2018 Annual Report (June 2017 – May 2018)
Visual Signal Processing and Communication Technical Committee
IEEE Circuits and Systems Society

Chairman: Jianfei Cai
Secretary: Qi Tian

Executive Summary

Overall, the TC is in a very good shape. Major activities include:

1) **Conference organization**: We have successfully supported ISCAS 2017 & 2018, where for 2018 the VSPC track attracts 60+ submissions. We have successfully organized VCIP' 2017 in Florida, which attracted 260+ submissions. We have identified the team for VCIP'2018, which will be held in Taiwan, as well as the team for VCIP'2019, which will be held in Australia.

2) **Membership**: We have retired 14 and 16 members in 2016 and 2017, respectively, and reelected 10 and 11 new members. We are now electing new TC secretary to have a new TC leadership team for the 2018-2020 term.

3) **TC website**: We have updated our TC website to include TC bylaw, member information as well as TC NewsLetter.

4) **Members' achievements**: Our members are very active in leading or flagship multimedia and visual analytics conferences and journals, serving as conference chairs, area chairs, and editors (5 EiCs and numerous AEs) and giving various keynote / distinguished talks. Other significant achievements include 7 IEEE Fellows in 2017-2018 and 7 Distinguished Lecturer.

5) **Potential collaborations with other TCs**:

   - Talks: Our members have strong expertise on multimedia AI applications, visual analytics and visual systems. We can offer cutting-edge talks / tutorials in conferences / workshops.

   - Special issues: Our TC members, Mathias Wien and Wen-Hsiao Peng are organizing a IEEE JETCAS special issue on Immersive Video Coding and Transmission. We welcome contributions from other TCs.

   - Event organization: We welcome other TCs to have joint tracks or special sessions in our TC's main conferences: ISCAS and VCIP.

1. Technical Committee Meeting:

The Visual Signal Processing and Communication Technical Committee in the IEEE Circuits and Systems Society organizes one annual TC meeting, held in ISCAS and one in VCIP. The detailed Information is given as follows.

1.1. Upcoming TC Meeting in ISCAS 2018

Date: May 29th, 2017 (Tues, during ISCAS 2018)
Venue: Room VV1.4
ISCAS 2018, Florence, Italy
Time: 13:15 - 14:15

1.2. Proposed Agenda

(To be finalized)

- Approval of the agenda
- BOG & TC Chair meeting reports & Review TC activities
- Conference Subcommittee
    - VCIP 2018 Status Report
    - VCIP 2019 Proposal Presentation
- Publicity Subcommittee
- Award Subcommittee
- Membership Subcommittee
    - Nomination of new TC members
- Other business
- Adjourn

2. Members submitted Annual Reports:

First Name	Last Name	Affiliation	Email
Jianfei	Cai	Nanyang Technological University	asjfcai@ntu.edu.sg
Qi	Tian	University of Texas at San Antonio	Qi.Tian@utsa.edu
C.-C. Jay	Kuo	University of Southern California	cckuo@sipi.usc.edu
Wen-Hsiao	Peng	National Chiao Tung University	wpeng@cs.nctu.edu.tw
Tihao	Chiang	Ambarella	thchiang2k@gmail.com
Mathias	Wien	RWTH Aachen University	mathias.wien@rwth-aachen.de
Wen-Huang	Cheng	SINICA	whcheng@citi.sinica.edu.tw
Nam	Ling	Santa Clara University	nling@scu.edu
Hongliang	Li	University of Electronic Science and Technology of China	hlli@uestc.edu.cn
Ebroul	Izquierdo	Queen Mary, University of London	Ebroul.izquierdo@qmul.ac.uk
Yen-Kuang	Chen	Intel Corporation	y.k.chen@ieee.org
Daniel	Lun	The Hong Kong Polytechnic University	enpklun@polyu.edu.hk
Enrico	Magli	Politecnico di Torino - Italy	enrico.magli@polito.it
Yihong	Gong	Xi'an Jiaotong University	ygong@xjtu.edu.cn
Eduardo Antônio Barros da	Silva	Universidade Federal do Rio de Janeiro	eduardo@smt.ufrj.br
Ling	Guan	Ryerson University	lguan@ee.ryerson.ca
Dong	Xu	Sydney University	dong.xu@sydney.edu.au
Carl James	Debono	University of Malta	carl.debono@um.edu.mt
Yun	He	Tsinghua University	hey@tsinghua.edu.cn
Jian	Zhang	University of Technology, Sydney	Jian.zhang@uts.edu.au
Chris	Lee	National Cheng Kung University	clee@mail.ncku.edu.tw

3. Your Report on Accomplished Technical Activities (June 2017 to May 2018)

3.1. Conference/Event organizations

Your Name	Conference Sponsors	Conference/Event Title	Your Role
Wen-Hsiao Peng	IEEE	2019 International Conference on Image Processing (ICIP)	Publication Chair
Wen-Hsiao Peng	IEEE	2017 International Symposium on Intelligent Signal Processing and Communications Systems (ISPACS)	Technical Program Co-Chair
Wen-Hsiao Peng	IEEE	2018 IEEE International Conference on Multimedia and Expo (ICME)	Area Chair
Wen-Hsiao Peng	APSIPA	2018 APSIPA Annual Summit Conference (APSIPA ASC)	Technical Program Co-Chair
Wen-Hsiao Peng	IEEE	2018 International Symposium on Circuits and Systems (ISCAS)	Session Chair/Review Committee Member
Hsu-Feng Hsiao	IEEE	DSP 2018	Special Session Organizer
Lin Weisi	IEEE	VCIP 2017	Technical Program Co-Chair
Ebroul Izquierdo	IEEE	ICIP 17	Area Chair
Ebroul Izquierdo	IEEE	ICME 17	Area Chair
Daniel Lun	IEEE	2017 IEEE International Conference on Multimedia and Expo	Finance Chair
Dong Xu	IEEE	ICIP 2017	Area chair/Doctoral Symposium Chair (2017)
Dong Xu	IEEE	ICCV 2017	Area Chair
Jianfei Cai	IEEE	ICIP'17	Area Chair
Jianfei Cai	IEEE	ISCAS 2017	Track Co-Chair
Jianfei Cai	IEEE	MMSP'17	Area Chair
Jing-Ming Guo	IEEE	ICCE-TW 2017	General Chair
Qi Tian	IEEE	CVPR'17	Area Chair
Qi Tian	IEEE	ICCV 2017	Area Chair
Wei Qi Yan	IEEE	AVSS 2018, New Zealand	PC Chair
Wenwu Zhu	ACM	ACM Multimedia 2017	Panel Chair
Wan-Chi Siu	IEEE	International Conference on Digital Signal Processing (DSP'2017), Imperial College, UK	Track Chair
Wan-Chi Siu	IEEE	ICME'2017, Hong Kong	Advisor
Tihao Chiang	IEEE	ICCE-Taiwan 2017	TPC Member
Mathias Wien	IEEE	VCIP 2017	Special Session Organizer
Mathias Wien	IEEE	ICME 2018	Area Chair
Mathias Wien	IEEE	ISCAS 2018	RCM
Wen-Huang Cheng	ACM	ACM Multimedia Asia Conference (ACMMM Asia)	Steering Committee Member
Wen-Huang Cheng	IEEE	VCIP 2017	Publication Chair
Wen-Huang Cheng	ACM	ACM Multimedia 2017	Travel Grant Chair
Nam Ling	IEEE	Umedia 2017	Honorary Co-Chair
Nam Ling	IEEE	ICIEA 2017	Int'l Advisory Committee
Hongliang Li	Springer	Pacific-Rim Conference on Multimedia 2017	Program Co-Chairs
Hongliang Li	IEEE	ISPACS 2017	General Co-Chairs
Ebroul Izquierdo	IEEE	ICIP 18	Area Chair
Ebroul Izquierdo	IEEE	ICME 18	Area Chair
Daniel Lun	IEEE	2017 IEEE International Conference on Multimedia and Expo	Finance Chair
Daniel Lun	IEEE	2017 IEEE International Conference on Multimedia and Expo	Area Chair
Enrico Magli	IEEE	ICIP 2018	Area Chair
Enrico Magli	IEEE	ICASSP 2018	Track Chair
Yihong Gong	IEEE	CVPR'17	Publicity Chair
Ling Guan	IEEE	2018 Forum on Future Media Technology	Honorary Chair
Carl James Debono	IEEE	ISCAS 2017, 2018	RCM
Carl James Debono	IEEE	ICME 2017, 2018	TPC
Carl James Debono	IEEE	ICC 2017, 2018	TPC
Carl James Debono	IEEE	Globecom 2017, 2018	TPC
Yun He	IEEE	ICIP 2017	Finance Chair
Gwo Giun Lee	IEEE	ICME 2017, Hong Kong	Track Co-Chair

Gwo Giun Lee	IEEE	AICAS 2018, Taiwan	Special Session Chair

3.2. IEEE and Other Journal Editorships:

Your Name	Journal Sponsors	Journal Title	Your Role
Chang Wen Chen	IEEE	IEEE Journal of Selected Areas in Communications	Senior Editor
Yo-Sung Ho	SPRINGER	Journal of Signal Processing Systems	Associate Editor
Ling Guan	Eurasip	Image and Video Processing	AE
Ling Guan	Springer	Signal Processing Systems	AE
Eduardo da Silva	Springer	Multidimensional Systems and Signal Processing	Member of the Editorial Board
Eduardo da Silva	IEEE	IEEE Transactions on Circuits and Systems I: Regular Papers	Deputy Editor in Chief
Gwo Giun Chris Lee	IEEE	Transactions on Signal Processing	Associate Editor
Gwo Giun Chris Lee	Springer	Journal of Signal Processing Systems	Associate Editor
Kai-Kuang Ma	IEEE	IEEE Transactions on Image Processing	Senior Associate Editor
Kai-Kuang Ma	IEEE	IEEE Transactions on Circuits & Systems for Video Technology	Associate Editor
Kai-Kuang Ma	IEEE	IEEE Signal Processing Letters	Associate Editor
Wen-Hsiao Peng	IEEE	IEEE Journal on Emerging and Selected Topics in Circuits and Systems	Guest Editor
Wen-Hsiao Peng	IEEE	IEEE Journal on Emerging and Selected Topics in Circuits and Systems	Senior Editorial Board Member
Junsong Yuan	IEEE	IEEE Trans. on CSVT	AE
Junsong Yuan	IEEE	IEEE Trans. on Image Processing	AE
Weiyao Lin	Elsevier	Journal of Visual Communication and Image Representation	Associate Editor
Weiyao Lin	Elsevier	Signal Processing: Image Communication	Area Editor
Weiyao Lin	Springer	Circuits, Systems, and Signal Processing	Associate Editor
Weiyao Lin	IEEE	IEEE Access	Associate Editor
Enrico Magli	IEEE	IEEE Transactions on Multimedia	Associate Editor
Enrico Magli	IEEE	IEEE Transactions on Circuits and Systems for Video Technology	Associate Editor
Enrico Magli	IEEE	IEEE Journal of Selected Topics in Signal Processing	Guest Editor
Carl James Debono	IEEE COMSOC	MMTC Communications Review	Review board member
C.-C. Jay Kuo	IEEE	Signal Processing Magazine	Senior Editorial Board Member
C.-C. Jay Kuo	IEEE	Journal of Selected Topics on Signal Processing	Senior Editorial Board Member
Chia-Wen Lin	IEEE	IEEE Trans. Image Processing	AE
Chia-Wen Lin	Elsevier	Journal of Visual Communication & Image Representation	AE
Weisi Lin	IEEE	Transactions on Circuits & Systems for Video Technology	AE
Weisi Lin	IEEE	Trans. on Image Processing	AE
Weisi Lin	IEEE	Signal Processing Letters	AE
Weisi Lin	Elsevier	Journal of Visual Communication and Image Representation	AE
Lap-Pui Chau	IEEE	IEEE Transactions on Circuits and Systems for Video Technology	Associate editor
Lap-Pui Chau	IEEE	IEEE Transactions on Broadcasting	Associate editor
Lap-Pui Chau	IEEE	IEEE Transactions on Circuits and Systems II	Associate editor
Lap-Pui Chau	Springer Journal	The Visual Computer	Associate editor
Ebroul Izquierdo	Eurasip	Image and video processing	Associate editor
Wenwu Zhu	IEEE	IEEE Trans. on Multimedia	Editor-in-chief
Wenwu Zhu	ACM	ACM Trans. On Multimedia	Associate Editor
Zicheng Liu	IEEE	TMM	Steering Committee member
Zicheng Liu	Elsevier	J. Visual Communication and Image Representation	EiC
Zicheng Liu	Springer	Machine Vision and Applications	AE
Daniel Lun	IEEE	Signal Processing Letters	Associate Editor

Dong Xu	IEEE	IEEE Transactions on Multimedia	AE
Dong Xu	IEEE	IEEE Transactions on Image Processing	AE
Dong Xu	IEEE	IEEE Transactions on Circuits and Systems for Video Technology	AE
Nam Ling	Springer	Multidimensional Systems and Signal Processing	Associate Editor
Nam Ling	Springer	Human-centric Computing and Information Sciences	Associate Editor
Jianfei Cai	IEEE	IEEE Trans. on Multimedia	AE
Jing-Ming Guo	IEEE	IEEE Trans. on Image Processing	Associate Editor
Jing-Ming Guo	IEEE	IEEE Trans. on Multimedia	Associate Editor
Jing-Ming Guo	IEEE	IEEE Signal Processing Letters	Associate Editor
Jing-Ming Guo	IEEE	Signal Processing	Associate Editor
Jing-Ming Guo	IEEE	Information Sciences	Associate Editor
Jing-Ming Guo	IEEE	Journal of Information and Science Engineering	Associate Editor
Qi Tian	IEEE	IEEE Trans. on Multimedia	Associate Editor
Qi Tian	IEEE	SI for IEEE Trans. On Multimedia	Guest Editor
Qi Tian	ACM	ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)	Associate Editor
Qi Tian	Springer	Multimedia Systems Journal	Associate Editor
Qi Tian	Springer	Machine Vision and Application Journal (MVA)	Editor
Pei-Yun Tsai	Springer	Special Issue of Journal of Signal Processing Systems for Signal, Image, and Video Technology	Guest Editor
Wei Qi Yan	IGI Global	International Journal on Digital Crime and Forensics (IJDCF), 2014-present	EiC
Nam Ling	Springer	Human-centric Computing and Information Sciences	Associate Editor
Dapeng Wu	IEEE	IEEE Transactions on Network Science and Engineering	Editor-in-Chief
Dapeng Wu	IEEE	IEEE Transactions on Communications	Associate Editor
Dapeng Wu	IEEE	IEEE Signal Processing Magazine	Senior Editor
Dapeng Wu	IEEE	IEEE Transactions on Signal and Information Processing over Networks	Associate Editor
Dapeng Wu	IEEE	IEEE SigPort	Editor
Dapeng Wu	IEEE	IEEE Transactions on Multimedia	Guest Editor
Dapeng Wu	Elsevier	Computers & Electrical Engineering	Guest Editor
Wan-Chi Siu	IET	Electronics Letters (Image Processing)	Subject Editor
Wan-Chi Siu	IEEE	IEEE Transactions on Image Processing	Associate Editor
Mathias Wien	IEEE	JETCAS Special Issue on Immersive Video Coding …	Corresponding Guest Editor
Mathias Wien	IEEE	TCSVT	Associate Editor
Wen-Huang Cheng	IEEE	IEEE Multimedia	Associate Editor
Wen-Huang Cheng	Elsevier	Signal Processing: Image Communication	Associate Editor
Wen-HuangCheng	IEICE	IEICE Transactions on Information and Systems	Associate Editor
Hongliang Li	IEEE	IEEE Transactions on Circuits & Systems for Video Technology	Associate Editor
Hongliang Li	Elsevier	Journal of Visual Communication and Image Representation	Associate Editor
Hongliang Li	Elsevier	Signal Processing: Image Communication	Area Editor
Ebroul Izquierdo	Eurasip	Image and video processing	Associate editor
Ebroul Izquierdo	Springer	Multimedia Tools and Applications	Editorial Board
Yen-Kuang Chen	IEEE	IEEE Journal on Emerging and Selected Topics in Circuits and Systems	EIC (2016-2017)
Daniel Lun	IEEE	IEEE Signal Processing Letters	Associate Editor
Yihong Gong	IEEE	IEEE Transactions on Circuits & Systems for Video Technology	Associate Editor
Yun He	IEEE	IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS)	Senior Editor
Jian Zhang	IEEE	IEEE Transactions on Multimedia	Associate Editor

3.3. Awards, Honors, and Recognition
(Fellow, Distinguished Lecturer, Outstanding Service, Best Paper Awards, etc.)

Your Name	Awards / Honors / Recognition	Period
Enrico Magli	IEEE Fellow	Class of 2017
Lap-Pui Chau	IEEE Fellow	Class of 2017
Yo-Sung Ho	IEEE Fellow	Class of 2017
Shuicheng Yan	IEEE Fellow	Class of 2017
Weisi Lin	IEEE CAS Distinguished Lecturer	2016-2017
Ebroul Izquierdo	IEEE Distinguished lecturer	2016-2017
Wen-Hsiao Peng	APSIPA Distinguished Lecturer	2017-2018
Wenwu Zhu	ACM Distinguished Lecturer	2013-present
Wei Qi Yan	Adjunct Professor of Chinese Academy of Sciences China	2012-present
Qi Tian	Changjiang Chaired Professor by Ministry of Education of China	Class of 2017
Dong Xu	Fellow of IAPR (International association for pattern recognition)	Class of 2017

Dong Xu	IEEE Fellow	Class of 2018
C.-C. Jay Kuo	The Capocelli Prize in 2017 Data Compression Conference (DCC)	2017
C.-C. Jay Kuo	IEEE Leon K. Kirchmayer Graduate Teaching Award	2017
Dapeng Wu	IEEE Distinguished Lecturer (VTS)	2016-2017
Wen-Hsiao Peng	APSIPA Distinguished Lecturer	2017 - 2018
Wen-Huang Cheng	APSIPA Distinguished Lecturer	2016-2017
Wen-Huang Cheng	MSRA Collaborative Research Award	2018
Wen-Huang Cheng	Significant Research Achievements of Academia Sinica	2017
Nam Ling	Outstanding Paper Award, Umedia 2017	2017
Nam Ling	Tianjin University (China) Guest Professor (re-appointed)	2017
Yen-Kuang Chen	Distinguished Lecturer of the IEEE Circuit and System Society	2016-2017
Yihong Gong	IEEE Fellow	Class of 2018
Ling Guan	Best Paper Award, IEEE Workshop on Intelligent Multimedia Applications and Design for Quality Living, Taichung, Taiwan	2017-2018

3.4. Keynote Speeches/Invited Talks:

Your Name	Invited by	Event/Conference Title	Talk Title	Date
Wan-Chi Siu	IEEE SPS	IEEE SPS Multimedia Signal Processing Summer School 2017	On Super-resolution Imaging using Deep Learning via Random Forests	8-11 July 2017
Wan-Chi Siu	ITS Asia Pacific Forum 2017 in Hong Kong	15th (ITS) Intelligent Transportation Systems, Asia Pacific Forum, Hong Kong	Challenge and Opportunity in Developing Autonomous Self-Driving Vehicles in Hong Kong	26-29 June 2017
Tihao Chiang	IEEE	ICCE-TW 2017	4K Ultra High Definition (UHD) Multimedia Processor for Low Power Applications	June14, 2017
Wen-Huang Cheng	IEEE	IEEE Deep Learning for Intelligent Multimedia Analytics Workshop (DeLIMMA) (in conjunction with ICME 2017)	Deep Prediction and Understanding of the Real-World on Social Media	July 14, 2017
Nam Ling	Nanyang Tech. U (Singapore), Nankai U, Tianjin U, Peking U (China), IEEE IE Society, IEEE CAS Society.	Various invited seminars by different universities and IEEE societies.	Various topics related to sparse coding for images.	Jun 2017 – May 2018
Ebroul Izquierdo	IEEE CAS Chilean chapter	Distinguished lecture	Face Recognition in the Wild	Nov 2017
Ebroul Izquierdo	IEEE CAS Brasilian Chapter	Distinguished lecture	Video Processing in the Wild: understanding real CCTV Street-Scenes	Oct 2017
Yen-Kuang Chen		Taiwanese American Industrial Technology Association Annual Conference	Deep Learning for Internet of Visual Things - Hype or Hope?	April 21, 2018
Daniel Lun	IEEE	ICME 2017	Tutorial: Image-based three-dimensional data acquisition	July 2017
Yihong Gong	Huarun University, China	Invited lecture	The Past, Present, and Future of Artificial Neural Networks	April 23, 2018
Yihong Gong	Google AI Cloud	Invited talk	Training Better CNNs by Novel Objective Functions	April 16, 2018
Ling Guan	IEEE SPS	Distinguished Talk, IEEE GlobalSIP 2017	The Convergence of Statistical Methods and NeuroComputing	Nov 14-16 2017
Ling Guan	IEEE Comp	Invited Talk, IEEE MIPR 2018	Statistical Machine Learning vs Deep Learning in Information Fusion: Competition or Collaboration?	Apr 10-12 2018
Gwo Giun Chris Lee	Academic Alliance	Skin Care Expo 2018	Skin cancer detection via deep analytics of harmonically generated microscopy (HGM) images	May 14, 2018

3.5. Other distinguished IEEE services
(e.g., CAS BoG, Region presidents, VP, TC Chairs/Secretary,…)

Your Name	Organization	Position/Activities	Period
Chang Wen Chen	IEEE CASS	Vice President for Finance and Administrative Activities	2016-2017
Eduardo da Silva	IEEE	IEEE Circuits and Systems Society, VP Regional Activities and Membership	2014-2017
Eduardo da Silva	SBrT - Brazilian Telecommunications Society	Vice President Technical Activities	2014-2017
Fei Qiao	IEEE VSPC-TC	Publicity Sub-committee Co-Chair	2016-2018
Gwo Giun Chris Lee	IEEE R10	Individual Benefits and Services Coordinator	2016 ~ present
Gwo Giun Chris Lee	IEEE Tainan Section	BoG Member	2015 ~ present
Wei Qi Yan	ACM	Chair of the ACM Multimedia Chapter, New Zealand	2013-present
Enrico Magli	MMSP-TC (SPS)	TC chair	2016-present
Carl James Debono	IEEE MMTC	Chair, Media Processing for Communications Interest Group	2017 - 2018
Lu Yu	VSPC TC	Membership Sub-committee Co-Chair	2015~
Lifeng Sun	IEEE MMTC	Co-Director of Membership Board	2014- current
Lifeng Sun	IEEE MMTC	Member of Review Board	2013- current
Wenwu Zhu	IEEE ICME	Steering Committee Member	2017- current
Zicheng Liu	MSA TC	Chair	2015-2017
Jianfei Cai	IEEE VSPC-TC	Chair	2016-2018
Jing-Ming Guo	IEEE	Signal Processing Chapter Chair, Taipei Section	2015-2018
Qi Tian	IEEE VSPC-TC	Secretary	2016-2018
Wan-Chi Siu	APSIPA	President	2017-2018
Wen-Hsiao Peng	IEEE VSPC-TC	Conference Sub-committee Co-Chair	2016-2018
Yen-Kuang Chen	IEEE CAS	BoG member	2018-2020
Yen-Kuang Chen	IEEE CAS	Judging panel of 2017-2018 CASS Student Design Competition	2017-2018

4. TC Significant Activities List
[Please list your 2 (or less) most significant activities in the past year (March 2017--May 2018), including paper, special session, special issue, workshop, conference, award, important position, etc]

- **Jianfei Cai**

[Paper] H. Yang, J. T. Zhou, J. Cai and Y. S. Ong, "MIML-FCN+: multi-instance multi-label learning via fully convolutional networks with privileged information", IEEE CVPR 2017.

50-word summary: Multi-instance multi-label (MIML) learning has many interesting applications in computer visions, including multi-object recognition and automatic image tagging, where additional information such as bounding-boxes, image captions and descriptions is often available during training phrase, which is referred as privileged information (PI). However, as existing works on learning using PI only consider instance-level PI, they fail to make use of bag-level PI available in MIML learning. Moreover, the existing works are not SGD-compatible and thus they fail to benefit from rapid developments of deep learning. Therefore, in this paper, we propose a two-stream fully convolutional network, named MIML-FCN+, unified by a novel PI loss to solve the problem of MIML learning with privileged bags.

- **Tihao Chiang**

[Talk] Tihao Chiang, "4K Ultra High Definition (UHD) Multimedia Processor for Low Power Applications", IEEE ICCE-TW, June 2017.
Low power multimedia processor has found its wide applications such as drone, sports camera, wearable camera, cell phone, camcorder and digital still camera. To achieve a high quality, 4K UHD image processing and encoding, it is critical to consider various design parameters such as features, complexity, die size, power while maintaining maximal flexibility for the system designers to innovate. We will describe how to perform trade-off considerations

in designing a cost-effective multimedia processor for mobile and low power applications. We will also discuss various applications for such processors.

- **Carl James Debono**

  [Book Chapter] C.J. Debono, S.M.M. Faria, L. Lucas, N.M.M. Rodrigues, "Depth Map Coding for 3DTV Applications," in Connected Media in the Future Internet Era, Ahmet Knodoz and Tasos Dagiuklas (Editors), ISBN: 978-1-4939-4024-0, Springer Science+Business Media, New York, pp.135-165, 2017.

  50-word summary: This chapter presents the latest depth map coding methods for 3-dimensional television applications.

- **Dong Xu**

  [Paper] W. Li, Z. Xu, D. Xu, D. Dai and L. Van Gool, "Domain Generalization and Adaptation using Low Rank Exemplar SVMs," IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), 40(5), pp. 1114-1127, May 2018.
  50-word summary: Domain adaptation is a challenging research problem, especially in the real-world visual recognition tasks. We propose a new approach for domain generalization and domain adaptation based on exemplar SVMs. The comprehensive experiments for object recognition and action recognition demonstrate the effectiveness of our approach for domain generalization and domain adaptation with fixed and evolving target domains.

- **C.-C. Jay Kuo**

  [Award] IEEE Leon K. Kirchmayer Graduate Teaching Award:
  50-word summary: The IEEE Graduate Teaching Award was established by the Board of Directors in 1990 and renamed in honor of Leon K. Kirchmayer in 2002. Dr. Kirchmayer was well known and revered throughout the world for his commitment to students and education. This award honors teachers of electrical and electronics engineering and the related disciplines. Recipient selection is administered through the Technical Field Awards Council of the IEEE Awards Board.

  [Award] IEEE Circuits and Systems Society John Choma Education Award
  50-word summary: The IEEE CAS John Choma Education Award honors the individual with exceptional contributions to education in a field within the scope of the CAS Society. Contributions are quantifiable by publication of textbooks, research supervision of both graduate and undergraduate students, short course development and personal participation in continual education within the field. The award is based on quality, continuity and originality of contribution.

- **Wei Qi Yan**

  [Workshop] International Workshop on Digital Crime and Forensics, Nanjing University of Posts and Telecommunications China.

- **Wenwu Zhu**
  [Service] IEEE Transactions on Multimedia, EiC.

  [Service] IEEE ICME Steering Committee Member

- **Wen-Hsiao Peng**

  [Paper] J. H. Hu, W. H. Peng, and C. H. Chung, "Reinforcement Learning for HEVC/H.265 Intra-Frame Rate Control," IEEE International Symposium on Circuits and Systems (ISCAS), Italy, May 2018.

  Reinforcement learning has proven effective for solving decision making problems. However, its application to modern video codecs has yet to be seen. This paper presents an early attempt to introduce reinforcement learning to HEVC/H.265 intra-frame rate control. We train a neural network based on Q-learning to be our agent. When trained on only few sequences, the model can already perform comparably with the rate control algorithm in HM-16.15.

- **Mathias Wien**

  [Special Issue] IEEE Journal on Emerging and Selected Topics in Circuits and Systems: Special Issue on Immersive Video Coding and Transmission. Guest editors: Mathias Wien, Jill Boyce, Thomas Stockhammer,

Wen-Hsiao Peng

[Standardization Contribution] M. Bläser, J. Sauer, and M. Wien, "Description of SDR and 360o video coding technology proposal by RWTH Aachen University," Doc. JVET-J0023, Joint Video Experts Team of ITU-T VCEG and ISO/IEC MPEG, San Diego, USA, 10th meeting, Apr. 2018.

50-word summary: The proposal is composed of two parts: SDR specific coding tools and 360° video specific coding tools. For SDR, geometric partitioning is applied to rectangular blocks for prediction and transform coding. The 360° category proposal includes one tool for motion compensation and one tool for loop filtering.

- **Wen-Huang Cheng**

[Paper] Yu-Ting Chang, Wen-Huang Cheng, Kai-Lung Hua, and Bo Wu, "Fashion World Map: Understanding Cities Through Streetwear Fashion," The 25th ACM International Conference on Multimedia (MM 2017), 23-27 October, 2017, Mountain View, USA.
50-word summary: Fashion is an integral part of life. Streets as a social center for people's interaction become the most important public stage to showcase the fashion culture of a metropolitan area. In this paper, therefore, we propose a novel framework based on deep neural networks (DNN) for depicting the street fashion of a city by automatically discovering fashion items (e.g., jackets) in a particular look that are most iconic for the city, directly from a large collection of geo-tagged street fashion photos.

- Ebroul Izquierdo
[Talk] Two distinguished lectures in Curitiva abnd Porto Alegre, Brazil and one in Valparaiso Chile.

- **Daniel Lun**

[Tutorial] Daniel Lun and Lap-pui Chau, "Image-based three-dimensional data acquisition", IEEE ICME 2017, July 2017.
With the advance in image processing technology, many image-based three-dimensional data acquisition techniques have been developed and used in various applications including medical diagnosis, machine part inspection, movie and video game production, and many others. The objective of this tutorial is to give an overview of the basic principles of these techniques and discuss their latest development. The first part of this tutorial will introduce the basic principles of the fringe projection profilometry (FPP), which is one of the popular structured light illumination techniques for measuring the 3D shape of objects in a non-contact manner. Some latest development of robust FPP using the sparse representation techniques will also be discussed. The second part of this tutorial will cover the topic of motion capture (Mocap) data processing. The techniques for Mocap data compression will be introduced; and the applications of depth map camera will also be discussed.

- **Enrico Magli**

[Service] IEEE Trans. on Multimedia and IEEE Trans. on Circuits and Systems for Video Technology, AE

[Paper] G. Cheung, E. Magli, Y. Tanaka, M.K. Ng, "Graph spectral image processing," Proc. Of the IEEE, v. 106 n. 5, May 2018

50-word summary: This paper surveys the emerging field of graph signal processing specifically for image/video processing applications. It provides a broad view of recent research activities employing graph-based techniques in the areas of image compression, image restoration, image filtering, and image segmentation.

- **Yihong Gong**

[Service] Council member of China Artificial Intelligence Technological & Industrial Strategic Alliance (AITISA).

[Award] Two first-place awards for China Smart City Video Technology Grand Challenge Competition.

[Talk] Training Better CNNs by Novel Objective Functions, Invited talk by Google AI Cloud, April 16, 2018
In this talk, I presented four novel objective functions effective for training better DCNN models. The Min-Max objective enforces DCNNs to learn features with minimized within-class distances and maximized between-class distances. The L-21 norm-based objective is inspired by properties of neurons in the V-4 layer of the human visual cortex. The Max-Margin objective is designed for the multi-label image classification task to make the scores of positive labels larger than those of negative labels by a predefined margin. Finally, the Max-Margin objective is extended for the fine-grained image classification task.

- **Jian Zhang**

[Paper] Xiaoshui Huang, Jian Zhang, Lixin Fan, Qiang Wu, Chun Yuan "**A Systematic Approach for Cross-Source Point Cloud Registration by Preserving Macro and Micro Structures**" IEEE Transactions on Image Processing, Vol 26, No. 7 July 2017.

50-word summary: A systematic approach for registering cross-source point clouds that come from different kinds of sensors. This task is especially challenging due to the presence of significant missing data, large variations in point density, scale difference, large proportion of noise, and outliers. The robustness of our method is attributed to the extraction of macro and micro structures. We use graph to organize these structures and convert the registration into graph matching the results show we obtain much better performance than other methods

- **Gwo Giun Chris Lee**

[Invited Talk] Gwo Giun Chris Lee, "Skin cancer detection via deep analytics of harmonically generated microscopy (HGM) images," Montreal, Canada, May 14, 2018.

The pathological structures described by the dermatologist or knowledges of human experts were transferred to the Artificial Intelligence machine in characterizing the feature layers of the Deep Convolution Neural Network. With approximately 2000 HGM images which based on transfer learning, detection of Basal Cell Carcinoma was achieved with a recognition rate of 97.3% accuracy, 98.7% sensitivity and 95.9% specificity.