
Bevlee Watford (Virginia Tech, USA)

DIFFERENCES IN MENTAL HEALTH BETWEEN STUDENTS IN A JOINTLY OFFERED COMPUTER ENGINEERING PROGRAM AND THE TWO HOME DEPARTMENTS

Andrew Danowitz (California Polytechnic State University San Luis Obispo, USA)
Bridget Benson (California Polytechnic State University, USA)
Joseph Callenes-Sloan (California Polytechnic State University, USA)
Paul Hummel (California Polytechnic State University, USA)

ACHIEVEMENT GAP IN ONLINE AND HYBRID COURSES VERSUS FACE-TO-FACE COURSES AMONG ENGINEERING AND COMPUTER SCIENCE STUDENTS

Farshid Zabihian (California State University, Sacramento, USA)

THE STRUCTURE OF CHANGE: A CONTENT ANALYSIS OF ENGINEERING DIVERSITY PLANS AND MISSION STATEMENTS

Kelly Cross (University of Illinois Urbana Champaign, USA)
Walter C. Lee (Virginia Tech, USA)
Brandi Jones (University of Southern California, USA)
Whitney Gaskins (University of Cincinnati, USA)

SILICON VALLEY WOMEN IN ENGINEERING CONFERENCE-CREATING COMMUNITY AND NURTURING ENGINEERING IDENTITY

Belle Wei (San Jose State University, USA)
Amy Strage (San Jose State University, USA)
Jinny Rhee (San Jose State University, USA)

A POSITIVE PERSPECTIVE TO IMPLEMENTATION OF A GENDER EQUALITY PLAN: A QUESTION OF DESIGN, TIME AND PARTICIPATION

Rosa Maria Vasconcelos (Minho University, Portugal)
Victor Barros (Minho University, Portugal)
Emilia Araujo (Minho University, Portugal)
Luis Amaral (University of Minho - ALGORITMI, Portugal)
Isabel Ramos (University of Minho - ALGORITMI, Portugal)

ENCOURAGING WOMEN TO PURSUE A COMPUTER SCIENCE CAREER IN THE CONTEXT OF A THIRD WORLD COUNTRY

Jose Reginaldo Hughes Carvalho (Federal University of Amazonas, Brazil)
Tanara Lauschner (Federal University of Amazonas, Brazil)
Ludymila Lobo de Aguiar Gomes (Fundacao Getúlio Vargas & TRT11, Brazil)
Rosiane deFreitas (Federal University of Amazonas & IComp/UFAM, Brazil)
Fabiola G. Nakamura (Universidade Federal do Amazonas, Brazil)

LAUNCHPAD: THE DESIGN AND EVALUATION OF A STEM RECRUITMENT PROGRAM FOR WOMEN

Cheryl Dematteis (University of Southern California & The Aerospace Corporation, USA)
Emily Allen (California State University, Los Angeles, USA)
Zilong Ye (California State University, Los Angeles, USA)

SII: WIP - Innovative & Creative Approaches to Engineering Education

8:30 - 10:10

Room: Almaden

AVENUES TOWARD INTERDISCIPLINARITY IN THE CLASSROOM

Desen Ozkan (Virginia Tech, USA)
Diana Bairaktarova (Virginia Tech, USA)
Lisa D. McNair (Virginia Tech, USA)

AN EXPLORATION OF UNLEARNING OF PRACTICING CIVIL ENGINEERS

Oai Ha (Western Carolina University, USA)
Shane Brown (Oregon State University, USA)

PROMOTING INNOVATION AND ENTREPRENEURSHIP AS PART OF AN ENGINEERING CURRICULUM

Asad Azemi (Pennsylvania State University, USA)

BFAB FOR FACULTY: USING MAKING TO EMPOWER ENTREPRENEURIALLY MINDED LEARNING

Margot Vigeant (Bucknell University, USA)
Alan Cheville (Bucknell University, USA)
Donna Ebenstein (Bucknell University, USA)
Wade Hutchison (Bucknell University, USA)
Eric Kennedy (Bucknell University, USA)
Matt Lamparter (Bucknell University, USA)
Joe Meiser (Bucknell University, USA)
Nate Siegel (Bucknell University, USA)
Michael S. Thompson (Bucknell University, USA)

THE USE OF A MECHATRONIC SYSTEMS SIMULATOR IN ENGINEERING COURSES

Rafael Mendonça (UFAM, Brazil)
Andre Cavalcante (Universidade Federal do Amazonas, Brazil)
Nasser Jazdi (University of Stuttgart & Institute of Industrial Automation and Software Engineering, Germany)
Vicente F. Lucena, Jr. (Federal University of Amazonas, Brazil)

BEST PRACTICES DEVELOPED BY THE MODEL INSTITUTE FOR EXCELLENCE FROM PUERTO RICO

Juan Arratia (Ana G. Méndez University System, USA)
Tomislav Jagušć (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)
Carlo Ratti (Massachusetts Institute of Technology, USA)
Iva Bojic (Massachusetts Institute of Technology, USA)

TEACHING FUNDAMENTAL POWER ENGINEERING CONCEPTS USING THE VISPHASOR APP

Sangit Sasidhar (National University of Singapore, Singapore)

CAN BUILDING AN ELECTRIC BICYCLE BUILD AN ENGINEERING IDENTITY?

Aamir Fidai (Texas A&M University, USA)
Luciana R Barroso (Texas A&M University, USA)
Mary M Capraro (Texas A&M University, USA)
Robert M Capraro (Texas A&M University, USA)

S2A: Special Session - Innovative Thinking: Encouraging Creative Diversity with Video Scenarios

10:30 - 12:10

Room: Ballroom Salon 1

INNOVATIVE THINKING: ENCOURAGING CREATIVE DIVERSITY WITH VIDEO SCENARIOS

Madalene Spezialetti (Trinity College, USA)

S2B: Special Session - Applying Innovative Frameworks to Foster Inclusive Learning in Engineering Students

10:30 - 12:10

Room: Ballroom Salon 2

APPLYING INNOVATIVE FRAMEWORKS TO FOSTER INCLUSIVE LEARNING IN ENGINEERING STUDENTS

Wendy Newstetter (Georgia Institute of Technology, USA)
Julie Ancis (Georgia Institute of Technology, USA)
Mahauganee Bonds (Georgia Institute of Technology, USA)
Chris Martin (Georgia Institute of Technology, USA)
Joseph M. Le Doux (Georgia Institute of Technology, USA)

S2C: Assessment & Evaluation Strategies/Approaches

10:30 - 12:10

Room: Willow Glen II

Chair: Yang Song (University of North Carolina Wilmington, USA)

ORCHESTRATING AGILE SPRINT REVIEWS IN UNDERGRADUATE CAPSTONE PROJECTS

Xiaocong Fan (The Pennsylvania State University, USA)

COMPARING STUDENT PERFORMANCE ON LOW-STAKES AND HIGH-STAKES EVALUATIONS OF CONCEPTUAL UNDERSTANDING

Rachel Vitali (University of Michigan, USA)

Noel Perkins (University of Michigan, USA)

Cynthia J Finelli (University of Michigan, USA)

MAKING TESTING LESS TRYING: LESSONS LEARNED FROM OPERATING A COMPUTER-BASED TESTING FACILITY

Craig Zilles (University of Illinois at Urbana Champaign, USA)

Matthew West (University of Illinois at Urbana-Champaign, USA)

David Mussulman (University of Illinois at Urbana-Champaign, USA)

Timothy Bretl (University of Illinois at Urbana-Champaign, USA)

MEASURING PROGRAMMING KNOWLEDGE IN A RESEARCH CONTEXT

Kristina von Hausswolff (Uppsala University, Sweden)

Anna Eckerdal (Uppsala University, Sweden)

EXPLORING GAME ELEMENTS IN LEARNING PROGRAMMING: AN EMPIRICAL EVALUATION

Adriano Lages dos Santos (Universidade Federal de Minas Gerais, Brazil)

Mauricio Souza (Federal University of Minas Gerais, Brazil)

Marcella Souza Dayrell (State University of Montes Claros, Brazil)

Eduardo Figueiredo (Federal University of Minas Gerais (UFMG), Brazil)

S2D: Teaching & Learning Experiences in Engineering Education

10:30 - 12:10

Room: Willow Glen III

Chair: Milica Markovic (California State University Sacramento, USA)

SOFTWARE DEFINED RADIO FOR COMMUNICATIONS

Ladimer Nagurney (University of Hartford, USA)

TEACHING MULTIDISCIPLINARY TEAMS REQUIREMENTS FOR UNDERGRADUATE STUDENTS: AN APPROACH TO AUGMENTED REALITY SOFTWARE IN DESIGN THINKING CONTEXT

Alexandre L'Erario (Universidade Tecnológica Federal do Paraná, Brazil)

Eduarda de Almeida (Universidade Tecnológica Federal do Paraná, Brazil)

Eduardo Damasceno (Universidade Tecnológica Federal do Paraná, Brazil)

EXAMINATION OF STUDENT SELF-ASSESSED LEARNING IN A PROJECT-BASED FRESHMAN ROBOTICS COURSE

Susan Bitetti (Tufts Center for Engineering Education and Outreach, USA)

Ethan E Danahy (Tufts University & Center for Engineering Education and Outreach (CEEEO), USA)

Jessica Swenson (Tufts University, USA)

COMPARING MATHEMATICS AND SCIENCE ACHIEVEMENT OF STUDENTS FROM SCHOOLS WITH PLTW VERSUS SCHOOLS WITHOUT PLTW

Yujin Lee (Texas A&M University, USA)
Ali Bicer (Texas A&M University, USA)
Robert M Capraro (Texas A&M University, USA)
Mary M Capraro (Texas A&M University, USA)
Luciana R Barroso (Texas A&M University, USA)
HyunKyung Kwon (Texas A&M University, USA)
Michael S Rugh (Texas A&M University, USA)

S2E: Curriculum Design & PK-12

10:30 - 12:10

Room: Guadalupe

Chair: Farshid Zabihian (California State University, Sacramento, USA)

STEM LANGUAGE CAN BE THE STEM OF THE PROBLEM

Michael S Rugh (Texas A&M University, USA)
Julia E. Calabrese (Texas A&M University, USA)
Mykala A Madson (Texas A&M University, USA)
Robert M Capraro (Texas A&M University, USA)
Luciana R Barroso (Texas A&M University, USA)
Mary M Capraro (Texas A&M University, USA)
Ali Bicer (Texas A&M University, USA)

MULTIPLE REPRESENTATIONS IN PHYSICS: DELIBERATE PRACTICE DOES NOT IMPROVE EXAM SCORES

Campbell Bego (University of Louisville & J. B. Speed School of Engineering, USA)
Raymond Chastain (University of Louisville, USA)
Lacee Pyles (University of Louisville, USA)
Marci DeCaro (University of Louisville, USA)

MEETING THE DEMAND: BUILDING A CYBERSECURITY DEGREE PROGRAM WITH LIMITED RESOURCES

Scott Bell (Northwest Missouri State University, USA)
Michael J Oudshoorn (High Point University, USA)

MISSION POSSIBLE: BLENDING THE SOCIAL AND TECHNICAL THROUGH AN INNOVATIVE BIODESIGN CHALLENGE MODULE FOR A MATERIALS SCIENCE CLASS

Breanne Przestrzelski (University of San Diego, USA)
Elizabeth Reddy (University of San Diego, USA)
Susan M. Lord (University of San Diego, USA)

S2F: Approaches to Student Centered Learning

10:30 - 12:10

Room: Blossom Hill I

Chair: Divya Nalla (Nalla Malla Reddy Engineering College, India)

THE SELF-FLIPPED CLASSROOM CONCEPT: UNDERLYING IDEAS AND EXPERIENCES

Anna Vasilchenko (Newcastle University, United Kingdom (Great Britain))
Åsa Cajander (Uppsala University, Sweden)
Mats Daniels (Uppsala University, Sweden)
Madeline Balaam (KTH Royal Institute of Technology, Sweden)

APPLY DATA ANALYTICS TO SCHEDULE BEST-SUITED CLASSES FOR STUDENTS WITH DIFFERENT ACADEMIC HISTORIES

Yanzhen Qu (Colorado Technical University, USA)
Anthony Kutscher (Colorado Technical University, USA)

ENGAGING LEARNING TO PROGRAM USING REAL DATA

Álvaro Nuno Santos (Coimbra Polytechnic - ISEC, Coimbra, Portugal)
Anabela Gomes (Coimbra Polytechnic - ISEC & Centre for Informatics and Systems - University of Coimbra, Coimbra, Portugal)
António José Mendes (University of Coimbra & Centre for Informatics and Systems - University of Coimbra, Portugal)

MOTIVATING FACTORS AND BARRIERS FOR SUSTAINED USE OF AUDIENCE RESPONSE SYSTEMS - "I WOULD LOVE TO, BUT I DON'T HAVE TIME):"

Tony Vo (Monash University, Australia)
Nathan Sherburn (Monash University, Australia)
Jiachun Huang (Monash University, Australia)
Veronica Halupka (Monash University, Australia)
Jonathan Li (Monash University, Australia)

PERSONALIZING PERSUASIVE EDUCATIONAL TECHNOLOGIES TO LEARNERS' COGNITIVE ABILITY

Aisha Abdullahi (Federal University Dutse, Nigeria)
Rita Orji (Dalhousie University, Canada)
Joshua Nwokeji (Gannon University, USA)

S2G: WIP - Innovations in Software Engineering Education

10:30 - 12:10

Room: Blossom Hill II

JMLP: A MACHINE LEARNING TOOL FOR STUDENTS AND INSTRUCTORS

B Nitish (State University of New York at Binghamton, USA)
Arpita Chakraborty (Binghamton University, USA)

A PILOT STUDY INTEGRATING AN AI-DRIVEN CHAT BOT IN AN INTRODUCTORY PROGRAMMING COURSE

Matthew Verleger (Embry-Riddle Aeronautical University, USA)
James Pembridge (Embry-Riddle Aeronautical University, USA)

THE DEVOPS LAB PLATFORM FOR MANAGING DIVERSIFIED SOFTWARE PROJECTS

Xiaoying Bai (Tsinghua University, P.R. China)
Mingjie Li (Tsinghua University, P.R. China)
ShanShan Li (Tsinghua University, P.R. China)
Dan Pei (Tsinghua University, P.R. China)

SECURE MODULES FOR UNDERGRADUATE SOFTWARE ENGINEERING COURSES

Jeong Yang (Texas A&M University-San Antonio, USA)
Akhtar Lodgher (Texas A&M, San Antonio, USA)
Young Lee (Texas A&M University-Kingsville, USA)

COLLABORATIVE LEARNING IN CLOUD-BASED VIRTUAL COMPUTER LABS

Xiaolin Hu (Georgia State University, USA)

Hai Le (Georgia State University, USA)

Anu Bourgeois (GSU, USA)

Yi Pan (Georgia State University, USA)

THE EFFECTIVENESS OF REFLECTION ON PROGRAMMING PROBLEM SOLVING SELF-ASSESSMENTS

Mohammed Alzaid (Arizona State University, USA)

IHan Hsiao (Arizona State University, USA)

S2H: WIP- Faculty Development & Philosophy

10:30 - 12:10

Room: Blossom Hill III

EPISTEMOLOGICAL TENSIONS IN ENGINEERING EDUCATION RESEARCH: HOW DO WE NEGOTIATE THEM?

Jillian J. Seniuk Cicek (University of Manitoba & Centre for Engineering Professional Practice and Engineering Education, Canada)

Marcia Friesen (University of Manitoba, Canada)

LOCALIZED SOLUTIONS TO INCORPORATING BROADER IMPACTS INTO FIRST-YEAR ENGINEERING EDUCATION

Jessica Deters (Virginia Tech, USA)

Marie Parette (Virginia Tech, USA)

DEVELOPING EMERGENT CODES FOR THE CLASSROOM OBSERVATION PROTOCOL FOR UNDERGRADUATE STEM (COPUS)

Sin-Ning Liu (Texas A&M University, USA)

Cynthia Lang (Texas A&M University, USA)

Brooke Merrill (Texas A&M University, USA)

Adrian Leos (Texas A&M University, USA)

Kaitlin Harlan (Texas A&M University, USA)

Carolyn Sandoval (University of California San Diego, USA)

Mindy Bergman (Texas A&M University, USA)

Jeffrey E Froyd (The Ohio State University, USA)

ASEE TELPHE DIVISION AS A COMMUNITY OF TRANSFORMATION

Mani Mina (Iowa State University, USA)

John Krupczak, Jr (Hope College, USA)

COURSEWARE AS CODE: SETTING A NEW BAR FOR TRANSPARENCY AND COLLABORATION

Julianna Rodriguez (U.S. Army Cyber Command, USA)

Christopher Apsey (U.S. Army Cyber School, USA)

Sarah Rees (Georgia Cyber Center for Innovation and Training, USA)

Todd Boudreau (U.S. Army Cyber School, USA)

George Raileanu (U.S. Army Cyber Protection Brigade, USA)

WORK EXPERIENCES OF ENGINEERING MANAGERS: CHALLENGES, STRATEGIES, COMPETENCIES

Swetha Nittala (Purdue University, USA)

Brent Jesiek (Purdue University, USA)

VIRTUAL REALITY ACTIVITIES FOR TEACHING ENGINEERING STUDENTS PROFESSIONAL DEVELOPMENT SKILLS

Matthew Nelson (Iowa State University, USA)

Benjamin Ahn (Iowa State University, USA)

EXPLORING DIFFERENT UNPLUGGED GAME-LIKE ACTIVITIES FOR TEACHING COMPUTATIONAL THINKING

Tomislav Jagušć (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)

Ana Sović (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia)

Iva Bojic (Massachusetts Institute of Technology, USA)

Mislav Grgic (University of Zagreb & Faculty of Electrical Engineering and Computing, Croatia)

Gordan Gledec (University of Zagreb, Croatia)

S2I: WIP - Students Beliefs, Motivations & Persistence

10:30 - 12:10

Room: Almaden

INSTRUMENT DEVELOPMENT MEASURING UNDERGRADUATE STUDENTS' PERCEIVED SUPPORT IN STEM

Walter C. Lee (Virginia Tech, USA)

Lisa Moyer (Virginia Tech, USA)

Allison Godwin (Purdue University, USA)

David Knight (Virginia Tech, USA)

MOTIVATION AND ENGAGEMENT FACTORS OF UNDERGRADUATE STUDENTS IN COMPUTING: A SYSTEMATIC MAPPING STUDY

Pablo Schoeffel (Federal University of Santa Catarina & University of Santa Catarina State, Brazil)

Raul Wazlawick (Federal University of Santa Catarina, Brazil)

Vinicius Faria Culmant Ramos (Federal University of Santa Catarina, Brazil)

STUDENT ACHIEVEMENT GOALS IN THE SIGNALS AND SYSTEMS COURSE

Daria Gerasimova (George Mason University, USA)

Jill Nelson (George Mason University, USA)

Margret Hjalmarsen (George Mason University, USA)

LEARNERS' NEEDS SATISFACTION, CLASSROOM CLIMATE, AND SITUATIONAL MOTIVATIONS: EVALUATING SELF-DETERMINATION THEORY IN AN ENGINEERING CONTEXT

Jonathan Stolk (Olin College of Engineering)

Jonathan Jacobs (Olin College of Engineering, USA)

Camille Girard (Olin College of Engineering, USA)

Lauren Pudvan (Olin College of Engineering, USA)

EMBEDDED AFFECTIVE ASSESSMENT

Anastasia Rynearson (Campbell University, USA)

Lee Rynearson (Campbell University, USA)

ENGINEERING STUDENT INTEREST IN FUTURE WORK ABROAD

Angela Bielefeldt (University of Colorado Boulder, USA)

INVESTIGATING THE WAYS IN WHICH STUDENT AGENCY DEVELOPS THROUGH ENGAGEMENT WITH KNOWLEDGE

Nicole P Pitterson (Virginia Polytechnic Institute and State University, USA)
Jennifer Case (Virginia Tech, USA & University of Cape Town, South Africa)
Ashish Agrawal (Virginia Tech, USA)
Indhira M Hasbún (Virginia Polytechnic Institute and State University, USA)

INTRODUCING GLOBAL COMPETENCE IN SWEDISH ENGINEERING EDUCATION

Bjorn Kjellgren (KTH Royal Institute of Technology, Sweden)
Elisabeth Keller (KTH Royal Institute of Technology, Sweden)

S3B: Special Session - Rethinking Engineering Leadership

1:00 - 2:40

Room: Ballroom Salon 2

RETHINKING ENGINEERING LEADERSHIP

Meagan R. Kendall (University of Texas at El Paso, USA)
Debbie Chachra (Olin College of Engineering, USA)
Kate Roach (UCL, United Kingdom (Great Britain))
Emanuela Tilley (University College London, United Kingdom (Great Britain))
Kyle Gipson (James Madison University, USA)

S3D: Philosophy of Learning & Mobile Applications

1:00 - 2:40

Room: Willow Glen III

Chair: Willie L. Brown, Jr (University of Maryland Eastern Shore, USA)

VOICES ON THE CORE OF COMPUTING

Stephen Frezza (Gannon University, USA)
Alison Clear (EIT, New Zealand)
Abhijat Vichare (Savitribai Phule Pune University, India)

MULTIDISCIPLINARY TEACHING: THE EMERGENCE OF AN HOLISTIC STEM TEACHER

Niall Seery (Athlone Institute of Technology, Ireland & KTH, Sweden)
Lena Gumaelius (KTH, Sweden)
Arnold N Pears (KTH Royal Institute of Technology & Uppsala University, Sweden)

PHRONESIS, AUTHENTIC LEARNING AND THE SOLUTION OF OPEN-ENDED PROBLEMS IN COMPUTING AND ENGINEERING EDUCATION

Roger McDermott (Robert Gordon University, United Kingdom (Great Britain))
Mats Daniels (Uppsala University, Sweden)
Mark Zarb (Robert Gordon University, United Kingdom (Great Britain))
William Ballew (Robert Gordon University, United Kingdom (Great Britain))
Ville Isomottonen (University of Jyväskylä, Finland)

UBIQUITOUS ENVIRONMENTS FOR PROBLEM-BASED LEARNING: A BIBLIOGRAPHIC REVIEW

Sam Devincenzi (FURG, Brazil)
Fernando Pereira de Tolêdo (Furg, Brazil)
Viviani Kwecko (FURG, Brazil)
F. Mota (Universidade Federal do Rio Grande, Brazil)
Silvia Botelho (Federal University of Rio Grande, Brazil)

A CATALOG OF PEDAGOGICAL PATTERNS FOR LEARNING APPLICATIONS

Maria Lydia Fioravanti (University of São Paulo, Brazil)

Ellen Barbosa (University of São Paulo, Brazil)

S3E: Professional Skills & Ethics

1:00 - 2:40

Room: Guadalupe

Chair: Rebecca Reck (Kettering University & University of Illinois at Urbana-Champaign, USA)

INVESTIGATING MORAL DISENGAGEMENT AMONG FIRST-YEAR ENGINEERING STUDENTS

Dayoung Kim (Purdue University, USA)

Peter Odom (Purdue University, USA)

Carla B. Zoltowski (Purdue University, USA)

Brent Jesiek (Purdue University, USA)

ASSESSING TEAM DEVELOPMENT IN AN ENGINEERING PROJECT-BASED COURSE

Chad Davis (University of Oklahoma, USA)

Kim Graves Wolfinbarger (University of Oklahoma, USA)

GRASSROOTS TEAMS FOR ACADEMIC DEPARTMENTS: A NEW WAY TO UNDERSTAND CULTURE AND CHANGE

Edward Berger (Purdue University, USA)

Elizabeth Wirtz (Purdue University, USA)

Angela Goldenstein (Purdue University, USA)

Edward Morrison (Purdue Agile Strategy Lab, USA)

Elizabeth Briody (Cultural Keys, LLC, USA)

AN ANALYSIS OF INSTRUCTOR VS PEER FEEDBACK ON WRITING IN A LARGE FIRST-YEAR ENGINEERING COURSE

Michael Ekoniak, III (Virginia Tech, USA)

Marie Parette (Virginia Tech, USA)

A COMPREHENSIVE ACADEMIC SUCCESS AND PROFESSIONAL DEVELOPMENT (ASAP) FRAMEWORK THAT USES CAREER-STEERING/SHAPING PROJECTS TO TRAIN ENGINEERING STUDENTS AND DEVELOP CRITICAL LIFE/PROFESSIONAL SKILLS: PART I - IMPACT ON KEY GROUPS

Armando Rodriguez (Arizona State University, USA)

Pragyan Pradhan (Arizona State University, USA)

Karan Puttannaiah (Arizona State University, USA)

Nirangkush Das (Arizona State University, USA)

Kaustav Mondal (Arizona State University, USA)

Aratrik Sarkar (Arizona State University, USA)

A COMPREHENSIVE ASAP FRAMEWORK THAT USES CAREER-STEERING/SHAPING PROJECTS TO TRAIN ENGINEERING STUDENTS & DEVELOP CRITICAL LIFE/PROFESSIONAL SKILLS: PART II - CASE STUDIES FROM STUDENTS WORKING ON FUNDED PROJECTS

Armando Rodriguez (Arizona State University, USA)
Pragyan Pradhan (Arizona State University, USA)
Karan Puttannaiah (Arizona State University, USA)
Nirangkush Das (Arizona State University, USA)
Kaustav Mondal (Arizona State University, USA)
Aratrik Sarkar (Arizona State University, USA)
Shubham Sonawani (Arizona State University & Tempe, Az, USA)
Shi Lu (Arizona State University, USA)
Bhavica Soni (Arizona State University, USA)
Bryce Pedroza (Arizona State University, USA)
Carolyn Christie (Arizona State University, USA)
Corey Kurowski (Arizona State University, USA)
Chalres Cederstrom (ASAP-METS NSF Program & Arizona State University, USA)
Kimberly Bui (Arizona State University, USA)
Mohamed Sabet (Arizona State University, USA)
Nikki Lopez (Arizona State University, USA)
Tanner Rosenthal (Arizona State University, USA)
Trae Waggoner (Arizona State University, USA)
Zakk Giacometti (University of Arizona, USA)

S3G: WIP - PK12 STEM Outreach

1:00 - 2:40

Room: Blossom Hill II

HELLO ROBOT! A WEBSITE TO RAISE INTEREST IN A STEM FUTURE THROUGH INTERNET SPEECH CONTROLLED ROBOTS

Torben E Svane (Halmstad University, Sweden & Beijing Information Science & Technology University, P.R. China)

COMPUTING FOR THE CRITTERS: EXPLORING COMPUTATIONAL THINKING OF CHILDREN IN AN INFORMAL LEARNING SETTING

Hoda Ehsan (Purdue, USA)
Carson Ohland (Purdue, USA)
Tikyna Dandridge (Purdue University, USA)
Monica E Cardella (Purdue University, USA)

MENTORING FEMALE HIGH SCHOOL STUDENTS FOR A STEM CAREER

Noelia Olmedo-Torre (Universitat Politècnica de Catalunya, Spain)
Marta Peña (Universitat Politècnica de Catalunya, Spain)
Mireia Lopez (Universitat Politècnica de Catalunya, Spain)
Maica Sanz (UPC, Spain)
David Lopez (Universitat Politècnica de Catalunya - BarcelonaTech, Spain)

MIDDLE SCHOOL STUDENTS' CONCEPTIONS OF FAILURE IN RURAL COMMUNITIES

Tawni Paradise (Virginia Tech, USA)

Jacob Grohs (Virginia Tech, USA)

K-12 CYBERSECURITY EDUCATION, RESEARCH, AND OUTREACH

Giti Javidi (University of South Florida Sarasota-Manatee, USA)

Ehsan Sheybani (University of South Florida, USA)

GATHERING INSIGHTS FROM TEENAGERS' HACKING EXPERIENCE WITH AUTHENTIC CYBERSECURITY TOOLS

Valdemar Švábenský (Masaryk University, Czech Republic)

Jan Vykopal (Masaryk University, Czech Republic)

AN INSTRUCTIONAL FRAMEWORK, MODEL LESSONS, AND PROFESSIONAL LEARNING PROGRAM FOR SCIENCE STANDARDS-ALIGNED COMPUTING IN 4TH-12TH GRADE CLASSROOMS

K. Virginia Lehmkuhl Dakhwe (San Jose State University, USA)

S3H: WIP - Teaching & Learning Experiences in Engineering Education

1:00 - 2:40

Room: Blossom Hill III

USING A CHATBOT AS A FAQ ASSISTANT IN A COURSE ABOUT COMPUTERS ARCHITECTURE

Fernando Mikic-Fonte (University of Vigo, Spain)

Martín Llamas-Nistal (University of Vigo, Spain)

Manuel Caeiro-Rodríguez (University of Vigo, Spain)

IMPROVING STUDENT MOTIVATION THROUGH COMPETITIVE ACTIVE LEARNING

Manika Kapoor (San Jose State University, USA)

Shuai Hua (San Jose State University, USA)

David C Anastasiu (San Jose State University, USA)

CRUMBLE DAY TO INTRODUCE ROBOTICS

Pedro Plaza Merino (IEEE Member & Plaza Robotica, Spain)

Elio Sancristobal (Spanish University for Distance Education - UNED, Spain)

German Carro Fernandez (Spanish University for Distance Education - UNED, Spain)

Manuel Castro (Spanish University for Distance Education - UNED, Spain)

Manuel Blazquez (Universidad Antonio de Nebrija, Spain)

Felix Garcia Loro (Spanish University for Distance Education (UNED), Spain)

STUDENT EXPERIENCES WITH COLLABORATIVE PROBLEM-BASED LEARNING (CPBL) IN A SECOND-YEAR UNDERGRADUATE ENGINEERING COURSE

Ning Fang (Utah State University & College of Engineering, USA)

BOOSTING PROFESSIONAL COMPETENCES AND IT COMPANIES' INNOVATION IN A MASTER DEGREE IN INFORMATICS ENGINEERING

Ferran Badia (University of Lleida, Spain)

Francesc Gine (University of Lleida, Spain)

Josep Ll. Lérida (University of Lleida, Spain)

Margarita Moltó-Aribau (University of Lleida, Spain)

Magda Valls (Universitat de Lleida, Spain)

MOTIVATORS OVER MODES: DIVERSE STUDENT TEAM DRIVES LEADING AUTOMOTIVE COMPANY'S EVOLUTION TO MOBILITY PLATFORM

Grace Greenwald (Stanford University, USA)
Anand Upender (Stanford University, USA)
Daniel Chan (Stanford University, USA)
Cole Patterson (Stanford University, USA)
Barbara A. Karanian (Stanford University, USA)

PERSONALIZED LEARNING TOOL FOR THERMODYNAMICS

Quintana Clark (Purdue University, USA)
Jason Clark (Auburn University, USA)

S3I: WIP - Engineering Education Research

1:00 - 2:40

Room: Almaden

APPLYING PHENOMENOGRAPHY TO DEVELOP A COMPREHENSIVE UNDERSTANDING OF ETHICS IN ENGINEERING PRACTICE

Andrew O. Brightman (Purdue University, USA)
Nicholas D Fila (Iowa State University, USA)
Justin L Hess (Indiana University-Purdue University Indianapolis, USA)
Alison J. Kerr (University of Tulsa, USA)
Dayoung Kim (Purdue University, USA)
Michael C. Loui (Purdue University, USA)
Carla B. Zoltowski (Purdue University, USA)

RELIABILITY OF A CONCEPT INVENTORY TO DETERMINE THE LEVEL OF STUDENTS IN STATICS

Carlos Restrepo (EAFIT University, Colombia)
Jaime Barbosa (EAFIT University, Colombia)
Jorge L. Restrepo (EAFIT University, Colombia)

WHAT DOES IT MEAN TO BE SMART? A NARRATIVE APPROACH TO EXPLORING COMPLEX CONSTRUCTS

Emily Dringenberg (The Ohio State University, USA)
Rachel L. Kajfez (The Ohio State University, USA)

THE WREASN TYPOLOGY OF STUDENT INVOLVEMENT ACTIVITIES

Rama Mwenesi (University of Michigan, USA)
Emma Brennan-Wydra (University of Michigan, USA)
Cynthia Sanchez (University of Michigan, USA)
Monique Ellis (University of Michigan, USA)
Darryl Koch (University of Michigan, USA)
Cinda Davis (University of Michigan, USA)
Joanna Millunchick (University of Michigan, USA)

EXPLORING PEDAGOGICAL RISK-TAKING IN THE CLASSROOM

Michael S. Sheppard (Arizona State University, USA)
Nadia Kellam (Arizona State University, USA)
Adam R Carberry (Arizona State University, USA)

CREATIVITY AND JOB TENSION IN EXPERIENTIAL LEARNING

Juan Pablo Román-Calderón (Universidad EAFIT, Colombia)
Manuel Esteban Acevedo-Jaramillo (Universidad EAFIT, Colombia)
Juan Esteban Escalante (Universidad EAFIT, Colombia)
Alejandro Arias (Universidad EAFIT, Colombia)
Sara Aguilar-Barrientos (Universidad EAFIT, Colombia)
Jaime Barbosa (EAFIT University, Colombia)

DEVELOPING A FRAMEWORK FOR COLLABORATIVE EDUCATIONAL CHANGE: A STUDY OF PEOPLE, PROCESSES, AND CULTURES

Tess Edmonds (Franklin W. Olin College of Engineering, USA)
Jonathan Stolk (Olin College, USA)

EDUCATIONAL CHANGE INITIATIVES: MISALIGNMENTS BETWEEN CHANGEMAKERS AND THEIR INSTITUTIONS

Jonathan Stolk (Olin College, USA)
Tess Edmonds (Franklin W. Olin College of Engineering, USA)

S4A: Special Session - Taking a Deep Dive: Qualitative Methods and Identity

3:00 - 4:40

Room: Ballroom Salon 1

SPECIAL SESSION: TAKING A DEEP DIVE: QUALITATIVE METHODS AND IDENTITY

Susan M. Lord (University of San Diego, USA)
Michelle Madsen Camacho (Sociology Department, USA)

S4B: Special Session - Learning and Practice of Engineering Fundamental Principles for Long-Term Retention

3:00 - 4:40

Room: Ballroom Salon 2

LEARNING AND PRACTICE OF ENGINEERING FUNDAMENTAL PRINCIPLES FOR LONG-TERM RETENTION

Eleanor Leung (Minnesota State University, Mankato, USA)
Elizabeth Pluskwik (Minnesota State University, Mankato, USA)

S4C: Learning Analytics & Distance Education

3:00 - 4:40

Room: Willow Glen II

Chair: Prechanon Kumkratug (Kasetsart University at Sriracha Campus, Thailand)

ASSISTING EDUCATION THROUGH REAL-TIME LEARNER ANALYTICS

Matthew Montebello (University of Malta, Malta)

USING AN INSTRUMENTED LEARNING ENVIRONMENT TO UNDERSTAND PROCRASTINATION

Negin Entezari (University of California Riverside, USA)
Amirali Darvishzadeh (University of California Riverside, USA)
Thomas Stahovich (University of California Riverside, USA)

CONTENT ANALYSIS OF STUDENT ASSESSMENT EXAMS

Priscila Lima (Federal University of Goiás, Brazil)
Ana Paula Ambrosio (Federal University of Goiás, Brazil)
Igor Moreira Félix (Federal University of Goiás, Brazil)
Jacques Duílio Brancher (Universidade Estadual de Londrina, Brazil)
Deller Ferreira (Federal University of Goiás, Brazil)

USING AWARENESS INFORMATION TO ENHANCE ONLINE DISCUSSION FORUMS: A SYSTEMATIC MAPPING STUDY

Dhanielly Paulina Rodrigues de Lima (Federal University of Amazonas, Brazil)
Marco Gerosa (Northern Arizona University, USA & University of São Paulo, Brazil)
José Francisco Magalhães, Netto (Federal University of Amazonas, Brazil)

MASSIVE OPEN ONLINE COURSES ON WEB DEVELOPMENT EDUCATION: A CASE STUDY

Aracele Garcia de Oliveira Fassbinder (Federal Institute of Education, Science and Technology of South of Minas Gerais & University of São Paulo, Brazil)
Marcelo Fassbinder (University of São Paulo, Brazil)
Ellen Barbosa (University of São Paulo, Brazil)

S4D: Laboratory Experiences & Computer Technologies

3:00 - 4:40

Room: Willow Glen III

Chair: Thomas Fuhrmann (OTH Regensburg, Germany)

XAPI-BASED MODEL FOR TRACKING ON-LINE LABORATORY APPLICATIONS

Luis Felipe Zapata Rivera (Florida Atlantic University, USA)
Maria M. Larrondo Petrie (Florida Atlantic University, USA)

JCAB: MAKING JAVA CLASS DESIGN EASIER FOR NOVICE PROGRAMMERS

Qian Liu (Rhode Island College, USA)

EVALUATION OF CYBER DEFENSE EXERCISES USING VISUAL ANALYTICS PROCESS

Radek Oslejsek (Masaryk University, Czech Republic)
Jan Vykopal (Masaryk University, Czech Republic)
Karolina Burska (Masaryk University, Faculty of Informatics, Czech Republic)
Vit Rusnak (Masaryk University, Czech Republic)

ADAPTATION CONTENT IN ROBOTIC SYSTEMS: A SYSTEMATIC MAPPING STUDY

Thais Almeida (Federal University of Amazonas, Brazil)
José Francisco Magalhães, Netto (Federal University of Amazonas, Brazil)

ANALYZING THE IMPACT OF LEADERBOARDS IN INTRODUCTORY PROGRAMMING COURSES' SHORT-LENGTH ACTIVITIES

Rafael Guerra de Pontes (Federal University of Campina Grande, Brazil)
Kláudio Henrique Mascarenhas Medeiros (Unifacisa Centro Universitário, Brazil)
Dalton Serey (Federal University of Amazonas, Brazil)
Jorge Abrantes (Federal University of Amazonas, Brazil)

S4E: Student as Learner

3:00 - 4:40

Room: Guadalupe

Chair: Jon Sticklen (Michigan Technological University, USA)

LEARNING TO LEARN ENGINEERING

Tristan Utschig (Kennesaw State University, USA)

Daniel Apple (Pacific Crest, USA)

Steven Beyerlein (University of Idaho, USA)

S. Raj Chaudhury (University of South Alabama, USA)

Jim Morgan (Texas A&M University, USA)

William Scheller (Gannon University, USA)

Daniel Litynski (Western Michigan University, USA)

Virgil Cox (Gaston College, USA)

Mohamed El-Sayed (Eastern Michigan University, USA)

David Leasure (Higher Learning Challenge, USA)

AUTHENTIC LEARNING SECURE SOFTWARE DEVELOPMENT (SSD) IN COMPUTING EDUCATION

Kai Qian (Kennesaw State University, USA)

Dan Chia-Tien Lo (Kennesaw State University, USA)

Reza M. Parizi (Kennesaw State University, USA)

Fan Wu (Tuskegee University, USA)

Emmanuel O. Agu (WPI, USA)

Bei-Tseng Chu (UNC Charlotte, USA)

A FRAMEWORK FOR ABDUCTIVE COMPUTATIONAL MODELING

Osvaldo L. Oliveira (UniFaccamp, Brazil)

Ricardo J. Martins (Federal Institute of Education, Science and Technology - Ifsuldeminas - Campus Muzambinho, Brazil)

Márcio Matsumoto (IFSP, Brazil)

STUDENT LEARNING IN COMPUTING-BASED SERVICE-LEARNING

Nusaybah Abu-Mulaweh (Purdue University, USA)

William Oakes (Purdue University, USA)

S4F: Robotics & Supporting New Engineers

3:00 - 4:40

Room: Blossom Hill I

Chair: Quintana Clark (Purdue University, USA)

MULTIPLATFORM EDUCATIONAL ROBOTICS COURSE TO INTRODUCE CHILDREN IN ROBOTICS

Pedro Plaza Merino (IEEE Member & Plaza Robotica, Spain)

Elio Sancristobal (Spanish University for Distance Education - UNED, Spain)

German Carro Fernandez (Spanish University for Distance Education - UNED, Spain)

Manuel Castro (Spanish University for Distance Education - UNED, Spain)

Manuel Blazquez (Universidad Antonio de Nebrija, Spain)

Felix Garcia Loro (Spanish University for Distance Education (UNED), Spain)

EFFECTIVENESS OF PEER INSTRUCTION IN A LINEAR ALGEBRA CLASS WITHIN AN ENGINEERING CURRICULUM

Katiuscia Teixeira (University of Central Florida, USA)
Eduardo Teixeira (University of Central Florida, USA)
Joao Cesar Moura Mota (UFC, Brazil)
Thomaz Edson Veloso Silva (Federal University of Ceará, Brazil)
Natália Barroso (Federal University of Ceará, Brazil)

A SYSTEMATIC REVIEW ON THE USE OF LEGO ROBOTICS IN EDUCATION

Isabelle Souza (Federal University of Paraíba, Brazil)
Wilkerson L. Andrade (Federal University of Campina Grande, Brazil)
Livia Campos (Federal University of Campina Grande, Brazil)
Ana Liz Araujo (Federal University of Campina Grande, Brazil)

PROACTIVE BEHAVIORS IN ENGINEERING: THE ROLE OF PRE-COLLEGE CHARACTERISTICS, RESOURCES, AND EXPERIENCES

Trevion Henderson (University of Michigan, USA)
Emma Brennan-Wydra (University of Michigan, USA)
Cynthia J Finelli (University of Michigan, USA)
Joanna Millunchick (University of Michigan, USA)

SUBJECT CORRELATION ANALYSIS IN THE FUNDAMENTALS OF ENGINEERING EXAMS

Wen Cheng (California State Polytechnic Univ, Pomona, USA)
Gurdiljot Gill (Research Associate, USA)

S4H: WIP - Teaching & Learning Experiences in Engineering Education

3:00 - 4:40

Room: Blossom Hill III

INTEGRATING THE ADVANTAGES OF HARDWARE AND SOFTWARE TOOLS INTO AN INDUCTION MACHINE EDUCATION

Prechanon Kumkratug (Kasetsart University at Sriracha Campus, Thailand)

A CROSS-DISCIPLINARY COURSE ON VIRTUAL REALITY

Daniel Cliburn (University of the Pacific, USA)

SECOND CHANCES: DOES ALLOWING HOMEWORK RESUBMISSIONS AFFECT STUDENT LEARNING?

R. Pito Salas (Brandeis University, USA)

INTEGRATING A DIGITAL TEXTBOOK INTO A STATICS COURSE

Thalia Anagnos (San Jose State University, USA)
Sheri Sheppard (Stanford University, USA)
Sarah Billington (Stanford University, USA)

INTRODUCING MACHINE LEARNING TO FIRST-YEAR UNDERGRADUATE ENGINEERING STUDENTS THROUGH AN AUTHENTIC AND ACTIVE LEARNING LABWARE

Lei Huang (LMU, USA)
Kuo-Sheng Ma (Loyola Marymount University, USA)

LEGO MINDSTORMS EV3 FOR TEACHING THE BASICS OF TRAJECTORY CONTROL PROBLEM

Evgeniy Antonov (ITMO University, Russia)
Aleksandr Kapitonov (ITMO University, Russia)
Kirill Artemov (ITMO University, Russia)
Dmitrii Dobriborsci (ITMO University, Russia)
Egor Zamotaev (ITMO University, Russia)
Aleksandr Karavaev (ITMO University, Russia)
Rami Al-Naim (ITMO University, Russia)
Oleg Souzdalev (ITMO University, Russia)

MAKING IT FOR REAL: REDESIGN OF A FIRST YEAR ENGINEERING DESIGN PROJECT

Charlotte de Vries (Pennsylvania State University Erie, USA)
Qi Dunsworth (Penn State Erie, the Behrend College, USA)

S4I: WIP - Assessment & Evaluation Strategies/Approaches

3:00 - 4:40

Room: Almaden

Chair: Elizabeth Eschenbach (Humboldt State University, USA)

TEACHING ASSISTANTS' EXPERIENCES OF LAB SESSIONS IN INTRODUCTORY COMPUTER SCIENCE COURSES

Emma Riese (KTH Royal Institute of Technology, Sweden)

CONCEPT INVENTORIES IN CYBERSECURITY EDUCATION: AN EXAMPLE FROM SECURE PROGRAMMING

Ida Ngambeki (Purdue University, USA)
Matt Bishop (University of California, Davis, USA)
Phil Nico (California Polytechnic State University, USA)
Jun Dai (California State University, Sacramento, USA)

DESIGN OF THE COMPETENCE-BASED EVALUATION IN EXTERNAL ACADEMIC PRACTICES

Margarita Moltó-Aribau (University of Lleida, Spain)
Ana Tena (University of Lleida, Spain)
Anna Vendrell (University of Lleida, Spain)

QUANTITATIVE EVALUATION OF STUDENT ENGAGEMENT IN A LARGE-SCALE INTRODUCTION TO PROGRAMMING COURSE USING A CLOUD-BASED AUTOMATIC GRADING SYSTEM

Narges Norouzi (University of California at Santa Cruz, USA)
Ryan Hausen (University of California at Santa Cruz, USA)

MODIFICATION OF VALUE RUBRICS FOR ENGINEERING

Milica Markovic (California State University Sacramento, USA)

A BOARD GAME TO TEACH COST ACCOUNTING IN HIGHER EDUCATION

Sirlene Alves (Faculdade Cidade Verde, Brazil)
Eduardo Damasceno (Universidade Tecnológica Federal do Paraná, Brazil)
Luiz Fernando Braga Lopes (CESUMAR - Centro Universitário de Maringá / UNIPAR - Universidade Paranaense, Brazil)
Sebastião Ribeiro (LACTEC, Brazil)
Eduarda de Almeida (Universidade Tecnológica Federal do Paraná, Brazil)
Alexandre L'Erario (Universidade Tecnológica Federal do Paraná, Brazil)

MEASURING TEAM MEMBERS' CONTRIBUTIONS IN SOFTWARE ENGINEERING PROJECTS USING GIT-DRIVEN TECHNOLOGY

Reza M. Parizi (Kennesaw State University, USA)

Paola Spoletini (Kennesaw State University, USA)

Amritraj Singh (Kennesaw State University, USA)

SYSTEMATIC COURSE ANALYSIS - HOW INFRASTRUCTURE AND RESEARCH FINDINGS COLLABORATE TO SUPPORT COURSE DEVELOPMENT

Ida Naimi-Akbar (KTH Royal Institute of Technology, Sweden)

Hans Havtun (KTH Royal Institute of Technology, Sweden)

Sara Nyberg (KTH Royal Institute of Technology, Sweden)

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