



Annual Report of the Biomedical and Life Science Circuits and Systems (BioCAS) Technical Committee 2016/2017

Compiled by Jennifer Blain Christen, Secretary of the BIOCASTC

1) Executive Summary

The Biomedical and Life Science Circuits and Systems (BioCAS) Technical Committee of the IEEE CAS society can look back on a very active year. The number of committee members has increased from 112 to 123 members. They have been involved in a large number of various activities advancing and promoting the field of BioCAS, as will be detailed in the following sections. The two major activities, the BioCAS conference and the IEEE Transactions on BioCAS (TBioCAS) are now well established and continue to attract great quality papers. For example, a total of 328 papers were submitted to BioCAS'15, a 22% increase compared to BioCAS'14, which was already a record year. The theme of the conference was a **"Engineering for Healthy Minds and Able Bodies"**, signifying the impact of biomedical circuits and systems on advanced research tools and new therapies for neurological diseases and cognitive disorders, as well as rehabilitation tools and assistive technologies for improving the quality of life for those with disabilities. TBioCAS entered its 10th year of existence, and over the years has emerged as the premier venue for publishing research advances and reviews at the interface between circuits, systems, biomedical engineering, bioinspired settings, or validated in clinical. 2015-2016 has again been a strong year for TBioCAS. Thanks to the efforts of the associate editors and reviewers, the average manuscript review took 41 days to reach a first decision, and 56 days to reach a final decision. Overall acceptance rate was just 24%. TBioCAS submissions rose another 9% to currently 300 submissions annually. The journal already has a very respectable impact factor of 2.9 for such a young publication.

The members of the BIOCASTC engaged in several noteworthy activities. BioCAS TC sent two representatives, Roman Genov and Tim Constandinou to represent "IEEE CAS Society Brain Research & Activities" at the IEEE BRAIN Initiative Workshop, Columbia University (New York, USA), 14 December 2015. Moreover, BioCAS TC has been successful in nominating two distinguished lecturers for each of the last two years 2015 and 2016. Currently DLs representing the BIOCASTC include Gianluca Setti, Maysam Ghovanloo, Julio Georgiou and Jie Chen. They have already traveled around the globe engaging the worldwide community to research activities of the BIOCASTC and the CAS society in general. As an example, Maysam Ghovanloo gave a series of very well attended talks in the month of Dec 2015 on Implantable and Wearable Microelectronic Devices at several universities in China.

Members were also instrumental in organizing and chairing of new workshops on emerging topics. For example, Pamela Abshire, Pedram Mohseni and Jennifer Blain-Christen will organize CASFEST on Lab-on-CMOS systems co-hosted along with ISCAS 2016 in Montreal. Another event organized by BIOCASTC members is BrainCAS, which is a two day post-conference workshop organized after BIOCASTC 2016 in China. Moreover members of the TC have also been key figures for major CAS events such as ISCAS. For example, Wouter Serdijn was General Chair and Philipp HÄfliger was Technical program chair for ISCAS 2015. Not to mention, that members of the TC are very active in editorial boards of several journals related to CAS and otherwise. Members of the TC have been prolific in generating intellectual property (patents) and starting new ventures (example, Eugenio Culurciello (TeraDeep).

Members have also gone on to receive numerous awards and recognitions. To name a few, Viktor Gruev won the IEEE Donald G. Fink award for best paper in any IEEE journal, conference or proceedings. Also, Chris Tomazou won the 2014-15 IEEE Biomedical Engineering Award.

While the executive summary just provided a brief sampling of the TC activities and achievements, please read below for the detailed report.

2) IEEE ISCAS 2016, Montreal, Canada

The biomedical circuits and system track had 123 submissions, which was a 19% increase from previous year submission, and is above average based on submissions from 2010-2015 (2015: 104; 2014: 120, 2013: 122, 2012: 163, 2011: 74, 2010: 85). It ranks No. 4 among the 13 tracks in ISCAS after Analog Signal Processing, CAS for Communications, and VLSI systems architectures and applications. Track chairs, Sameer Sonkusale, Julio Georgiou and Jennifer Blain Christen, coordinated the review process. 32 members from the BIOCAS TC helped to serve as RCMs and did a phenomenal job in providing efficient, high quality and timely reviews. A total of 489 reviewers were assigned, with an average of 4 reviewers per paper. The average review per paper submitted was 3.7, which is at par with other TCs. The result of the review process was an acceptance of 60 papers out of 123 submitted papers. The acceptance rate is 48%, which is also at par with the rest of the ISCAS. The accepted papers were assigned into 36 lecture and 24 poster presentations organized in 7 lecture and 3 poster sessions. 20 members from the TC volunteered to serve as session chairs for these sessions. Detailed statistics on the submission among different sub-tracks are listed below.

Track ID	Subject Areas	Submission	Acceptance
2.0	Biomedical and Life-Science Circuits, Systems and Applications	1	0
2.1	Wireless, Wearable, and Implantable/Injectable Technology	18	9
2.2	Medical Information- and Telecare Systems	6	2
2.3	Harvesting/Scavenging Energy for Biomedical Devices	11	6
2.4	Biometrics, Biomedical Signal Processing and Bioimaging Technology	15	7
2.5	Integrated biomedical systems, BioMEMS, Bio-sensors/actuators and lab-on-chip	20	7
2.6	Bio-inspired and Biomolecular Circuits and Systems	1	0
2.7	Circuits for Biomedical Systems	51	29
2.8	Other areas in biomedical and lifesciences circuits and systems	0	0
Total		123	60

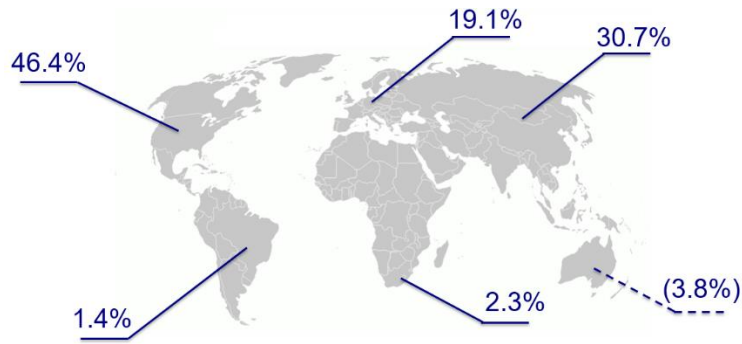
The TC members also organized six out of twenty two special sessions at the conference (30%). Beyond the special sessions, the TC members also organized a CASFEST workshop held in conjunction with ISCAS on "Lab on CMOS Systems". The organizers for this CASFEST workshop were Pamela Abshire, Pedram Mohseni and Jennifer Blain Christen. CASFEST had 6 lecture and 6 poster presentations related to the theme of the workshop. Considering regular papers, special sessions and dedicated workshop, it is clear that BIOCAS TC has contributed at a very high level to the ISCAS this year. The track chairs (S. Sonkusale, J. Georgiou and J. Blain Christen) would like to thank all the authors, reviewers, RCM, session chairs for their time and effort spent to enhance the BIOCAS activities and to help make ISCAS a success.

As is customary, an award sub-committee was formed to vote on the best paper award for the BIOCAS track at ISCAS. This year (2016) winner was the paper titled "Battery-less Modular Responsive Neurostimulator for Prediction and Abortion of Epileptic Seizures", authored by Hossein Kassiri, Nima Soltani, M. Tariqus Salam, Jose Luis Perez Velazquez, Roman Genov. This award is given out at the IEEE BIOCAS TC meeting in ISCAS in Montreal.

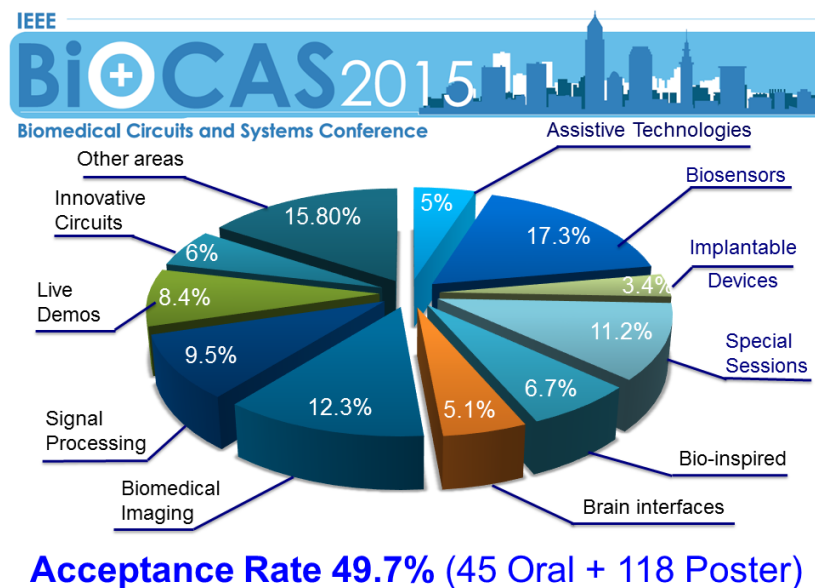
3) IEEE Biomedical Circuits and Systems 2015 Conference, Atlanta, GA, USA

The 2015 international IEEE conference on Biomedical Circuits and Systems, BioCAS 2015, was organized by Prof. Maysam Ghovanloo and a team of some of the most active members in the CASS community in Atlanta, Georgia, USA. The conference venue was the historic Academy of Medicine in Atlanta Midtown right next to the Georgia Institute of Technology campus. The theme of the conference was a “**Engineering for Healthy Minds and Able Bodies**”, signifying the impact of biomedical circuits and systems on advanced research tools and new therapies for neurological diseases and cognitive disorders, as well as rehabilitation tools and assistive technologies for improving the quality of life for those with disabilities.

The IEEE BioCAS 2015 was one of the most successful editions in the history of this rapidly growing conference in terms of attracting contributions in the form of paper submissions from the active and thriving community of scientists, researchers, engineers, and post-docs, students, who are active in this field as well as the number of attendees. A total of 328 papers were submitted to BioCAS’15, a 22% increase compared to BioCAS’14, which was already a record year. Geographical representation of these submissions to the IEEE BioCAS 2015 have been depicted in the following image.



Out of these, 143 papers were accepted by the technical program committee for presentation at the conference, which plus the 20 invited papers, dropped the acceptance rate to below 50% in the history of the IEEE BioCAS. Moreover, 310 people registered for the conference, a record for the IEEE BioCAS, and more than 300 actually attended this full three-day single-track conference, which also included all the tutorial. The following image shows the distribution of various topics and areas that were presented in various IEEE BioCAS 2015 technical tracks.



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In accordance with the multidisciplinary nature of the BioCAS conference, a series of highly informative keynotes and tutorials were organized by some of the pioneers of this field and related disciplines, details of which can be found on the BioCAS 2015 technical program page: <http://biocas2015.org/content/technical-program>

This year, we put specific effort in increasing the participation of medical device industry, which can help bridge the gap between laboratory research in academia and clinical practice by provide guidelines for future research directions by identifying area of high demand among the patient population for both academic faculty and young researchers, as well as opportunities for employment and collaborative hands-on research. This effort, led by Dr. Tim Denison from Medtronic, resulted in some veterans of the medical device industry accepting our invitation to offer a unique parallel workshop on "Lessons Learned on The Translational Highway" on the 2nd day of the conference by sharing their views and experiences on this key topic, followed by a short interactive panel.

Another unique event at the IEEE BioCAS 2015, which was very well received by the attendees, was the Gala Dinner Forum, which was held in the brand new Renaissance Atlanta Midtown Hotel. We will invited a panel of experts talking in a relaxed environment, over excellent food and drinks, about "The Most Important Problems to be Tackled by the BioCAS Community." In the Q&A session that will follow, the audience, particularly the younger aspiring researchers, were given a chance to further discuss these problems with the expert panel in order to identify the most impactful problems to tackle, those that are most worthy of their time, attention, and talent. Both of these events, which were fully attended even beyond the capacity of the venue, were highlighted in advance on the BioCAS 2015 conference website: www.biocas2015.org

Yet another highlight of the IEEE BioCAS 2015, which was also emphasized in earlier editions of the BioCAS by the steering committee, was the live demo session, which was very well attended and created a whole lot of interactions, effective exchange of ideas, and hands-on experiences among the attendees and presenters, who brought their fully functional prototypes literally from the other side of the world to Atlanta to showcase them. For the first time, the majority of these live demos were video recorded, and provided to the public on YouTube for promotion of the conference, and the benefit of the larger CAS society and anyone who might be interested in this field: <https://goo.gl/pyQYsb>

Similar to the year before, BioCAS 2015 was paperless except for the conference pamphlet, with all the abstracts and papers made available for download in the for my PDF filed in the Conference Proceedings during the conference in a password-protected fashion, as well as an App called "Conference4me". BioCAS 2015 was sponsored by the IEEE CAS, EMB, and SSCS (only technical) societies, as well as several patrons, such as the National Science Foundation, Medtronic Inc., and St. Jude Medical. Conference Catalyst Inc. was in charge of the logistics and registrations, while ePapers Inc. handled the paper submissions, cross-check, review process, and arrangement of the final program.

The BioCAS 2015 conference in Atlanta, GA certainly raised the bar to a new level by being a great event to bring many scientists, researchers, and young scholars from all around the world, representing the top academics and medical device industry together in order to promote fruitful discussions and contacts to foster research in the areas of electronic circuits and systems for biomedical applications and life sciences.

4) IEEE Transactions on Biomedical Circuits and Systems

Co-sponsored by the IEEE Circuits and Systems Society and IEEE Engineering in Medicine and Biology Society, the IEEE Transactions on Biomedical Circuits and Systems (TBioCAS) entered its 10th year of existence, and over the years has emerged as the premier venue for publishing research advances and reviews at the interface between circuits, systems, biomedical engineering, bioinspired settings, or validated in clinical.

2015-2016 has again been a strong year for TBioCAS. Thanks to the efforts of the associate editors and reviewers, the average manuscript review took 41 days to reach a first decision, and 56 days to reach a final decision. TBioCAS submissions rose another 9% to currently 300 submissions annually. Also, three annual special issues are managed (IEEE ISCAS: April, IEEE BioCAS: October, and IEEE ISSCC: December). The page budget was increased to 1200 pages (30% increase), with a proposed increase to 1,500 pages, and a monthly issue starting in 2017. Acceptance rate was 24% per submission or 38% per original submission.. The impact factor was stabilized recently at 2.9. Also, latest ranking from 2014-2015 was as follows: 25/274 by Journal Citation Report in electrical and

electronic engineering, 13/77 in biomedical engineering. The Article Influence Score rose to 1.396 (31/274 by JCR in EEE, and 7/77 in BE).

BioCAS community is urged to continue contributing to the success of TBioCAS as avid and frequent readers, inspiring and prolific authors, and critical but constructive and prompt reviewers. The following resources are available to the community:

TBioCAS web site: <http://ieee.org/tbiocas/>

Submission site: <https://mc.manuscriptcentral.com/tbcas>

IEEExplore article search: <http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=4156126>

PubMed/MEDLINE search:

[http://www.ncbi.nlm.nih.gov/pubmed?term=\(%22IEEE%20transactions%20on%20biomedical%20circuits%20and%20systems%22%5BJournal%5D\)](http://www.ncbi.nlm.nih.gov/pubmed?term=(%22IEEE%20transactions%20on%20biomedical%20circuits%20and%20systems%22%5BJournal%5D))

Google Scholar article search:

http://scholar.google.com/scholar?q=&as_publication=IEEE+transactions+on+biomedical+circuits+and+systems

5) Short Courses, Plenary Sessions, Keynote Speakers, Invited Lectures

Timothy Constandinou:

- “IEEE CAS Society Brain Research & Activities”, IEEE BRAIN Initiative Workshop, Columbia University (New York, USA), 14 December 2015

Bin-Da Liu:

- Invited lecture, the IEEE 11th International Conference on ASIC (ASICON 2015)

Christoph Posch:

- “Pixel-individually auto-sampling image sensors”, invited talk at “Image Sensors 2016” conference, London, March 2016

Philipp Häfliger:

- “NFC implants”, invited seminar Cutting Edge Business Insight Series by Oslotech, Oslo, Norway January 2015.

Viktor Gruev:

- “Bio-Inspired Sensors for Image Guided Surgery,” University of Illinois Urbana Champaign, November 2015.
- “Bio-Inspired Sensors for Image Guided Surgery,” Washington University in St. Louis, Department of BME, October 2015.
- “Bio-Inspired Sensors for Image Guided Surgery,” Polytechnique University of Montreal, Montreal, Canada, October 2015.
- “Wearable Goggle Platform for Image Guided Surgery,” University of St. Paul Apostle, Ohrid, Macedonia, July 2015.
- “Wearable Goggle Platform for Image Guided Surgery,” Optical Society of America Symposium, April 2015.
- “Bio-Inspired Sensors for Image Guided Surgery and Functional Neural Imaging,” Institute Feryera, Cordoba, Argentina, 2015.

Edmund Lam:

- “Impact of photomask shape uncertainties on computational lithography”, invited seminar at China Semiconductor Technology International Conference (CSTIC), March 2016.

André van Schaik:

- Neuromorphic Engineering: why is it such a hot topic? Indian Institute of Science, Bangalore, September 2015.

Donald Y.C. Lie:

- Invited and gave an IEEE SSCS/CASS Atlanta Joint Chapter Seminar at Georgia Tech on March 30, 2016. Talk title: "High-Efficiency Silicon RF Power Amplifier Design - Current Status and Future Outlook". Hosted by Professor Hua Wang and Professor John Cressler, Georgia Tech.
- Invited as a co-author for a workshop talk in IEEE RFIC Symp. Workshop 2015 on my group's work titled "Integrated and non-integrated Envelope Tracking Solutions -- Briefing and Studies", by J. Lopez (presenter), Y. Li, R. Wu, and D.Y.C. Lie, IEEE RFIC Symp./IMS Workshop WSB "Digital and Analog Techniques for Power-Efficiency Enhancement in Wireless Transmitters", RFIC2015, Phoenix, Arizona, May, 17, 2015

Shuenn-Yuh Lee:

- “Low Power Wireless ECG Acquisition and Cardiac Stimulation SOCs for Body Sensor Networks”, invited talk at Asia-Pacific Summer School on Bio-inspired System and Prosthetic Device (2015/08/24-2015/08/31).
- “Low Power Wireless ECG Acquisition Circuits and Systems for Body Sensor Networks”, invited talk at 15th Emerging Information and Technology Conference (EITA-Bio 2015) (2015/10/24-2015/10/25).

Wouter A. Serdijn:

- Wouter A. Serdijn: Getting better with electricity: electronic medicine to the rescue, invited talk, Univ. Oxford, United Kingdom, 20 April 2016
- Wouter A. Serdijn: Getting better with electroceuticals: implantable and injectable electronics to the rescue, invited talk, Univ. Oslo, Norway, 18 February 2016
- Wouter A. Serdijn: Getting better with electroceuticals: implantable and injectable electronics to the rescue, keynote presentation, 4th International Symposium on Bioelectronics and Bioinformatics (ISBB 2015), China, Beijing, 14 - 17 October 2015
- Wouter A. Serdijn: Circuits and Systems for Electroceuticals, invited talk, 47th annual meeting of the Associazione Gruppo Italiano di Elettronica (GE Association), Siena, Italy, June 25, 2015
- Wouter A. Serdijn: Power-Efficient Neural Stimulator Circuits, invited talk, John Choma Commemorative Sessions at ISCAS 2015, Lisbon, Portugal, May 25

Arindam Basu:

- July, 2015: Delivered invited talk on "How can Dendritic Computation be useful in Neuromorphic Systems?" at the Asia-Pacific Summer School on Bio-Inspired Systems and Prosthetic Devices, 2015 in Taiwan. We also ran a hands-on project.
- Aug, 2015: Delivered tutorial on "Spiking Neural Networks in Silicon: From Building Blocks to Architectures of Neuromorphic Systems" at IJCNN 2015 in Ireland. IJCNN is the flagship conference of IEEE Neural Network Society.
- June-July, 2015: Co-organized workgroup on "Spike-Based Cognitive Computing: Seeing, Hearing, and Thinking with Spikes" at the NSF funded annual neuromorphic workshop in Telluride, USA.

Sandro Carrara:

- System-In-Package with embedded System-On-Chip for Remote Monitoring of Human Metabolism, Colloque National du GDR SoC/SiP, Nantes, France, 8-10 June 2016,

- Fully implantable devices for Remote Monitoring of Human and Animal Metabolism (Plenary Talk), IEEE MeMeA, International IEEE Symposium on Medical Measurements and Applications, Benevento, Italy, May 15-16, 2016
- System-In-Package with embedded System-On-Chip for Remote Monitoring of Human Metabolism, CNRS-INSIS meeting on Electronics at the interface with biology and medicine, June 20th, 2016 Paris, Paris (France)
- Remote Telemetry of Metabolites for Small Animals and Humans, Technical University of Dresden, January 12th, 2016.

Pedram Mohseni:

- “A miniaturized brain-machine-brain interface (BMBI) for restoration of function after brain injury,” Dept of Electrical and Computer Engineering, The Ohio State University, Columbus, OH, February 12, 2016.

Robert Rieger:

- “Biosignal Recording Front-ends with Digital Enhancements,” invited lecture at National Kaohsiung University of Applied Sciences, 2 May 2016.

Mohamad Sawan:

- Tutorial (half-day) at IEEE ISCAS, Lisbon, Portugal, May 2015.
- Keynote at Nano-Tera, EPFL, Lausanne, Switzerland, April 2016.
- Invited Seminar at King Abdallah University (KAUST), Thuwal, Saudi Arabia, March 2016.
- Keynote at IEEE-ISOCC, Gyeongju, South Korea, November 2015.
- Keynote at IEEE-ISBB, Beijing, October 2015.
- Invited Seminar at Shanghai Jiao Tong University, October 2015.
- Invited talk at Epilepsy & Treatment Workshop, Baltimore, USA, September 2015.
- Keynote at IEEE-ICABME, Beirut, Lebanon, September 2015.
- Invited Talk at NOÖS, Montreal, July 2015.
- Invited Talk at NAMIS, Montreal, July 2015.
- Invited Talk at UCL, Brussels, Belgium, June 2015.
- Keynote at CIIA, Saida, Algeria, May 2015.
- Invited Seminar at HKUST, Hong Kong, March 2015.
- Keynote at eHealthForHumanity, MCETECH'15 Montreal, May 2015.

Ibrahim (Abe) M. Elfadel:

- "Statistical Inference in CAD for Deeply Scaled CMOS Technologies," Technical University of Lisbon, ECE Department, and INESC-ID, Lisbon, Portugal, May 28, 2015. Invited Seminar.
- "IoT@UAE," ATIC Semiconductor Research Center Open House, EECS, Khalifa University of Science and Technology, Nov 18, 2015. Keynote Address.
- "Academic MEMS Goes Fabless: The Masdar Institute Perspective," Conference on Design Automation and Test in Europe (DATE 2016), Dresden, Germany, March 17, 2016. Invited Talk. Presented at the launch of the Worldwide MEMS Design Contest (Cadence, Coventor, and X-Fab).
- “The Abu Dhabi Nerds: Seeding and Growing the UAE Hub in Semiconductor R & D,” New York University – Abu Dhabi, UAE, March 30, 2016. Invited Lecture
- “Applying IoT in higher education - connecting future influencers, not just devices,” Future Technology Week, IoTX 2016, Dubai, UAE, March 30, 2016. Panelist representing the Masdar Institute.
- “The IoT Rush: Who is Going to Get the Gold?” Microwaves and Wireless Technologies Symposium, American University of Sharjah, UAE, April 11, 2016. Invited Lecture.
- “IoT and Public Health,” Internet of Things 2016, Dubai, UAE, May 16, 2016. Invited address.

Mingui Sun:

- Keynote speech, “Objective Measurements of Diet and Physical Activity Using a Smart Wearable Device,” 9th International Conference on Diet and Activity Methods (ICDAM), Brisbane, Australia, September 1, 2015.
- Invited Talk, “Wear IT, See IT, Measure IT, Locate IT wearable multi-component devices to change behavior,” Symposium of Using technology to measure diet and physical activity: Tools, Validity and Utility,” Hunter Medical Research Institute, Newcastle, Australia, August 28, 2015.
- Keynote speech, “Wearable Computing for Health and Wellbeing,” 4th International Symposium on Bioelectronics and Bioinformatics, Beijing, China, Sept 15, 2015.
- Invited Talk, “Wearable Computing for Health and Wellbeing,” Microsoft Research (Beijing), China, Sept 16, 2015.

Manuel Delgado-Restituto:

- “Implantable neural recording interface with embedded spike processing”, invited speaker at Workshop on Biomedical Microelectronic Translational Systems Research, organized by National Chiao Tung University (NCTU), Hsinchu, Taiwan, May 2015.
- “Neural Recording Prosthesis for Brain-Machine Interfaces”, invited speaker at the 7th Seminar on Electronics and Advanced Design, organized by IANOE, Puebla, Mexico, September 2015.

Elisabetta Chicca:

- “Learning in Silico: neuromorphic models of long-term plasticity”, invited seminar at the Department of Physiology, Faculty of Medicine, McGill University, Montreal, Canada, May 2016
- “Learning in Silico: neuromorphic models of long-term plasticity”, invited seminar at the Intelligent Sensory Microsystems Laboratory, Department of Electrical and Computer Engineering, University of Toronto, May 2016
- “Neuromorphic Electronic Circuits for Learning with Memristive Devices”, invited lectures at the 2nd MemoCIS Training School
- “Memristors – Devices, Models, Circuits, Systems and Applications”, Alghero, Italy, May 2016
- “Learning with neuromorphic hardware”, invited seminar at the Institute for Microelectronics and Microsystems (IMM), Italian National Research Council (CNR), Agrate Brianza, Italy, January 2016
- “Simulating plasticity with neuromorphic hardware”, invited talk at High-performance computing in neuroscience - from physiologically realistic neurons to full-scale brain models Workshop, CNS 2015 Meeting Prague, Czech Republic, July 2015

Pantelis Georgiou:

- Antenna Live event at the Science Museum, London “The bio-inspired artificial pancreas”, April 4-6th 2016
- “A Bio-inspired Artificial Pancreas for treatment of diabetes”, Imperial Medtech on wearables, behaviour and data, 23rd March 2016.
- “Microchip diagnostics for AMR” York University, 4th December 2015.
- “Semiconductor Diagnostics for Malaria”, Research Showcase on Malaria, Imperial College, 12th November 2015.
- “Engineering, Physical, Natural Sciences and Medicine Bridging Research in Antimicrobial resistance: Collaboration and Exchange” Southampton, 25th August 2015.

Eugenio Culurciello:

- ICCAD HALO workshop in Austin, November 5th 2015 Host: Yu.Cao@asu.edu Title: Deep Learning in practice
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- Purdue University CS Machine Learning and Applications Seminar, September 30th 2015 Host: Timothy La Fond and Jiasen Yang Title: Deep Learning in practice
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- Boston University NeuroHAM - <http://neuroham.bu.edu>, June 10th 2015 Host: Massimiliano Versace <maxversace@gmail.com> Title: Modeling the human visual system in hardware

Jie Chen:

- Steering committee and Associate Editor of IEEE Journal of Translation Engineering in Health and Medicine, Oct. 1015
- Associate Editor of Springer Journal of Medical & Biological Engineering & Computing, January 2015
- I was awarded IEEE Distinguished Lecturer in Circuits and Systems Society (2016-2017). Given a talk at Tufts University in Boston University and IEEE New York Chapter in April 2016.
- “Applications of Low-intensity Pulsed Ultrasound to Increase Monoclonal Antibody Production in CHO Cells Using Shake Flasks or Wavebags”, invited talk at the Cambridge Healthtech Institute’s Annual Recombinant Protein Expression and Production meeting (<http://www.chi-peptalk.com/protein-expression-production/>), San Diego, USA, 2015
- “Turning Your Smart Phone into a Tricorder”, invited talk at the University of Lava on Nov. 6, 2015

Guoxing Wang:

- Challenge of Extremely Low Power Sensing ICs for Internet of Things, keynote speaker, Shenzhen, Nov. 2015.
- Challenge of Extremely Low Power Sensing ICs for Internet of Things, keynote speaker, Hefei, The 13th China Communication IC Technology and Application Conference, August 2015.
- How Integrated Circuits Can Restore Vision for Blind People, Asia-Pacific Summer School on Bio-Inspired Systems and Prosthetic Devices, invited talk, August 2015.

Yong Lian:

- “Self-Powered Wireless Sensors for Internet-of-Things”, a Keynote in the 2016 Asia Workshop on Smart Sensor System (AWSSS2016), Mar. 27-29, 2016, Swan Lake, Beijing, China.
- “Challenges in the Design of Wearable Wireless ECG Sensors, a Tutorial in the 2015 IEEE International Conference on Biomedical Circuits and Systems (BioCAS2015), Oct. 22-24, 2015, Atlanta, Georgia, USA.

Maysam Ghovanloo:

- Keynote speech on “A Wearable Brain-Tongue-Computer Interface to Improve Quality of Life for People with Physical Disabilities,” Symposium on Engineering, Medicine, and Biology Applications (SEMBA’16), Taipei, Taiwan, Jan. 24, 2016.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” 7th Integrated Circuit Design Summer School and IEEE CAS Distinguished Lecture Program, University of Concepcion, Concepcion, Chile, Jan. 11, 2016.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, University of Tehran, Tehran, Iran, Dec. 28, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, Khaje Nasir Toosi University, Tehran, Iran, Dec. 27, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, Sharif University of Technology, Tehran, Iran, Dec. 26, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, University of Posts and Telecommunications, Xi’an, China, Dec. 21, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, Tsinghua University, Beijing, China, Dec. 17, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, Shanghai Jiao-Tong University, Shanghai, China, Dec. 16, 2015.

- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, Fudan University, Shanghai, China, Dec. 15, 2015.
- Invited talk on “Efficient Power and Wideband Data Transmission in Near Field,” 2nd Workshop on RF and Microwave Technologies and IEEE CAS Distinguished Lecture Program, Federal University of Santa Catarina, Florianopolis, Brazil, Nov. 27, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, University of Sao Paulo, Sao Paulo, Brazil, Nov. 25, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities,” IEEE CAS Distinguished Lecture Program, University of British Columbia, Vancouver, British Columbia, Canada, Oct. 30, 2015.
- A. Jafari, N. Buswell, A. Page, T. Mohsenin, M.N. Sahadat, and M. Ghovanloo “Live Demonstration: Towards an Ultra Low Power On-board Processor for Tongue Drive System,” IEEE Biomedical Circuits and Systems Conference (BioCAS’15), pp. 193, Oct. 22, 2015.
- M.N. Sahadat, Z. Zhang, A. Alreja, P. Srikrishnan, S. Ostadabbas, N. Sebkhi, and M. Ghovanloo, “Live Demonstration: A Tongue-Operated Multimodal Human Computer Interface and Robotic Rehabilitation System,” IEEE Biomedical Circuits and Systems Conference (BioCAS’15), pp. 172, Oct. 22, 2015.
- Y. Jia, Z. Wang, S.A. Mirbozorgi, and M. Ghovanloo, “Live Demonstration: A Smart Homecare System with Behavior Analysis and Closed-Loop Optogenetic Stimulation Capabilities,” IEEE Biomedical Circuits and Systems Conference (BioCAS’15), pp. 192, Oct. 22, 2015. [Best Live Demo]
- Invited talk on “The Tongue, A New Human Computer Interface,” ENVISION Program (Leadership-Scholarship-Career), Georgia Institute of Technology, Atlanta, GA, July 2015.
- Invited talk on “Brain-Tongue-Computer Interfacing,” NeuroHAM – Neural Processing in Humans, Animals, and Machines, Boston, MA, June 12, 2015.
- Invited talk on “Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities” Department of Electrical and Computer Engineering, University of Utah, Salt Lake City, UT, Jan. 25, 2015.

Benoit Gosselin:

- “An Optimized Adaptive Spike Detector for Behavioural Experiments”, IEEE International Symposium on Circuits and Systems (ISCAS’16), Montreal, Canada, 05/2016.
- “Wireless Brain-machine Interfaces for Combined Optogenetics and Multichannel Electrophysiology”, Department of informatics, Laval University, Quebec, Canada, 04/2016.
- “Wireless Brain-machine Interfaces for Combined Optogenetics and Multichannel Electrophysiology”, University of Toronto, Ontario, Canada, 12/2015.
- “A Wireless Headstage for Combined Optogenetics and Electrophysiology,” Frontier in Neuroscience, Quebec, Canada, 10/2015.
- “A Wireless Optogenetic Headstage with Multichannel Neural Signal Compression,” The IEEE Biomedical Circuits and Systems Conference (BioCAS’15), Atlanta, USA, 10/2015.
- “A Wireless Headstage for Enabling Behavioural Experiments With Freely Moving Models,” Quebec Mental Health Research Center, Quebec, Canada, 9/2015.
- “Multichannel Spike Detector With an Adaptive Threshold Based On a Sigma-Delta Control Loop,” The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC’15), Milano, Italy, 08/2015.
- “Low-Power Adaptive Spike Detector Based on a Sigma-Delta Control Loop,” The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC’15), Milano, Italy, 08/2015.
- “A Wireless Multichannel Optogenetic Headstage With On-The-Fly Spike Detection,” IEEE International Symposium on Circuits and Systems (ISCAS’15), Lisbon, Portugal, 05/2015.

Sameer Sonkusale:

- “CMOS-X: Emerging applications in sensing and medical diagnostics”, invited seminar at Mitsubishi Electric Research Labs, Cambridge MA, USA, June 2015

- “Paper based biomedical diagnostics and therapy for resource limited settings”, invited talk at IEEE Engineering in Medicine and Biology Conference (EMBC), Milan Italy, August 2015
- “Optical and nano-electronic sensor arrays”, invited Seminar at Army Research Labs, Adelphi Maryland USA, August 2015

Joseph Chang:

- IEEE Conference on Electronics, Circuits and Systems, ‘Printed Electronics: Printing Process and Circuit Design Challenges’, Egypt, Dec 2015
- INVITED Speaker, “Low-Cost Fully-Additive Air-Processed Printed Electronics: Process and Circuit Design”, TechInnovation, Sept 2015
- INVITED Speaker, IEEE Mid-West Symposium on Circuits and Systems, Topic: III/V-on-CMOS for EL Lighting, USA, Aug 2015

Tsung-Yi Ho:

- “Design Automation, Test, Error Recovery: Toward Secure, Dependable, and Adaptive Microfluidic Biochips”
- IEEE/ACM Design, Automation and Test in Europe (DATE), Dresden, Germany, Mar. 2016

6) IEEE Service and other Professional Activities

Timothy Constandinou:

- IEEE CAS Society representative to IEEE Brain Initiative (2015-present)

Christoph Posch:

- Evaluator EC H2020 project proposals - ICT and FETOpen

André van Schaik:

- Assessor, Australian Research Council
- Assessor, National Health and Medical Research Council (Australia)
- Assessor, EPSRC (UK)

Shuenn-Yuh Lee:

- IEEE International Symposium on Circuits and Systems(ISCAS)-VLSI Systems and Applications TC Member (2013- present)
- IEEE International Symposium on Circuits and Systems(ISCAS)-Biomedical and Life Science Circuits and Systems TC Member (2013- present)
- IEEE International Symposium on Circuits and Systems(ISCAS)- Nanoelectronics and Gigascale TC Member (2013- present)
- IEEE Asian Solid-State Circuits Conference(A-SSCC)-Emerging Technologies and Applications TC Member(2014- present)
- 2015/2016 International Symposium on Circuits and Systems (ISCAS)
- Paper assign by VLSI Systems and Applications TC (ISCAS)
- Paper assign by Biomedical and Life Science Circuits and Systems TC (ISCAS)
- Paper assign by 2015 IEEE Biomedical Circuits and Systems Conference (BioCAS)
- Paper assign by 2015 Asian Solid-State Circuits Conference (A-SSCC)
- Organize RCM members for paper assign by 2015 4th International Symposium on Bioelectronics and Bioinformatics (ISBB)

Wouter A. Serdijn:

- Member of the BioCAS Steering Committee

- Member of the IEEE EPPI ICT Working Group
- Member of the IEEE CASS Editor-in-Chief Selection Committee

Sandro Carrara:

- Member of the Board of Governors of the IEEE Circuits and Systems Society (2015-2017)
- Member at Large of the IEEE Sensors Council (2015-2017), member of the council since 2013

Pedram Mohseni:

- IEEE Engineering in Medicine and Biology Society (EMBS) representative to IEEE Sensors Council (2014 – present)

Robert Rieger:

- Member of the IEEE Technical Committee on Biomedical and Life Science Circuits and Systems (BioCAS-TC)
- Member of the IEEE VLSI Systems and Applications Technical Committee (VTA-TC)
- Member of the IEEE Technical Committee CAS Education and Outreach (CASEO)

Mohamad Sawan:

- Member of the IEEE CASS BoG
- Member representative of the IEEE LSTC CASS
- Chair of the IEEE LSTC Conferences committee
- Member External Advisory Committee to the ACE4S in Abu Dhabi (2013-15)

Ibrahim (Abe) M. Elfadel:

- Reviewer: IEEE Transactions on Computer-Aided Design
- IEEE CEDA Chapter: Working on establishing a UAE chapter for the IEEE Council on Design Automation
- Reviewer: Best ISCAS paper award in the Sensor System track.

Manuel Delgado-Restituto:

- Vice President of Publications of the IEEE Circuits and Systems Society (2015-present)
- Scientific Advisor to Spain government (2009-present)
- External reviewer for the Dutch Technology Foundation STW (2015)

Elisabetta Chicca:

- Chair of the IEEE Neural Systems and Applications Technical Committee, May 2015-present
- Member of the IEEE Biomedical Circuits and Systems TC
- Member of the IEEE Neural Systems and Applications TC
- Management Committee Member and Workgroup Leader of the COST Action IC1401: Memristors-Devices, Models, Circuits, Systems and Applications (MemoCIS), 2014-present.

Pantelis Georgiou:

- IEEE Sensors Council, Circuits and Systems Representative. (2014-present)

Guoxing Wang:

- Committee Member, IEEE Circuits and Systems “Guillemin-Cauer Best Paper Award”, 2016.
- Committee Member, IEEE Circuits and Systems “Darlington Best Paper Award”, 2016.
- Committee Member, International Solid-State Circuits Conference (ISSCC), Student Research Preview, 2015-present

Zhihua Wang:

- TC Member, IEEE CAS Biomedical and Life Science Circuits and Systems
- 2016-Now Elected AdCom Member of the IEEE Solid-State Circuits Society

Bo Zhao:

- TC Member, CAS Biomedical and Life Science Circuits and Systems

Xiao Liu:

- TC Member, IEEE CAS Biomedical and Life Science Circuits and Systems

Yong Lian:

- Vice President Publications of IEEE Circuits and Systems Society (Jan. 2013-Mar. 2016)
- Editor-in-Chief Selection Committee Chair of IEEE CAS Society (Jan. 2013-Dec. 2015)
- President-Elect of IEEE Circuits and Systems Society (Jan. 2016 – present).
- Member of IEEE Fellow Committee (Jan. 2016 – present).

Robert J Weber:

- TC Member, CAS Biomedical and Life Science Circuits and Systems

Benoit Gosselin:

- Executive Member, Microsystems Strategic Alliance of Québec (2012 – present)
- Founder and Chair of the CAS/EMB Society Chapter, IEEE Quebec Section (2014 – present)
- External Reviewer, National Science and Engineering Research Council, Strategic Grant Review Panel (Z-N-ICT-Panel A), 2015.
- External Reviewer, MITACS Accelerate Grant Review Panel, 2015.
- FRQ-NT Team Research Project Program Review Panel (Electrical Eng.), 2015.

Andreas Demosthenous:

- Chairman of Selection Committee for "Guillemin-Cauer and Darlington" Best Paper Awards
- Member of IEEE "Life Sciences" (2012-present)

Tam Nguyen:

- IEEE tech. Committee BioCas since 2012

Tong Ge:

- 2009 – present: Committee Member, IEEE Analog Signal Processing Technical Committee
- 2010 – present: Committee Member, IEEE Biomedical and Life Science Circuits and Systems Technical Committee

Pau-Choo (Julia) Chung:

- TC Member, IEEE CAS Biomedical and Life Science Circuits and Systems
- TC Member, IEEE CAS Multimedia Systems and Applications
- TC Member, IEEE CAS Visual Signal Processing & Communications
- Committee of Women in CAS
- 2015-Now Vice President for Members Activities, IEEE Computational Intelligence Society

Chua-Chin Wang:

- TC Member, Nano-electronics and Giga-systems
- TC Member, CAS Biomedical and Life Science Circuits and Systems

Paul P. Sotiriadis:

- Technical Program Committee member of MOCAS 2016
- Technical Program Committee member of ICECS 2016
- Technical Program Committee member of SPIN 2016
- Technical Program Committee member of MobiHealth 2016
- Technical Program Committee member of ICECS 2015
- Technical Program Committee member of SPIN-2015
- Special Session organizer and Chair, ISCAS 2015

Sameer Sonkusale:

- Chair, IEEE Biomedical Circuits and Systems Technical Committee for CAS Society (2014-2016)
- Panelist, Review Panels at National Science Foundation (NSF), National Institute of Health (NIH) and NASA, (2004-present)

Man Kay LAW, Matthew :

- TC Member, CAS Sensory Systems
- TC Member, CAS Biomedical and Life Science Circuits and Systems

Shuenn-Yuh Lee:

- IEEE Solid-State Circuits Society Tainan Chapter Chair (2013-2016)
- IEEE Tainan Section Vice Chair (2016-present)

Kea-Tiong (Samuel) Tang:

- IEEE BioCAS TC Secretary (2014~2016)

Amine Bermak

- Secretary IEEE SSTC

Tsung-Yi Ho:

- TC Member, CAS Biomedical and Life Science Circuits and Systems

7) Organizers: Conferences, Workshops, Panels, Special Sessions, Tutorials

Timothy Constandinou:

- General Co-Chair of BrainCAS 2016 (post-BioCAS workshop 20-21 October 2016), Hangzhou, China.

Bin-Da Liu:

- Review Committee Member, the 2015 IEEE Biomedical Circuits and Systems Conference (BioCAS 2015)

Christoph Posch:

- Review Committee member, IEEE International Symposium on Circuits and Systems, ISCAS (2010-present)
- Review Committee member, IEEE International Conference on Biomedical Circuits and Systems, BioCAS (2012-present)

Philipp Häfliger:

- Technical Program Co-Chair of the IEEE International Symposium on Circuits and Systems (ISCAS) May 2015
- Live Demonstrations Track Co-Chair IEEE International Symposium on Circuits and Systems (ISCAS) May 2016

Viktor Gruev:

- Member of the Technical Committee for the IEEE ISCAS conference (2005-present)

Edmund Lam:

- Co-Chair of the SPIE conference on High-Speed Biomedical Imaging and Spectroscopy: Toward Big Data Instrumentation and Management
- Chair of the IS&T conference on Image Processing: Machine Vision Applications

Danilo Demarchi:

- Member of the Technical Committee for the IEEE NEWCAS conference (June 2015)

André van Schaik:

- Technical Program Chair, ISCAS 2017; resigned March 2016.
- Special Session Organiser, ISCAS 2016

Donald Y.C. Lie:

- General Chair of the IEEE Conference General Chair of IEEE VLSI-DAT 2015-17, BCTM 2014, IEEE SiRF 2014
- Member of the Technical Program Committee for the IEEE RWS, PAWR, ISCAS, BIOCAS, ASICON, ICSSE, VSPC, ICBBB and IEEE-NIH LiSSA conference (2007-present).
- Technical Program Committee (TPC) Chair/co-Chair for IEEE VLSI-DAT 2014, 2015, IEEE BCTM 2012, and IEEE SiRF'11.

Shuenn-Yuh Lee:

- Technical Program Chair of 2015 Taiwan and Japan Conference on Circuits and Systems (TJCAS'15) (2015/08/19-2015/08/21)
- Technical Program Chair of 2015 International Symposium on Bioelectronics and Bioinformatics (ISBB) (2015/10/14-2015/10/17)
- General Co-chair of 2016 Taiwan and Japan Conference on Circuits and Systems (TJCAS'16)

Wouter A. Serdijn:

- General Chair for the IEEE International Symposium on Circuits and Systems (ISCAS) 2015

Arindam Basu:

- Member of the Technical Committee for the IEEE ISCAS conference (2012-present)
- Member of the Technical Committee for the IEEE BioCAS conference (2013-present).

Sandro Carrara:

- Special Session Chair of the IEEE International Symposium on Circuits and Systems (ISCAS) 2016, in Montreal
- TPC Chair of the 23rd IEEE International Conference on Electronics Circuits and Systems, (IECEC2016, Monaco),
- TPC Chair of the 11th IEEE International Conference on Biomedical Circuits and Systems (BioCAS 2015, Atlanta)

Pedram Mohseni:

- Technical Program Co-Chair, IEEE Forum on Emerging and Selected Topics in Circuits and Systems (IEEE CAS-FEST): Lab-on-CMOS Systems, Montreal, Canada, May 26, 2016
- Tutorials Co-Chair, IEEE Biomedical Circuits and Systems (BioCAS) Conf., Atlanta, GA, October 22-24, 2015
- Technical Program Subcommittee Chair, Biomedical, Actuators, MEMS, and Sensors (BAMS), IEEE Custom Integrated Circuits Conf. (CICC – 2015)
- Panels Co-Chair, IEEE Custom Integrated Circuits Conf. (CICC – 2015)
- Technical Program Committee Member, IEEE CICC (2012 – present)
- Technical Program Committee Member, IEEE RFIC Symposium (2012 – 2015)

Robert Rieger:

- Track Co-Chair for IEEE International Conference on Circuits and Systems (ISCAS) 2015, Live Demo Track

Mohamad Sawan:

- General Chair of the IEEE ISCAS, May 2016
- General co-Chair of the IEEE NEWCAS June 2015
- General co-Chair IEEE ICM, Dec 2015

Ibrahim (Abe) M. Elfadel:

- Technical Program Committee of the International Conference on Computer-Aided Design, Austin, TX, Nov 2 – 6, 2015.
- Technical Program Committee of the 2016 Design Automation Conference, Austin, TX, Jun 7 - 10, 2016: Chair of the subcommittee on Analog Design and Simulation.
- Tutorial and Special Session Co-chair: 59th Midwest Symposium on Circuits and Systems, Abu Dhabi, Oct 16 – 19, 2016.
- Technical Program Committee of the International Symposium on Circuits and Systems, Montreal, May 22 – 25, 2016.

Manuel Delgado-Restituto:

- General Co-Chair of the SPIE Bio-MEMS and Medical Microdevices (2014-2015)
- Member of the Technical Committee for the IEEE ICECS conference (2013-present)
- Member of the Technical Committee for the IEEE PRIME conference (2011-present)
- Review Committee member for the IEEE BioCAS conference (2011-present)
- Member of the Programme Committee (Publicity Co-chair) for ISCAS 2016.

Elisabetta Chicca:

- Track co-Chair of the IEEE International Symposium on Circuits and Systems, ISCAS 2016, Neural Network Circuit and Systems Track

Pantelis Georgiou:

- Organizer, EPSRC Sensors to Systems workshop, September 2015, Leeds.
- International Program Committee, IEEE BioCAS conference, 2016 (Georgia, US)
- Demo Session Chair, IEEE ISCAS conference, 2015(Lisbon, Portugal)

Guoxing Wang:

- Member of the Technical Committee for the IEEE BioCAS conference (2004-present)

Bo Zhao:

- RCM, IEEE Symposium on Circuits and Systems, 2015.
- RCM, IEEE Biomedical Circuits and Systems Conference, 2015.

Yong Lian:

- Technical Program Committee Member, the IEEE Asian Solid-State Circuits Conference (A-SSCC'2015), Nov. 2015, Xiamen, China.
- General Co-Chair, 11th International Conference on ASIC (ASICON 2015), Nov. 3-6, 2015, Chengdu, China.
- Technical Program Co-Chair, 20th IEEE International Conference on Digital Signal Processing (DSP 2015), July 21-24, 2015, Singapore.

Maysam Ghovanloo:

- Technical Program Committee Co-Chair, IEEE BioCAS 2016, Shanghai, China
- General Chair, IEEE BioCAS 2015, Atlanta, Georgia, USA

Benoit Gosselin:

- "An Optimized Adaptive Spike Detector for Behavioural Experiments", IEEE International Symposium on Circuits and Systems (ISCAS'16), Montreal, Canada, 05/2016.
- "Wireless Brain-machine Interfaces for Combined Optogenetics and Multichannel Electrophysiology", Department of informatics, Laval University, Quebec, Canada, 04/2016.
- "Wireless Brain-machine Interfaces for Combined Optogenetics and Multichannel Electrophysiology", University of Toronto, Ontario, Canada, 12/2015.
- "A Wireless Headstage for Combined Optogenetics and Electrophysiology," Frontier in Neuroscience, Quebec, Canada, 10/2015.
- "A Wireless Optogenetic Headstage with Multichannel Neural Signal Compression," The IEEE Biomedical Circuits and Systems Conference (BioCAS'15), Atlanta, USA, 10/2015.
- "A Wireless Headstage for Enabling Behavioural Experiments With Freely Moving Models," Quebec Mental Health Research Center, Quebec, Canada, 9/2015.
- "Multichannel Spike Detector With an Adaptive Threshold Based On a Sigma-Delta Control Loop," The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'15), Milano, Italy, 08/2015.
- "Low-Power Adaptive Spike Detector Based on a Sigma-Delta Control Loop," The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'15), Milano, Italy, 08/2015.
- "A Wireless Multichannel Optogenetic Headstage With On-The-Fly Spike Detection," IEEE International Symposium on Circuits and Systems (ISCAS'15), Lisbon, Portugal, 05/2015.

Andreas Demosthenous:

- Member of the Technical Committee for the ESSCIRC conference (2008-present)
- Member of the Technical Committee for the ISSCC Student Research Preview (2012-present)
- Review Committee Member for ISCAS (2006-present)

Chua-Chin Wang:

- RCM, IEEE Symposium on Circuits and Systems, 2015.

Sameer Sonkusale:

- Special Sessions Chair for BIOCAS, Atlanta USA (2015)
- Member of the Technical Committee for ISCAS, Montreal, Canada (2016)
- Member of the Technical Committee for BIOCAS, Atlanta, USA (2015)

Man Kay LAW, Matthew :

- University LSI Design Contest (UDC) Co-Chair, 21th Asia and South Pacific Design Automation Conference (ASP-DAC 2016)
- RCM, IEEE Symposium on Circuits and Systems, 2015.
- RCM, IEEE Biomedical Circuits and Systems Conference, 2015.

Kea-Tiong (Samuel) Tang:

- Technical Program Committee, IEEE International Symposium on Circuits and Systems, 2011–2016, Live Demo Chair (2016)
- Program Committee Member, Symposium on Engineering, Medicine, and Biology Applications, 2011–2016
- Technical Program Committee, IEEE Biomedical Circuits and Systems Conference, 2012–2016, Publication Chair (2012), Live Demo Chair (2016)
- Track Chair, IEEE Asia Pacific Conference on Circuits and Systems, Sensor System (2014), Analog Circuits (2016)

Tsung-Yi Ho:

- TPC Chair, ACM/IEEE Workshop on System-Level Interconnect Prediction (SLIP 2016)
- RCM, IEEE Symposium on Circuits and Systems, 2015.
- RCM, IEEE Biomedical Circuits and Systems Conference, 2015.

8) Editorial Services

Timothy Constandinou:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2013 – present)

Christoph Posch:

- Review Editor, Frontiers in Neuromorphic Engineering

Philipp Häfliger:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2009 – present)
- Guest Associate Editor TCAS-1 for a special Issue on selected papers from ISCAS 2015

Viktor Gruev:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2016 – present)
- Associate Editor of IEEE Transactions on Circuits and Systems II (2016 – present)

Zhiping Lin:

- Editor-in-Chief, Multidimensional Systems and Signal Processing (2011 – 2015)
- Subject Editor, Journal of The Franklin Institute (04/2015-present)

Edmund Lam:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2007 – present)
- Associate Editor of IEEE Signal Processing Letters (2014–present)

Danilo Demarchi:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2015 – present)
- Associate Editor of IEEE Sensors (2015 – present)

André van Schaik:

- Associate Editor of Frontiers in Neuromorphic Engineering (2011 – present)

Donald Y.C. Lie:

- Lead Guest Editor, International Journal “Active and Passive Electronic Components”, Hindawi Publishing, 2010-2011,

- Area Editor-in-Chief for International Journal on Wireless and Optical Communications, 2001-present
- Editorial Board Member, i-manager's Journal on Electrical Engineering, 2009-present
- International Interdisciplinary Advisory and Editorial Board (IIAEB), International Journal of Interdisciplinary Research and Innovation (IJIRI), Research Publish Journals, 2014-Present
- Guest Editor, Biosensors, Special Issue "Latest Wearable Biosensors" (ISSN 2079-6374; MDPI) July, 2016
- Associate Editor-in-Chief, Open Journal of Applied Biosensor (OJAB), Scientific Research Publishing Inc., 2012-present
- Associate Editor, IEEE Microwave and Wireless Components Letters, 2010-Present (MWCL; impact factor 2.236 to 2.7, acceptance rate 18-30%)

Shuenn-Yuh Lee:

- Guest Editor: Journal of Medical and Biological Engineering: Special Issue on Bioelectronics and Bioinformatics (2015-2016)
- Guest Editor: IEEE Design & Test: Special Issue on Implantable Medical Devices and Applications (2015-2016)
- Associate Editor: IEEE Transaction on Biomedical Circuits and Systems (2016-2017)

Wouter A. Serdijn:

- Associate Editor for the IEEE Transactions on Biomedical Circuits and Systems (T-BioCAS)

Arindam Basu:

- Associate Editor: IEEE Transactions on Biomedical Circuits and Systems, 2016-18
- Associate Editor: IEEE Sensors Journal, 2015-17.
- Guest Associate Editor: Special Issue in IEEE Transactions on Biomedical Circuits and Systems on selected papers from ISCAS 2015
- Guest Associate Editor: Special Issue in IEEE Transactions on Biomedical Circuits and Systems on selected papers from BioCAS 2015

Sandro Carrara:

- Founder and Editor-in-Chief of BioNanoScience, journal from Springer
- Editor-in-Chief (Associate) of the IEEE Sensors Journal
- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems

Pedram Mohseni:

- Associate Editor of IEEE Transactions on Neural Systems and Rehabilitation Engineering (2012 – present)
- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2008 – present)

Robert Rieger:

- Associate Editor for IEEE Transactions on Biomedical Circuits & Systems (TBCAS)
- Associate Editor for IEEE Transactions on Circuits and Systems I - Regular Papers (TCAS-I)

Mohamad Sawan:

- Editor in Chief of the IEEE TBioCAS
- Associate Editor of the IEEE TBME
- Associate Editor of the Int. Journal on Circuits Theory and Applications
- Associate Editor of the ETRI Journal
- Associate Editor of the Hindawi Journals (Healthcare, and ECE)

Ibrahim (Abe) M. Elfadel:

- Associate Editor: IEEE Transactions on VLSI

- Editor: Microelectronics Journal (Elsevier)

Mingui Sun:

- Editorial Board, Journal of Healthcare Engineering, 2009-Present.
- Associate Editor, International Journal of Information and Communication Engineering, KIICE, 2011-Present.

Manuel Delgado-Restituto:

- Editor-in-Chief of the IEEE Journal on Emerging and Selected Topics in Circuits and Systems (2014 – 2015)

Elisabetta Chicca:

- Associate Editor of the Transactions on Biomedical Circuits and Systems (TBioCAS), term 2016-2017
- Senior Editor Board Member of the IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS), term 2016-2017
- Associate editor of Frontier in Neuromorphic Engineering, 2011-present

Pantelis Georgiou:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2015 – present)
- Associate Editor of IEEE Sensors Journal (2014 – present)
- Guest Editor of IEEE Journal on Biomedical Health Informatics, Special issue on Diabetes 2015

Guoxing Wang:

- Deputy Editor-in-Chief, IEEE Transactions on Biomedical Circuits and Systems, 2016-17.
- Associate Editor, IEEE Transactions on Circuits and Systems, II.

Zihua Wang:

- 2016-Now Associate Editor, IEEE Trans. on Circuits and Systems-I
- 2008-2015 Associate Editor, IEEE Trans. on Biomedical Circuits and Systems

Xiao Liu:

- Associate Editor of IEEE Transactions on Circuits and Systems II (2014 – 2015)

Maysam Ghovanloo:

- Associate Editor, IEEE Transactions on Biomedical Circuits and Systems (TBioCAS)
- Associate Editor, IEEE Transactions on Biomedical Engineering (TBME)

Benoit Gosselin:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2016 – present)

Andreas Demosthenous:

- Editor-in-Chief of the IEEE Transactions on Circuits and Systems I: Regular papers (since Jan 2016)
- Associate Editor for the IEEE Transactions on Biomedical Circuits and Systems (2013 – present)

Tong Ge:

- 2014-2015 Associate Editor, IEEE Trans. on Circuits and Systems-II

Pau-Choo (Julia) Chung:

- 2016-Now Associate Editor, IEEE Trans. on Biomedical Circuits and Systems

Paul P. Sotiriadis:

- Associate Editor, IEEE Transactions on Circuits and Systems – I
- Associate Editor, IEEE Sensors Journal

Sameer Sonkusale:

- Associate Editor of IEEE Transactions on Biomedical Circuits and Systems (2016-present)
- Associate Editor of IET Electronic Letters (2015-present)
- Editorial Board Member, Nature Scientific Reports (2015-present)

Kea-Tiong (Samuel) Tang:

- Associate Editor, IEEE Transaction on Biomedical Circuits and Systems (TBioCAS), 2014~2017.

Amine Bermak

- Associate Editor Nature Scientific Reports.
- Associate Editor IEEE Transactions on Electron Devices.
- Associate Editor IEEE Transactions on Biomedical Circuits and Systems.

Tsung-Yi Ho:

- ACM Journal on Emerging Technologies in Computing Systems (JETC)
- ACM Transactions on Design Automation on Electronic Systems (TODAES)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Very Large Scale Integration Systems (TVLSI)

9) Awards, Honors, Patents

Viktor Gruev:

- 2016 IEEE Donald G. Fink Award – This award is for an outstanding paper in any of the IEEE Transactions, Journals, Magazines, or Proceedings.
- Best Live Demo award at IEEE International Symposium on Circuits and Systems (2015).
- Best Paper in the Sensors Tracks at IEEE International Symposium on Circuits and Systems (2015).

Zhiping Lin:

- best paper award at the International Conf. on Extreme Learning Machines 2015 (ELM 2015), Hangzhou, China, 15 – 17, Dec. 2015

Edmund Lam:

- Co-author, PiPhotonics best paper award (2016 SPIE High-Speed Biomedical Imaging and Spectroscopy: Toward Big Data Instrumentation and Management)

Donald Y.C. Lie:

- Dr. Lie and his students have won 14 Best Graduate Student Paper Awards and Best Paper Awards in international conferences for 1994, 1995, 2006, 2008 (twice), 2010 (thrice), 2011, 2012, 2013, 2014, 2015 and 2016.

Wouter A. Serdijn:

- IEEE Circuits and Systems Society Meritorious Service Award

Arindam Basu:

- Elected as IEEE CASS Distinguished Lecturer for 2016-17.
- A. Basu, Y. Enyi and Chen Yi, "Compact, Low-Power, Machine Learning System Utilizing Physical Device Mismatch For Classifying Binary Encoded Or Pulse Frequency Encoded Digital Input With Application To Neural Decoding" US patent 14/885,462 filed 2015.
- A. Basu, Chen Yi, Y. Enyi and S. Roy, "Techniques to Improve Performance in VLSI Random Projection Networks" SG provisional patent 10201507753U, filed 2015.

Sandro Carrara:

- IEEE Fellow for his outstanding record of accomplishments in the field of design of nanoscale biological CMOS sensors

Pedram Mohseni:

- P. Mohseni, M. Suster, U. Gurkan, and M. Bakhshiani, Sensor Apparatus, Systems and Methods of Making Same, U.S. Provisional Application No. 62/279,467 Filed on January 15, 2016
- P. Mohseni, P. A. Garris, and B. Bozorgzadeh, Methods and Associated Neural Prosthetic Devices for Control of Brain Neurochemistry, U.S. Provisional Application No. 62/174,904 Filed on June 12, 2015
- P. Mohseni, M. Suster, U. Gurkan, and M. Bakhshiani, Sensor Apparatus, Systems and Methods of Making Same, U.S. Non-Provisional Application No. 14/728,642 Filed on June 2, 2015

Robert Rieger:

- NSYSU Academic Research Excellence Award 2014-2015
- "Functional Monitoring System for Electrical Safety of Biochips." patent TW098113248, April 2016

Mohamad Sawan:

- Recipient of the Shanghai City Award for International Collaboration
- Co-recipient of the best Texpo project award from CMC Microsystems annual workshop

Ibrahim (Abe) M. Elfadel:

- Best MS Thesis Award by the Masdar Institute to my student Shahzad Muzaffar for his thesis entitled: "An Integrated Low-Power Platform for Continuous Congestive heart Failure Monitoring using Body Channel Communication," August 2015.

Manuel Delgado-Restituto:

- European Patent : EP13822326.8: "Wireless telemetry system for the monitoring of static and dynamic magnitudes". M. Delgado-Restituto, J.A. Rodríguez-Rodríguez, J. Ruiz-Amaya, A. Rodríguez-Pérez and J. Masuch.

Eugenio Culurciello:

- E Founder of TeraDeep Inc. December 2013 – March 2016 <http://teradeep.com/>
- 2M in funding: <http://money.cnn.com/news/newsfeeds/articles/prnewswire/SF13965.htm>
- Startups to watch in 2016: <http://venturebeat.com/2015/12/25/5-deep-learning-startups-to-follow-in-2016/>
- TeraDeep develops machine learning / deep learning capabilities for IoT, mobile and embedded devices. We craft and train neural networks to run efficiently in your products and provide real-time complex-data vision analytics

Jie Chen:

- IEEE Fellow
- Killam Annual Professorship (one of the highest honors given to a Professor in Canadian Universities)
- IEEE Distinguished Lecturer

Guoxing Wang:

- Weiwei Shi, Yongxin Zhu, Tian Huang, Gehao Sheng, Yong Lian, Guoxing Wang, Yufeng Chen, "An Integrated Data Preprocessing Framework Based on Apache Spark for Fault Diagnosis of Power Grid Equipment," Accepted by The Journal of Signal Processing Systems in 2016.
- Lei Zeng, Xin Yi, Guoyong Shi, Mohamad Sawan, Guoxing Wang, "A High-Voltage Stimulation Chip for Wearable Stroke Rehabilitation Systems," International Journal of Circuit Theory and Applications, Accepted. (SCI, IF: 1.254).
- Xiaohong Sui, Yu Huang, Leanne Chan, Guoxing Wang, "3D finite element modeling of epi-retinal stimulation — impact of prosthetic electrode size and distance from the retina," The International Journal of Artificial Organs, vol. 38, no. 5, pp. 277-287, 2015.
- Y. Cao, Y. Ma, B. Lu, and G. Wang*, "The development and modern application of the EEG signal acquisition system," New Technology & New Process, China, pp. 83-89, November 2015.

Yong Lian:

- Design Contest Award of the 20th International Symposium on Low Power Electronics and Design (ISLPED) for the paper "A 2.89 μ W Clockless Fully-Integrated Wireless ECG SoC for Wearable Sensors", Rome, Italy, July 2015.

Robert J Weber:

- Sasha N. Oster, Jin-Wei Tioh, Mani Mina, Robert J. Weber, "Advanced Drive Circuitry for Sagnac Interferometric Switch Utilizing Faraday Rotation," August 18, 2015, US Patent No. 9,110,317

Maysam Ghovanloo:

- M. Ghovanloo, "Systems and Methods for Multichannel Wireless Implantable Neural Recording," US patent 8,958,868, Applied: May 18, 2009, Granted: Feb. 17, 2015.
- Selected as an IEEE Circuits and Systems Society Distinguished Lecturer for 2015-2016. On topics: "Implantable and Wearable Microelectronic Devices to Improve Quality of Life for People with Disabilities" and "Efficient Power and Wideband Data Transmission in Near Field."
- Silver Award in the 11th Samsung Electro-Mechanics Best Paper Awards, Byunghun Lee, Pyungwoo Yeon, and Maysam Ghovanloo for paper titled "A Multi-Cycle Q-Modulation Technique for Wirelessly-Powered Biomedical Implants."
- Best Demonstration Award in 2015 IEEE Biomedical Circuits and Systems Conference, "A Smart Homecare System with Behavior Analysis and Closed-Loop Optogenetic Stimulation Capabilities," Yaoyao Jia, Zheyuan Wang, Abdollah Mirbozorgi, and Maysam Ghovanloo

Tong Ge:

- J. S. Chang, C.T. Lee and T. Ge "A Communications Device" China National Application 201280025067.X, Awarded
- J. S. Chang, T. Ge, and L. Guo "A Class D Amplifier Circuit for a Parametric Transducer and a related Audio Device" PCT/SG2015/050282, Aug 2015
- J. S. Chang, T. Ge, and L. Guo "A Novel Low-Power High-Efficiency 3-State Filterless Bang-Bang Class D Amplifier" US Provisional Patent 62/262,645, Dec 2015
- J. S. Chang, T. Ge, and L. Guo "A dead time circuit for a Switching Circuit and a Switching Amplifier" Taiwan Patent Application 104110799, Apr 2015
- J. S. Chang, T. Ge, and L. Guo "A dead time circuit for a Switching Circuit and a Switching Amplifier" PCT/SG2015/050061, Apr 2015.

- J. S. Chang, T. Ge, C. L. Lee, and C. M. Chang “Packaging for Internet-of-Things Objects and Detection of Change” Singapore Provisional Patent, 10201500192Q, Jan 2015.

Pau-Choo (Julia) Chung:

- 2015 APICTA Research and Development(R&D) Merit Award

Chua-Chin Wang:

- US patent 8,893,402 B2 : Transceiver with wake up detection

Paul P. Sotiriadis:

- 1st place in Microsoft’s National competition

Sameer Sonkusale:

- US National Academy of Engineering (NAE) Frontiers Fellow, 2015
- US National Academy of Sciences (NAS) Arab-America Frontiers Fellowship, 2015
- “Thread based integrated functional devices”, Provisional Patent, 2015

Man Kay LAW, Matthew :

- Best Design Award, Asia and South Pacific Design Automation Conference, 2016.
- A-SSCC Distinguished Design Award, IEEE Asian Solid-State Circuits Conference, 2015.

Kea-Tiong (Samuel) Tang:

- Superior award, the 15th Golden Silicon Award, 2015
- Taipei Biotech Awards, Technology Transfer Silver Medal Award, 2015
- Outstanding Project Award, National Program of Intelligent Electronics, Ministry of Science and Technology, 2015
- National Innovation Award, 2015
- 1st Prize, PhD Thesis Award, Taiwan Engineering Medical Biology Association, 2015
- Honorable Mention, Master Thesis Award, Taiwan Engineering Medical Biology Association, 2016

Amine Bermak

- Co-author of the paper receiving the “Best Design Contest Award” at the major conference: IEEE ASP-Design Automation Conference DAC, *Macau*, 2016.

Tsung-Yi Ho:

- Best Paper Award, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems 2015

10) Publications

10.1 Books and Book Chapters

- C Posch, “Bioinspired Vision Sensing”, in “Biologically Inspired Computer Vision: Fundamentals and Applications”, pp 11-28, Wiley-VCH, ISBN 978-3-527-41264-8
- P. Motto, I. Rattalino, A. Sanginario, V. Cauda, G. Piccinini, D. Demarchi, “Nanogaps and biomolecules”, in S. Carrara and K. Iniewski, “Handbook of Bioelectronics - Directly Interfacing Electronics and Biological Systems”, Cambridge University Press, pp. 11-33, August 2015.

- A. van Schaik, T. Delbrück, and J. Hasler, *Neuromorphic Engineering Systems and Applications*. Lausanne, Switzerland: Frontiers, 2015.
- A. van Schaik and T. J. Hamilton, "Silicon Cochlea Building Blocks," in *Event-based Neuromorphic Systems*, S.-C. Liu, T. Delbruck, G. Indiveri, A. Whatley, and R. Douglas, Eds. Wiley, 2015, pp. 219–236.
- A. van Schaik, T. J. Hamilton, and S.-C. Liu, "Silicon Cochleas," in *Event-based Neuromorphic Systems*, S.-C. Liu, T. Delbruck, G. Indiveri, A. Whatley, and R. Douglas, Eds. Wiley, 2015, pp. 71–90.
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- Invited book chapter: "Energy Efficiency Enhancement and Linear Amplifications: An Envelope-Tracking (ET) Approach", D.Y.C. Lie, Chapter 7, edited H. Wang and S. Kaushik, *RF and Mm-Wave Power Generation in Silicon*, Elsevier, Academic Press, pp. 183-208, Dec. 2015 (ISBN 978-0-12-408052-2) http://www.amazon.com/RF-mm-Wave-Power-Generation-Silicon/dp/0124080529/ref=sr_1_1?ie=UTF8&qid=1455394673&sr=8-1&keywords=RF+and+mm-Wave+Power+Generation+in+Silicon
- Invited book chapter: "It Pays to Do Cool Research for Electrical Engineers!" D.Y.C. Lie, Chapter 7, in "Electrical Engineering for the Curious: Why Study Electrical Engineering? (For College Students - Best College Majors, College Scholarships, Educational Research, Career Choices, and Success)", edited by Kishor Vaidya (ISBN 978-1-925128-48-2; ASIN: B010UUANI8); The Curious Academic Publishing; 1st edition, pp. 1455-1667 (July 2, 2015)
- Shuenn-Yuh Lee, Chen-Yuen Huan, "Bladder Control Implants," in *Handbook of Biochips*, Mohamad Sawan, will be published in Springer. (ISBN 978-1-4614-3447-4, 978-1-4614-3503-7)
- Marijn van Dongen and Wouter Serdijn: *Design of Efficient and Safe Neural Stimulators - a multidisciplinary approach*, Springer, 2016, ISBN 978-3-319-28129-2, DOI: 10.1007/978-3-319-28131-5.
- TRIGUI, A., MEHRI, S., AMMARI, A., BENHADJSLAMA, J., SAWAN, M., "Prosthetic Power Supplies", Invited publication, *Encyclopedia of Electrical and Electronics Engineering*, Book Chapter, John Wiley & Sons, 2015.
- NABOVATI, G., SAWAN, M., "Capacitive Sensor Arrays", Invited publication, *Encyclopedia of Electrical and Electronics Engineering*, Book Chapter, John Wiley & Sons, 2015.
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- G Orchard, C Meyer, R Etienne-Cummings, C Posch, N Thakor, R. Benosman: "HFirst: a temporal approach to object recognition", *Pattern Analysis and Machine Intelligence*, IEEE Transactions on, 37 (10), pp 2028 - 2040, DOI: 10.1109/TPAMI.2015.2392947
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