ICME 2018
Program Guide

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Schedule at a Glance

Monday, July 23, 2018

	Mykonos AB	Athenia AB	Milos	Syros	Rhodes
8:30	**Tutorial 1** Delivering Traditional and Omnidirectional Media	**Tutorial 2** Multimedia and Language: Bridging Multimedia and Natural Language with Deep Learning		**Workshop 1** Multimedia Services and Technologies for Smart-Health	**Workshop 3** Privacy Issues in Multimedia
10:00			**Coffee Break - Asteria Terrace**		
10:30	**Tutorial 1** Delivering Traditional and Omnidirectional Media	**Tutorial 2** Multimedia and Language: Bridging Multimedia and Natural Language with Deep Learning		**Workshop 1** Multimedia Services and Technologies for Smart-Health	**Workshop 3** Privacy Issues in Multimedia
12:00			**Lunch**		
13:30	**Tutorial 1** Delivering Traditional and Omnidirectional Media	**Tutorial 3** Interactive Augmented Reality with Meta 2	**Tutorial 4** Trends and Recent Developments in Video Coding Standardization	**Workshop 2** Faces in Multimedia	**Workshop 4** Multimedia Analytics for Societal Trends
15:00			**Coffee Break - Asteria Terrace**		
15:30	**Tutorial 1** Delivering Traditional and Omnidirectional Media	**Tutorial 3** Interactive Augmented Reality with Meta 2	**Tutorial 4** Trends and Recent Developments in Video Coding Standardization	**Workshop 2** Faces in Multimedia	**Workshop 4** Multimedia Analytics for Societal Trends
17:00			**Welcome Reception - Grand Foyer**		

Schedule at a Glance

Tuesday, July 24, 2018

	Aventine A	Aventine B	Aventine C	Aventine DEFG	Vicino Ballroom
8:30				Keynote 1 Machine Learning for Content Creation	
9:30	Coffee Break - Asteria Terrace				
10:00	Lecture 1 Multimedia Signal Processing I	Lecture 2 Multimedia Computing & Applications	Lecture 3 Deep Learning for Multimedia I		
11:40	Lunch				
13:00	Grand Challenge •Heterogeneous Face Recognition: Polarimetric Thermal-to-Visible Matching •Densely-sampled Light Field Reconstruction •Grand Challenge on DASH •Salient360! 2018: Visual attention modeling for 360 Images - 2018 edition				Posters 1 •Multimedia Signal Processing •Multimedia Quality Assesment & Metrics •Multimedia Security & Applications •Multimedia & Human Analytics •Deep Learning for Multimedia I •Deep Learning for Multimedia II
14:30	Lecture 4 Multimedia Signal Processing II	Lecture 5 Big Data Analytic & Point Cloud Compression	Lecture 6 Deep Learning for Multimedia II		
16:10	Coffee Break - Asteria Terrace				
16:40	Lecture 7 Multimedia Signal Processing III	Lecture 8 Special Session- Human Activity Analytics	Lecture 9 Deep Learning for Multimedia III		
18:30	Break				
18:40			3MT Competition		
19:40					Student Career Dinner

Schedule at a Glance

Wednesday, July 25, 2018

	Aventine ABC	Aventine DEFG	Vicino Ballroom
8:30		Keynote 2 Human-centered Media Informatics	
9:30		Coffee Break - Asteria Terrace	
10:00		Industry Plenary Talks InterDigital: 5G is Here – Is it time to celebrate? Tencent: Neural Network in Video Compression and Standard	
11:00			Posters 2 •Industry Posters
12:30		Lunch	
14:00	Panel 1 Should Challenges on Public Datasets be the Primary Driver of Multimedia Research?	Industry Panel 1 5G-enabled Multimedia User Experience	
15:30	Panel 2 Commercialization of Multimedia Technologies: Challenges and Opportunities	Industry Panel 2 XR: Virtual, Augmented and Mixed Reality	
17:00			Expo
19:00		Banquet	

Schedule at a Glance

Thursday, July 26, 2018

	Aventine A	Aventine B	Aventine C	Aventine DEFG	Vicino Ballroom
8:30				**Keynote 3** Multi-modal Fusion for Robust Intelligent Systems	
9:30			Coffee Break - Asteria Terrace		
10:00	**Lecture 10** Multimedia Coding and Compression	**Lecture 11** Multimedia Content Analytics I	**Lecture 12** Deep Learning for Multimedia IV		
11:40			Lunch		
13:00					**Posters 3** • Multimedia Coding & Communication • Multimedia Content Analytics • 3D Multimedia • Multimedia Search & Recommendation • Deep Learning for Multimedia III • Deep Learning for Multimedia IV
14:30	**Lecture 13** 3D Multimedia	**Lecture 14** Multimedia Content Analytics II	**Lecture 15** Deep Learning for Multimedia V		
16:10			Coffee Break - Asteria Terrace		
16:40	**Lecture 16** Multimedia Security, Privacy and Forensics	**Lecture 17** Special Session- Deep Metric Learning for Multimedia Computing	**Lecture 18** Multimedia Search and Recommendation		
18:20			End of day		

Schedule at a Glance

Friday, July 27, 2018

	Mykonos AB	Athenia AB	Milos	Syros	Rhodes
8:30	**Workshop 5** Emerging Multimedia Systems and Applications	**Workshop 6** Hot Topics in 3D Multimedia	**Workshop 7** Machine Learning and Artificial Intelligence for Multimedia Creation	**Workshop 8** Mobile Multimedia Computing	**Workshop 9** Multimodal Biometrics Learning
10:30			Coffee Break - Asteria Terrace		
11:00	**Workshop 5** Emerging Multimedia Systems and Applications	**Workshop 6** Hot Topics in 3D Multimedia	**Workshop 7** Machine Learning and Artificial Intelligence for Multimedia Creation	**Workshop 8** Mobile Multimedia Computing	**Workshop 9** Multimodal Biometrics Learning
12:30			Lunch		
13:30	**Workshop 5** Emerging Multimedia Systems and Applications	**Workshop 6** Hot Topics in 3D Multimedia			
15:00			Coffee Break - Asteria Terrace		
15:30	**Workshop 5** Emerging Multimedia Systems and Applications	**Workshop 6** Hot Topics in 3D Multimedia			
18:30	End of conference				

Welcome Message from the General Chairs

On behalf of the Organizing Committee, it is our great pleasure to welcome you to the 2018 IEEE International Conference on Multimedia and Expo (ICME 2018) and the beautiful city of San Diego which is well known for its beaches, parks and warm climate. It has been a real honor and privilege to serve as the General Chairs of this conference. Since 2000, ICME has been the multimedia conference sponsored by four IEEE societies: Circuits and Systems, Communications, Computer and Signal Processing. It serves as a premier forum to promote the exchange of the latest advances in multimedia technologies, systems, and applications from both the research and development perspectives of the four research communities.

Like in previous years, ICME 2018 will enable you to enjoy an outstanding program, exchange your ideas with the leading researchers in various disciplines of multimedia and make new friends in the international science community. Some highlights include three Keynote talks on the latest exciting topics of multimedia; a wide range of tutorials and workshops; panel sessions; grand challenges, industrial programs, a student program, etc. The Technical Program Chairs, Pamela Cosman (Coordinator, University of California at San Diego, USA), Yap-Peng Tan (Coordinator, Nanyang Technological University, Singapore), Min Chen (University of Washington, Bothell, USA) representing the IEEE Computer Society Technical Committee on Multimedia Computing (TCMC), Junsong Yuan (State University of New York, Buffalo, USA) representing the IEEE Circuits and Systems Society Multimedia Systems & Applications Technical Committee (MSATC), Mugen Peng (Beijing University of Posts & Telecom, China) representing the IEEE Communications Society Multimedia Communications Technical Committee, and Sanghoon Lee (Yonsei University, Korea) representing the IEEE Signal Processing Society Multimedia Signal Processing Technical Committee, put tremendous effort into the creation of an exciting program which is composed of one third of the submitted papers.

Welcome Message from the General Chairs

Many individuals and organizations contributed to the success of this conference. We would like to acknowledge the efforts of the Plenary Chairs, John Apostolopoulos (Cisco, USA) and Haohong Wang (TCL, USA), the Workshop Chairs, Mohan Kankanhalli (National University of Singapore, Singapore) and Kai Yang (Tongji University, China); the Tutorial Chairs, Jane Wang (University of British Columbia, Canada) and Vicky Zhao (Tsinghua University, China); the Special Session Chairs, Yonggang Wen (Nanyang Technological University, Singapore) and Chia-Wen Lin (National Tsing Hua University, Taiwan); the Demo/Expo Chairs, Liangping Ma (InterDigital, USA), Michel Sarkis (Qualcomm, USA) and Heather Yu (Huawei, USA), the Grand Challenge Chairs, Vasudev Bhaskaran (Qualcomm, USA) and Lei Zhang (Microsoft, USA); the Industrial Program Chairs, Khaled El-Maleh (Qualcomm, USA) and Yan Ye (InterDigital, USA); the Student Program Chair, Prasad Calyam (University of Missouri, USA); and the Panel Session Chairs, Jiebo Luo (University of Rochester, USA) and Qi Tian (University of Texas at San Antonio, USA).
Together with the Technical Program Committee, they worked diligently to select papers and speakers that met the criteria of high quality and relevance to our various fields of interest. It takes time and effort to review a paper carefully, and every member of the Technical Program Committee is to be commended for his or her contribution to the success of this conference. The papers accepted for publication at ICME 2018 were delivered to the IEEE ICME 10K Best Paper Award committee. The winners will be presented during the banquet of ICME 2018 in San Diego.

We would like to further extend our appreciation to the Finance Chair, Yan Sun (University of Rhode Island, USA); the Publication Chair, Alessandro Piva (University of Florence, Italy); the Registration Chair, Yusuf Ozturk (San Diego State University, USA); the Local/Event Chair, Sunil Kumar (San Diego State University, USA); and the Publicity Chairs, Panayiotis Georgiou

Welcome Message from the General Chairs

(University of Southern California, USA), William Grosky (University of Michigan, USA), Mark Liao (Academia Sinica, Taiwan) and Liang Zhou (Nanjing University of Posts and Telecom, China); the Web Master, Gloria Budiman, and Seth Scafani for creating the ICME Booklet.

The conference would not be possible without their incredibly hard work. In addition to members of the Organization Committee, many volunteers have contributed to the success of the conference. They helped editing this conference booklet, working onsite at the conference, and many other tasks. While it is difficult to list all their names here, we would like to take this opportunity to thank them all.

Special thanks to our keynote speakers, Henrik Christensen (University of California at San Diego, USA), Cristina Gomila (Technicolor, France) and Shrikanth Narayanan (University of Southern California, USA). We greatly value their participation and look forward to their insightful vision and thoughts. Thanks also go to all invited speakers in tutorials, panels, workshops, grand challenges, and hands-on expos.

We are grateful to the strong support of the ICME Steering Committee, the four sponsoring societies and respective Technical Committees. ICME is unique because of their joint support, which brings forth inspirations for us to work in such a truly exciting interdisciplinary area of research on multimedia. We would also like to thank our industrial sponsors, including Acer, Adobe, InterDigital, Qualcomm, Tencent, Huawei, Mediatek, Microsoft, Mitsubishi and Lenovo. Last but not least, we would like to extend our most sincere congratulations to all authors and speakers for a job well done. We would also like to thank you all for your strong support for ICME, with which we strongly believe that ICME will grow to be more and more successful.

Welcome Message from the General Chairs

We sincerely hope that you will enjoy your time at ICME 2018 and the beautiful summer of San Diego. Thank you!

General Chairs

C.-C. Jay Kuo
University of Southern California, USA

Truong Nguyen
University of California, San Diego, USA

Wenjun Zeng
Microsoft Research Asia, China

Welcome Message from the Technical Program Chairs

We are delighted to welcome you to San Diego, variously known as America's Finest City, the birthplace of California, Silicon Beach, and the venue for Comic-Con International (which ICME 2018 just narrowly misses—whew!).

In addition to the regular technical sessions, the Technical Program for ICME 2018 includes a diverse set of plenary talks, special topic sessions, seminars and Expo sessions. Nine workshops will be held in conjunction with ICME 2018, covering issues of privacy, biometrics, smart health, AI, mobile computing, and societal trends, among other emerging topics.

ICME is the world's premier technical conference in the field of multimedia. We received 582 submissions to the main conference, representing 36 countries! The hardworking and expert Technical Program Committee of 548 Reviewers and 53 Area Chairs, along with the 6 Technical Program Co-Chairs worked for months to evaluate the submissions. We received a total of 2249 reviews, and all reviews were double-blind. Every submission received at least three reviews, with an average of 3.86 reviews per submission. With a large number of excellent submissions, it was painful (but required!) to follow the rule that ICME may accept at most 30% of the papers. Based on the reviews provided by the dedicated Technical Program Committee, the Technical Program Chairs selected 174 papers that are organized into 18 oral sessions and 12 poster sessions. In addition to the regular track, there were 27 submissions to the Industry/Applications Program, 98 submissions to the Workshops, 9 Demo submissions, and 8 Grand Challenge submissions.

Welcome Message from the Technical Program Chairs

We thank the General Chairs C.-C. Jay Kuo, Truong Nguyen, and Wenjun Zeng as well as all the members of the Organizing Committee for their hard work and dedication to this conference. We are particular grateful to all the Area Chairs and the Reviewers for giving of their time and expertise to make this a solid technical review process. They are the unsung heroes behind this conference.

We hope that all of you will enjoy the conference and find the technical program stimulating and thought-provoking. And while we don't want you to miss any of this great technical program, we hope you will find some time to visit the wonderful beaches, parks, museums, hiking trails, and other attractions of lovely San Diego.

Technical Program Chairs

Min Chen
University of Washington, Bothell, USA

Pamela Cosman
University of California, San Diego, USA

Sanghoon Lee
Yonsei University, Korea

Mugen Peng
Beijing University of Posts & Telecom, China

Junsong Yuan
State University of New York, Buffalo, USA

Yap-Peng Tan (Coordinator)
Nanyang Technological University, Singapore

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Mugen Peng
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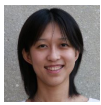

Vicky Zhao
Tsinghua University, China

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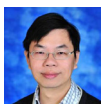
Special Session Chairs

Yonggang Wen
Nanyang Technological University, Singapore



Chia-Wen Lin
National Tsing Hua University, Taiwan

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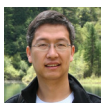
Vasudev Bhaskaran
Qualcomm, USA



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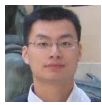

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Mathias Lux
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Yihui Ma
Zhan Ma
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Kede Ma
Liangping Ma
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Zhi Zhou
Jianlong Zhou
Jun Zhou
Wengang Zhou
Xiuzhuang Zhou
Wei Zhou
Shichao Zhou
Xu Zhou
Wengang Zhou
Ce Zhu
Chunsheng Zhu
Tao Zhuo
Jeffrey Zou
Ivan Zupancic

Tuesday, July 24, 2018

Machine Learning for Content Creation

Time: 8:30 - 9:30
Room: Aventine DEFG
Chair: C.-C. Jay Kuo
University of Southern California, USA
Speaker: Cristina Gomila
CTO & Head of Research and Innovation, Technicolor, France

Abstract

From the time Technicolor pioneered the introduction of color motion picture processes, the film industry has been the focus of some major technical disruptions. The emergence of digital formats and digital workflows changed the post-production business in the late 90's, and ultimately the way content was captured, edited and rendered. Yet in the years to come, the pervasive use of data by machine and deep learning algorithms, coupled with the massive use of cloud services for storage and processing, has the potential to disrupt the film industry in unprecedented ways.

Working in close collaboration with leading post-production and VFX artists and technologists, we have selected set of topics for discussion that we believe have the greatest potential. In particular, we will present the impact of data-driven media computing in (1) VFX workflows optimization to ease the coordination of hundreds of artists jointly delivering assets in complex projects, (2) media production tools optimization to speed up non-creative tasks such as rotoscoping, face modeling and certain aspects of animation and (3) new creative tools enabling a full range of new services.

Through this keynote, we will consider whether deep learning and data-driven media computing will be able to replicate the genius and skills of human artists, with the potential to disrupt the film industry beyond imaged.

Biography

Cristina Gomila is Head of Research & Innovation since 2014, and Chief Technology Officer and member of the Executive Committee of Technicolor, France, since 2016.

She joined Technicolor in 2002 and has spent most of her career in the USA moving into different positions for strategy and management of R&D engineering teams with a focus on Consumer Electronics and Media & Entertainment markets.

Cristina Gomila holds an MS degree in Telecom Engineering from the UPC (Spain) and a PhD degree from Mines ParisTech (France).

Additionally, she has authored more than 60 granted patents with inventions actively leveraged in patent pools and licensing programs ; 44 contributions to standards (AVC, SVC, MVC) in MPEG/JVT/VCEG, BDA and DVD Forum ; 31 publications in journals and edited conference proceedings in the field of image processing.

Wednesday, July 25, 2018

Human-centered Media Informatics

Time: 8:30 - 9:30
Room: Aventine DEFG
Chair: Truong Nguyen
University of California, San Diego, USA
Speaker: Shrikanth Narayanan
(IEEE/AAAS/ASA/ISCA/NAI Fellow)
Niki & C. L. Max Nikias Chair,
University of Southern California, USA

Abstract

The explosion in the creation and dissemination of media content in different forms and through different platforms, and the richness and variety therein, has created a huge need for computational technologies not just to support access and interaction with content but in creating tools for objectively understanding, and predicting, the impact of content on people, both individuals and society at large. These include content produced more formally for entertainment, commerce and news as well as user-generated ones. The reach of media today is global, and its impact is as diverse and heterogeneous as the content.

Advances in data sciences, notably in machine learning and human-driven computing such as crowd based methods–as well as the converging trends between computing and social and behavioral sciences–are enabling rich media content analytics of what stories are being told, and how they are being told including their affective aspects and are beginning to illuminate objectively their potential socio-emotional and decision making impact on people.

This talk will focus on the opportunities and advances in human-centered media informatics drawing examples from media for entertainment (e.g., movies) and commerce (e.g., advertisements). It will highlight multimodal processing of audio, video and text streams and other metadata associated with the content creation to provide insights into the semantic and emotional aspects including any potential human-centered trends

and patterns such as unconscious biases along dimensions such as gender, race and age, as well as associated social and commercial impact relatable to content.

Biography

Shrikanth (Shri) Narayanan is the Niki & C. L. Max Nikias Chair in Engineering at the University of Southern California, where he is Professor of Electrical Engineering, and jointly in Computer Science, Linguistics, Psychology, Neuroscience and Pediatrics, Director of the USC Ming Hsieh Institute and a Research Director for the USC Information Sciences Institute. Prior to USC he was with AT&T Bell Labs and AT&T Research. His research focuses on human-centered information processing and communication technologies. He is a Fellow of the Acoustical Society of America, IEEE, ISCA, the American Association for the Advancement of Science and the National Academy of Inventors. Shri Narayanan is Editor in Chief for IEEE Journal of Selected Topics in Signal Processing and an Editor for the Computer, Speech and Language Journal and an Associate Editor for the APISPA Transactions on Signal and Information Processing having previously served an Associate Editor for the IEEE Transactions of Speech and Audio Processing (2000-2004), the IEEE Signal Processing Magazine (2005-2008), the IEEE Transactions on Signal and Information Processing over Networks (2014-2015), IEEE Transactions on Multimedia (2008-2012), the IEEE Transactions on Affective Computing, and the Journal of Acoustical Society of America.

He is a recipient of several honors including the 2015 Engineers Council's Distinguished Educator Award, a Mellon award for mentoring excellence, the 2005 and 2009 Best Journal Paper awards from the IEEE Signal Processing Society and serving as its Distinguished Lecturer for 2010-11, as an ISCA Distinguished Lecturer for 2015-16 and the 2017 Willard R. Zemlin Memorial Lecturer for ASHA.

With his students, he has received several best paper awards including a 2014 Ten-year Technical Impact Award from ACM ICMI and a six-time winner of the Interspeech Challenges. He has published over 750 papers and has been granted 17 U.S. patents.

Thursday, July 26, 2018

Multi-modal Fusion for Robust Intelligent Systems

Time: 8:30 - 9:30
Room: Aventine DEFG
Chair: Wenjun Zeng
Microsoft Research Asia, China
Speaker: Henrik I Christensen
(IEEE/AAAS Fellow)
Qualcomm Chancellor's Chair,
University of California, San Diego, USA

Abstract

As we deploy smart systems in everyday environments, there is a need to ensure these systems operate robustly. Industrial automation systems typically have an MTBF which is measured in months. For intelligent vehicles, we need to reach systems that do not require driver engagement every hour, and for home appliances, the engagement cannot be every day. How can we build such systems? We design systems for industrial, service and logistics applications. Using techniques from statistical learning, reliability engineering and multi-model fusion it is possible to architect systems that have a high degree of availability and robustness to environmental changes. In this presentation we will discuss applications from industrial automation, autonomously driving cars and home automation and show how careful systems engineering enables a new level of robustness.

Biography

Henrik Christensen is the director of the Contextual Robotics Institute and a professor of Computer Science and Engineering at UC San Diego. Prior to San Diego he was the director of robotics at Georgia Tech (2006-2016). Prior to this he was a professor of computer science at the Swedish Royal Institute of Technology 1998-2006. He was also the director of the Swedish Center for Autonomous Systems 1996-2006. During the same period he

was the founder and coordinator of the European Network of Excellence in Robotics, which involved more than 190 universities and companies across all European member states. He was an associate professor of robotics and computer vision at Aalborg University 1992-1996. Henrik I Christensen received his first degree in Mechanical Engineering from the Technical College of Frederikshavn, 1981. He subsequently worked at MAN B&W on control systems designs. He earned M.Sc. and Ph.D. degrees in Electrical Engineering from Aalborg University, Denmark 1987 and 1989, respectively.

Dr. Christensen does research on a systems approach to sensor-based robotics. The research must have a solid theoretical foundation, an efficient implementation and be evaluated in realistic contexts. Consequently, the emphasis is on "real systems for real applications". The research has been published in more than 350 contributions across robotics, computer vision and artificial intelligence. The research has been recognized by numerous awards including best paper awards, the Joseph Engelberger Award (the highest honor by the robotics industry), and the Boeing Supplier of the Year Award 2011. He received an honorary doctorate from Aalborg University 2015. Dr. Christensen was the coordinator of the formulation of the US National Roadmaps for Robotics 2009, 2013 and 2016. The roadmaps were presented to the US Congress. He has graduated 29 PhD students and more than 60 M.Sc. students that today occupy positions at universities and companies across 3 continents.

Dr. Christensen is the co-founder of five companies and he currently serves on the board of Blue-Ocean Robotics and Robo Global. He also serves as a consultant to a number of companies and agencies across 3 continents.

Tuesday, July 24, 2018

Heterogeneous Face Recognition: Polarimetric Thermal-to-Visible Matching

Time: 13:00 - 13:15
Room: Aventine A

Description

This grand challenge is focused on heterogeneous face recognition, specifically on polarimetric thermal-to-visible matching. The motivation behind this challenge is the development of a nighttime face recognition capability for homeland security and defense. The challenge organizers will provide a polarimetric thermal and visible face database for algorithm development. Participants will be asked to provide heterogeneous face recognition algorithms in the form of executables, that take a pair of images (an aligned polarimetric thermal face image and an aligned visible face image) as input and provide a similarity score as output. Algorithms will be ranked by their face verification performance using ROCcurves.

Website

https://sites.google.com/view/hfr-challenge18/home

Organizers

Shuowen (Sean) Hu
US Army Research Laboratory, USA

Nathan Short
Booz Allen Hamilton, USA

Benjamin Riggan
US Army Research Laboratory, USA

M. Saquib Sarfraz
Karlsruhe Institute of Technology, Germany

Tuesday, July 24, 2018

Densely-sampled Light Field Reconstruction
Time: 13:15 - 13:32
Room: Aventine A

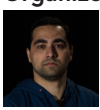
Description

Densely-sampled light field (DSLF) is a discrete representation of the 4D approximation of the plenoptic function, where multi-perspective camera views are arranged in such a way that the disparities between adjacent views are less than one pixel. DSLF is an attractive representation of scene visual content, particularly for applications which require ray interpolation and view synthesis. However, direct DSLF capture of real-world scenes is not practical. In this Grand Challenge, proponents are invited to develop and implement algorithms for DSLF reconstruction from decimated-parallax imagery, i.e. from a given sparse set of camera images.

Website

http://www.tut.fi/civit/index.php/icme-2018-grand-challenge-densely-sampled-light-field-reconstruction/

Organizers



Suren Vagharshakyan
Tampere University of Technology, Finland

Olli Suominen
Tampere University of Technology, Finland

Robert Bregovic
Tampere University of Technology, Finland

Atanas Gotchev
Tampere University of Technology, Finland

Tuesday, July 24, 2018

Grand Challenge on DASH
Time: 13:32 - 14:01
Room: Aventine A

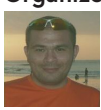
Description
The MPEG DASH standard provides an interoperable representation format but deliberately does not define the adaptation behavior for the client implementations. In a typical deployment, the encoding is optimized for the respective delivery channels, but various issues during streaming (e.g., high startup delay, stalls/re-buffering, high switching frequency, inefficient network utilization, unfairness to competing network traffic, etc.) may limit the viewer experience.

The goal of this grand challenge is to solicit contributions addressing end-to- end delivery aspects that will help improve the QoE while optimally using the network resources at an acceptable cost. Such aspects include, but are not limited to, content preparation for adaptive streaming, delivery in the Internet and streaming client implementations.

A special focus of 2018's grand challenge will be related to immersive media applications and services including omnidirectional/360-degree videos.

Website
https://github.com/Dash-Industry-Forum/Academic-Track/wiki/DASH-Grand-Challenge-at-IEEE-ICME-2018

Organizers (on behalf of DASH-IF)



Ali C. Begen
Ozyegin University, Turkey
Networked Media, Turkey

Christian Timmerer
Alpen-Adria-Universität Klagenfurt, Austria
Bitmovin, Austria

Tuesday, July 24, 2018

Salient360! 2018: Visual attention modeling for 360 Images - 2018 edition

Time: 14:01 - 14:30
Room: Aventine A

Description

Recent VR/AR applications still face important challenges. Particularly, understanding how users watch and explore 360° content and modelling visual attention is a key tech to develop appropriate rendering, coding and streaming techniques to create a good experience for consumers.

Salient360! 2018 is the follow-up of ICME'17 Salient360! Grand challenge. The first edition set the baseline for several types of visual attention models for 360° images, and ad-hoc methodologies and ground-truth data to test each type of model. With this second edition, it is expected to:

1. consolidate and improve the existing modeling.
2. extend the type of models.
3. extend the type of input contents.

Website

https://salient360.ls2n.fr

Organizers

Jesus Gutierrez
University Of Nantes, France

Patrick Le Callet
University Of Nantes, France

13:00 **Heterogeneous Face Recognition: Polarimetric Thermal-to-Visible Matching**
Shuowen (Sean) Hu[1], Nathan Short[2], Benjamin Riggan[1], M. Saquib Sarfraz[3]
[1]US Army Research Laboratory, [2]Booz Allen Hamilton, [3]Karlsruhe Institute of Technology

ICME Grand Challenge Results on Heterogeneous Face Recognition: Polarimetric Thermal-to-Visible Matching
Benjamin Riggan[1], Nathan Short[2], M. Saquib Sarfraz[3], Shuowen (Sean) Hu[1], He Zhang[4], Vishal Patel[4], Seyed Mehdi Iranmanesh[5], Nasser Nasrabadi[5]
[1]US Army Research Laboratory, [2]Booz Allen Hamilton, [3]Karlsruhe Institute of Technology, [4]Rutgers University, [5]West Virginia University

13:15 **Densely-sampled Light Field Reconstruction**
Suren Vagharshakyan, Olli Suominen, Robert Bregovic, Atanas Gotchev
Tampere University of Technology, Finland

13:20 **Parallax View Generation for Static Scenes Using Parallax-Interpolation Adaptive Separable Convolution**
Yuan Gao, Reinhard Koch
Kiel University

13:32 **Grand Challenge on DASH**
Ali C. Begen[1], Christian Timmerer[2]
[1]Ozyegin University and Networked Media, [2]Alpen-Adria-Universität Klagenfurt and Bitmovin

13:37 **Tile-based QoE-driven HTTP/2 Streaming System for 360 Video**
Zhimin Xu[1], Yixuan Ban[1], Kai Zhang[2], Lan Xie[1], Xinggong Zhang[1], Zongming Guo[1], Shengbin Meng[3], Yue Wang[3]
[1]Peking University, [2]Beijing University of Posts and Telecommunications, [3]Beijing ByteDance Technology Co., Ltd.

13:49 **Game Theory Based Bitrate Adaptation For Dash.js Reference Player**
Abdelhak Bentaleb[1], Ali Begen[2], Roger Zimmermann[1]
[1]National University of Singapore, [2]Ozyegin University

14:01 **Salient360! 2018: Visual attention modeling for 360 Images - 2018 edition**
Jesus Gutierrez, Patrick Le Callet
University Of Nantes, France

14:06 **SalGAN360: Visual Saliency Prediction on 360 Degree Images with Generative Adversarial Networks**

Fang-Yi Chao[1], Lu Zhang[1], Wassim Hamidouche[1], Olivier Deforges[2]
[1]INSA Rennes, [2]IETR, Rennes

14:18 **V-BMS360: A video extention to the BMS360 image saliency model**

Pierre Lebreton[1], Stephan Fremerey[2], Alexander Raake[2]
[1]Zhejiang University, [2]Technical University Ilmenau

Monday, July 23, 2018

Delivering Traditional and Omnidirectional Media

Time: 8:30 - 17:00
Room: Mykonos AB
Speakers: Ali C. Begen
Ozyegin University, Turkey
Liangping Ma
InterDigital, Inc., USA
Christian Timmerer
ITEC, Alpen-Adria Universität Klagenfurt, Austria

Abstract

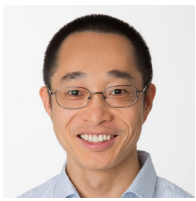
Universal media access as proposed in the late 90s is now closer to reality. Users can generate, distribute and consume almost any media content, anywhere, anytime and with/on any device. A major technical breakthrough was the adaptive streaming over HTTP resulting in the standardization of MPEG-DASH, which is now successfully deployed in most platforms. The next challenge in adaptive media streaming is virtual reality applications and, specifically, omnidirectional (360°) media streaming.

This tutorial first presents a detailed overview of adaptive streaming of both traditional and omnidirectional media, and focuses on the basic principles and paradigms for adaptive streaming. New ways to deliver such media are explored and industry practices are presented. The tutorial then continues with an introduction to the fundamentals of communications over 5G and looks into mobile multimedia applications that are newly enabled or dramatically enhanced by 5G.

A dedicated section in the tutorial covers the much-debated issues related to quality of experience. Additionally, the tutorial provides insights into the standards, open research problems and various efforts that are underway in the streaming industry.

Speakers

Ali C. Begen recently joined the computer science department at Ozyegin University. Previously, he was a research and development engineer at Cisco, where he has architected, designed and developed algorithms, protocols, products and solutions in the service provider and enterprise video domains. Currently, in addition to teaching and research, he provides consulting services to industrial, legal, and academic institutions through Networked Media, a company he co-founded. Begen holds a Ph.D. degree in electrical and computer engineering from Georgia Tech. He received a number of scholarly and industry awards, and he has editorial positions in prestigious magazines and journals in the field. He is a senior member of the IEEE and a senior member of the ACM. In January 2016, he was elected as a distinguished lecturer by the IEEE Communications Society. Further information on his projects, publications, talks, and teaching, standards and professional activities can be found http://ali.begen.net



Liangping Ma is with InterDigital, Inc., San Diego, CA. He is an IEEE Communication Society Distinguished Lecturer focusing on 5G technologies and standards, video communication and cognitive radios. He is an InterDigital delegate to the 3GPP New Radio standards. His current research interests include various aspects about ultra-reliable and low-latency communication, such as channel coding, multiple access and resource allocation. Previously, he led the research on Quality of Experience (QoE) driven system optimization for video streaming and interactive video communication. Prior to joining InterDigital in 2009, he was with San Diego Research Center and Argon ST (acquired by Boeing), where he led research on cognitive radios and wireless sensor networks and served as the

principal investigators of two projects supported by the Department of Defense and the National Science Foundation, respectively. He is the co-inventor of more than 40 patents and the author/co-author of more than 50 journal and conference papers. He has been the Chair of the San Diego Chapter of the IEEE Communication Society since 2014. He received his PhD from University of Delaware in 2004 and his B.S. from Wuhan University, China, in 1998.

Christian Timmerer received his M.Sc. (Dipl.-Ing.) in January 2003 and his Ph.D. (Dr.techn.) in June 2006 (for research on the adaptation of scalable multimedia content in streaming and constrained environments) both from the Alpen-Adria-Universität (AAU) Klagenfurt. He joined the AAU in 1999 (as a system administrator) and is currently an Associate Professor at the Institute of Information Technology (ITEC) within the Multimedia Communication Group. His research interests include immersive multimedia communications, streaming, adaptation, quality of experience, and sensory experience. He was the general chair of WIAMIS 2008, QoMEX 2013 and MMSys 2016, and has participated in several EC-funded projects, notably DANAE, ENTHRONE, P2P-Next, ALICANTE, SocialSensor, COST IC1003 QUALINET and ICoSOLE. He also participated in ISO/MPEG work for several years, notably in the area of MPEG-21, MPEG-M, MPEG-V, and MPEG-DASH where he also served as a standard editor. In 2012, he co-founded Bitmovin to provide professional services around MPEG-DASH where he currently holds the position of the Chief Innovation Officer (CIO).

Monday, July 23, 2018

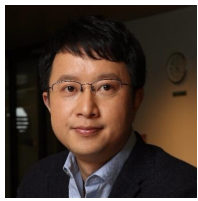
Multimedia and Language: Bridging Multimedia and Natural Language with Deep Learning

Time: 8:30 - 12:00
Room: Athenia AB
Speakers: Tao Mei
Microsoft Research Asia, China
Jiebo Luo
University of Rochester, USA

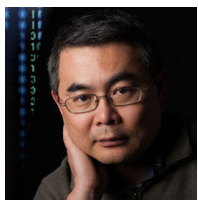
Abstract

Recognition of visual content has been a fundamental challenge in computer vision and multimedia for decades, where previous research predominantly focused on understanding visual content using a predefined yet limited vocabulary. Thanks to the recent development of deep learning techniques, researchers in both computer vision and multimedia communities are now striving to bridge multimedia with natural language, which can be regarded as the ultimate goal of visual understanding. We will present recent advances in exploring the synergy of multimedia content understanding and language processing techniques, including multimedia-language alignment, visual captioning and commenting, visual emotion analysis, visual question answering, visual storytelling, and as well as open issues for this emerging research area.

Speakers



Tao Mei is a Senior Researcher and Research Manager with Microsoft Research Asia. His current research interests include multimedia analysis and computer vision. He is leading a team working on image and video analysis, vision and language, and multimedia search. He has authored or co-authored over 150 papers with 11 best paper awards. He holds over 50 filed U.S. patents (with 20 granted) and has shipped a dozen inventions and technologies to Microsoft products and services. He is an Editorial Board Member of IEEE Trans. on Multimedia, ACM Trans. on Multimedia Computing, Communications, and Applications, and Pattern Recognition. He is the General Co-chair of IEEE ICME 2019, the Program Co-chair of ACM Multimedia 2018, IEEE ICME 2015, and IEEE MMSP 2015. Tao is as a Fellow of IAPR and a Distinguished Scientist of ACM.



Jiebo Luo joined the University of Rochester in Fall 2011 after over fifteen years at Kodak Research Laboratories, where he was a Senior Principal Scientist leading research and advanced development. He has been involved in numerous technical conferences, including serving as the program co-chair of ACM Multimedia 2010, IEEE CVPR 2012, and IEEE ICIP 2017. He has served on the editorial boards of the IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Multimedia, IEEE Transactions on Circuits and Systems for Video Technology, Pattern Recognition, Machine Vision and Applications, and Journal of Electronic Imaging. He has authored over 300 technical papers and 90 US patents. Prof. Luo is a Fellow of the SPIE, IEEE, and IAPR.

Monday, July 23, 2018

Interactive Augmented Reality with Meta 2

Time: 13:30 - 17:00
Room: Athenia AB
Speakers: Kari Pulli
Meta, USA
Paulo Jansen
Meta, USA

Abstract

Optical See-Through Augmented Reality, as supported by devices like Meta 2, Hololens, etc., provides a new medium. In this tutorial we will introduce the benefits of optical see-through AR over video see-through AR, which you could get by adding a video camera to a VR headset. We will also discuss the benefits over wearable AR over cellphone-powered AR, such as that your hands are free and are available as natural input devices, and that the AR graphics is directly registered with your vision. We will demonstrate various AR applications, and we will show how you can create your own using Meta SDK.

Speakers

Kari Pulli is CTO at Meta. Before joining Meta, Kari worked as CTO of the Imaging and Camera Technologies Group at Intel influencing the architecture of future IPUs. He was VP of Computational Imaging at Light and before that he led research teams at NVIDIA Research (Senior Director) and at Nokia Research (Nokia Fellow) on Computational Photography, Computer Vision, and Augmented Reality. He headed Nokia's graphics technology, and contributed to many Khronos and JCP mobile graphics and media standards, and wrote a book on mobile 3D graphics. Kari holds CS degrees from University of Minnesota (BSc), University of Oulu (MSc, Lic. Tech.), University of Washington (PhD); and an MBA from University of Oulu. He has taught and worked as a researcher at Stanford University, University of Oulu, and MIT.

Paulo Jansen is a SW Engineer at Meta, working on interactive augmented reality applications for the Meta AR headset. He has a MSc in Computer Science with emphasis in Image Processing applied to VR and AR from UFMA (Brazil), where he worked as a research assistant. Paulo's professional interests include Computer Graphics, Image Processing, and VR / AR interactive applications.

Monday, July 23, 2018

Trends and Recent Developments in Video Coding Standardization

Time: 13:30 - 17:00
Room: Milos
Speakers: Jens-Rainer Ohm
RWTH Aachen University, Germany
Mathias Wien
RWTH Aachen University, Germany

Abstract

While HEVC is the state-of-the-art video compression standard with profiles addressing virtually all video-related products of today, the next generation of standards is already taking shape, showing significant performance improvements relative to this established technology. At the same time, the target application space evolves further towards higher picture resolution, higher dynamic range, fast motion capture, or previously unaddressed formats such as 360° video. The signal properties of this content open the door for different designs of established coding tools as well as the introduction of new algorithmic concepts which have not been applied in the context of video coding before. Specifically, the required ultra-high picture resolutions and the projection operations in the context of processing VR/360° video provide exciting options for new developments.

This tutorial will provide a comprehensive overview on recent developments and perspectives in the area of video coding. As a central element, the work performed in the Joint Video Exploration Team (JVET) of ITU-T SG16/Q6 (VCEG) and ISO/IEC JTC1 SC29WG11 (MPEG) is covered, but trends outside of the tracks of standardization bodies are considered as well. By the time of the tutorial, results of the Call for Proposals on the next generation video compression standard will be available, and technologies under consideration for establishing a test model will be reported. Subjective and objective quality assessment of new approaches in comparison to HEVC will be discussed as well. The focus of the tutorial is on algorithms, tools and concepts for future video compression technology

with significantly increased performance. In this context, also the potential of methods related to perceptional models, synthesis of perceptional equivalent content, higher precision of motion compensation, and deep learning based approaches will be discussed.

Speakers

Jens-Rainer Ohm holds the chair position of the Institute of Communication Engineering at RWTH Aachen University, Germany since 2000. His research and teaching activities cover the areas of motion-compensated, stereoscopic and 3-D image processing, multimedia signal coding, transmission and content description, audio signal analysis, as well as fundamental topics of signal processing and digital communication systems.

Since 1998, he participates in the work of the Moving Picture Experts Group (MPEG). He has been chairing co-chairing various standardization activities in video coding, namely the MPEG Video Subgroup since 2002, the Joint Video Team (JVT) of MPEG and ITU-T SG 16 VCEG from 2005 to 2009, and currently, the Joint Collaborative Team on Video Coding (JCT-VC), as well as the Joint Video Exploration Team (JVET).

Prof. Ohm has authored textbooks on multimedia signal processing, analysis and coding, on communication engineering and signal transmission, as well as numerous papers in the fields mentioned above.

Mathias Wien received the Diploma and Dr.-Ing. degrees from RWTH Aachen University, Germany, in 1997 and 2004, respectively. He currently works as a senior research scientist and head of administration, as well as lecturer, holding a permanent position at the Institute of Communication Engineering of RWTH Aachen University, Germany. His research interests include image and video processing, space-frequency adaptive and scalable video compression, and robust video transmission.

Mathias has participated and contributed to ITU-T VCEG, ISO/IEC MPEG, the Joint Video Team, and the Joint Collaborative Team on Video Coding (JCT-VC) of VCEG and ISO/IEC MPEG in the standardization work towards AVC and HEVC. He has co-chaired and coordinated several AdHoc groups as well as tooland core experiments. He has published the Springer textbook "High Efficiency Video Coding: Coding Tools and Specification", which fully covers Version 1 of HEVC. An extended edition covering the subsequent versions of HEVC is in preparation. Mathias is member of the IEEE Signal Processing Society and the IEEE Circuits and Systems Society. At RWTH Aachen University, Mathias teaches the master level lecture "Video Coding: Algorithms and Specification", among other topics. The lecture covers the state of the art in video coding including HEVC.

Monday, July 23, 2018

Multimedia Services and Technologies for Smart-Health

Time: 8:30 - 12:00
Room: Syros

Overview

Today multimedia services and technologies play an important role in providing and managing e-health services to anyone, anywhere and anytime seamlessly. These services and technologies facilitate doctors and other healthcare professionals to have immediate access to e-health information for efficient decision making as well as better treatment. Researchers are working in developing various multimedia tools, techniques, and services to better support e-health initiatives. In particular, works in e-health record management, elderly health monitoring, real-time access of medical images and video are of great interest.

This workshop aims to report high-quality research on recent advances in various aspects of smart-health, more specifically to the state-of- the-art approaches, methodologies, and systems in the design, development, deployment and innovative use of multimedia services, tools and technologies for health care.

Workshop Chairs

M. Shamim Hossain
King Saud University, Saudi Arabia

Stefan Göbel
Technische Universität Darmstadt, Germany

Md. Abdur Rahman
University of Prince Mugren, Saudi Arabia

Workshop

8:30 Opening Remarks

8:30 **Multimedia and Cloud for Healthcare**
Md. Abdur Rahman
University of Prince Mugren, KSA

9:00 Oral Session

9:00 **Physiological Function Assessment Based on RGB-D Camera**
Wenming Cao, Zhong Jianqi , Guitao Cao, Zhiquan He
Shenzhen University, China

9:30 **Detection of Food Intake Events from Throat Microphone Recordings using Convolutional Neural Networks**
Mehmet Ali Tugtekin Turan, Engin Erzin
Koç University, Turkey

10:00 **Coffee Break**

10:30 Oral Session

10:30 **QoE Tuning for Remote Access of Interactive Volume Visualization Applications**
Sam Jonesi[1], Jerry Adams[2], Samaikya Valluripally[1], Prasad Calyam[1], Brad Hittle[3], Albert Lai[4]
[1]University of Missouri, Columbia, USA,
[2]University of Hawaii, West Oahu, USA,
[3]Ohio Supercomputer Center, USA,
[4]Washington University in St. Louis, USA

11:00 **DCCN: A Deep-Color Correction Network for Traditional Chinese Medicine Tongue Images**
Yunxi Lu, Xiaoguang Li, Li Zhuo, Jing Zhang, Hui Zhang
Beijing University of Technology, China

11:30 **A Multimedia Big Data Retrieval Framework to Detect Dyslexia Among Children**
Elham Hassanain
University of Prince Mugrin, KSA

Monday, July 23, 2018

Faces in Multimedia
Time: 13:30 - 17:00
Room: Syros

Overview

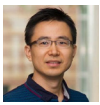
We have witnessed remarkable advances in facial recognition technologies over the past a few years due to the rapid development of deep learning and large-scale, labeled facial image collections. As progress continues to push renown facial recognition databases nearly to saturation. There is a need for evermore challenging image and video collections, to solve emerging problems in the fields of faces and multimedia.

In parallel to conventional face recognition, research is done to automatically understand social media content. To gain such an understand, the following capabilities must be satisfied: face tracking (e.g., facial expression analysis, face detection), face characterization (e.g., behavioral understanding, emotion recognition), facial characteristic analysis (e.g., gait, age, gender and ethnicity recognition), group understanding via social cues (e.g., kinship, non-blood relationships, personality), and visual sentiment analysis (e.g., temperament, arrangement). The ability to create effective models for visual certainty has significant value in both the scientific communities and the commercial market, with applications that span topics of human-computer interaction, social media analytics, video indexing, visual surveillance, and Internet vision.

Workshop

Workshop Chairs

Thomas S. Huang
University of Illinois at Urbana-Champaign, USA



Y. Raymond Fu
Northeastern University, Boston, USA

Joseph P. Robinson
Northeastern University, Boston, USA

Ming Shao
University of Massachusetts, Dartmouth, USA

Siyu Xia
Southeast University, China

13:30 **Opening Remarks**

13:40 Face DB Overview

13:40 **A Look at the Large-Scale FIW Dataset**
Joseph P. Robinson
Northeastern University, Boston, USA

14:00 Keynote

14:00 Sergey Tulyakov
Snapchat

15:00 **Coffee Break**

15:30 Oral 1

15:30 **Multi-Label Networks for Face Attributes Classification**
William Puech[1], Peter Eisert[2], Bingjie Xu, Lily Meng
[1]CNRS, University of Montpellier, France, [2]Fraunhofer HHI, Humboldt University of Berlin, Germany

15:50 Oral 2

15:50 **Micro-Expression Recognition based on the Spatio-Temporal Feature**
Andreas Uhl[1], Liang Wang[2], Wong Yongkang[3], Amirreza Masoumzadeh[4]
[1]Salzburg University, Austria, [2]Chinese Academy of Sciences, China, [3]National University of Singapore, Singapore, [4]State Univ. of New York, Albany, USA

Monday, July 23, 2018

Privacy Issues in Multimedia, 2nd Edition
Time: 8:30 - 12:00
Room: Rhodes

Overview

The past decade has seen a tremendous growth in multimedia systems and applications in various areas ranging from surveillance to social media. While these systems and applications have been instrumental in improving the connectedness of the users; in the process the people's privacy might be put at risk. In particular, in most social networking websites, users upload their information without any guarantees on privacy.

Although there has been a significant progress in multimedia research, the issues related to privacy related to the use of multimedia systems and applications have only recently begun to attract the attention of researchers. This workshop aims to bring forward recent advances related to privacy protection in various multimedia systems and applications.

Workshop Chairs

Pradeep Atrey
State University of New York, Albany, USA

Andrea Cavallaro
Queen Mary University of London, United Kingdom

Sen-ching 'Samson' Cheung
Univeristy of Kentucky, USA

Frederic Dufaux
CNRS and Telecom ParisTech, France

Workshop

8:30 **Opening Remarks**

8:40 **Oral Session**

8:40 **From Visual Confidentiality to Transparent Format-Compliant Selective Encryption of 3D Objects**
Sebastien Beugnon, William Puech, Jean-Pierre Pedeboy
LIRMM, University of Montpellier, CNRS, France, STRATEGIES, France

9:05 **A New Enhanced Reversible Data Hiding Using Topology Preserved Chains**
Bing Yan, Ming Su, Gang Wang, Liu Xiaoguang, Mingming Ren
Nankai University, China

9:30 **The JPEG-Blockchain Framework for GLAM Services**
Deepayan Bhowmik, Ambarish Natu, Takaaki Ishikawa, Tian Feng, Charith Abhayaratne
Sheffield Hallam University, UK, Australian Government, Australia, Waseda University, Japan, University of Sheffield, UK

9:55 **Coffee Break**

10:30 **Keynote**

10:30 **Pervasive not Invasive Computing: experiences building TIPPERS - privacy preserving IoT Testbed at UCI**
Sharad Mehrotra
University of California, Irvine, USA

11:10 **Panel Discussion**

11:10 **Panel**
Sharad Mehrotra
University of California, Irvine, USA
Frederic Dufaux
CNRS, France
Sen-ching 'Samson' Cheung
University of Kentucky, USA

Moderator
Pradeep Atrey
State University of New York, Albany, USA

Monday, July 23, 2018

Multimedia Analytics for Societal Trends
Time: 13:30 - 17:00
Room: Rhodes

Overview

The widespread reach of media has extended beyond movies and ads to internet-based platforms that share user-generated images and videos. While automated analysis is indispensable for traditional multimedia areas i.e. navigating, indexing and organizing diverse and vast media databases, more recently, an emerging trend in this area has been to improve and facilitate personal and social activities, insight generation, and interaction experience. Research effort has been directed towards developing computational tools and methodologies for systematic study of trends and biases in commercially produced media forms, such as movies. Yet another emerging area involves studying the impact of such content on the end users.

One of the major research challenges in this area is that at the core of reliable analytics lie reliable algorithms. These algorithms must be robust under a diverse set of synthesized yet seemingly realistic background conditions. Depending on the type of media, these conditions could manifest themselves in the audio or video channels and could even vary within the duration of the content, thereby making it challenging to apply off-the-shelf techniques from other domains. Analysis of such content necessitates the design and training of customized algorithms that seek to exploit specific properties of or additional structure in the data. Infact, for most vision or audio related tasks, produced media data proves to be one of the most difficult benchmarks. This issue is further compounded by absence of any large in-domain datasets with reliable annotations.

As a result, research in this field often requires a mix of clever data mining techniques and approaches from semi-supervised or transfer learning. Finally, this research area is also becoming exceedingly multi-disciplinary requiring skills from a variety

of fields including engineering, film studies, psychology and social sciences. Thus the main purpose of this workshop is to facilitate conversation between different groups of researchers and provide a platform where they can share progress and updates in recent research on media analytics for societal trends.

Workshop Chairs

Naveen Kumar
Sony, USA

Tanaya Guha
Indian Institute of Technology Kanpur, India

Krishna Somandepalli
University of Southern California, USA

Shri Narayanan
University of Southern California, USA

13:30	**Opening Remarks**
13:45	**Marginalized Identities in Entertainment Media** Caroline Heldman, Nicole Haggard *Occidental College, USA, Mount Saint Mary's University, USA*
14:25	**Measuring the culture: Using Data Science to understand what drives popularity** Carlos Ariza *Creative Artists' Agency*
15:00	**Coffee Break**
15:30	**Protest Activity Detection and Violence Estimation from Twitter Images** Jungseock Joo *University of California, Los Angeles, USA*
15:50	**A Pilot Study in Deriving Political Stance Representation with User's Media Data and Social Links** Chi-Chun (Jeremy) Lee *National Tsing-Hua University, Taiwan*
16:15	**Panel Discussion**

Friday, July 27, 2018

Emerging Multimedia Systems and Applications

Time: 8:30 - 17:00
Room: Mykonos AB

Overview

Recent years have witness a great popularity of multimedia applications and services. With the rapid growth of the volume of multimedia data and the complexity of systems, high efficient processing and analytics technologies have received significant attention and become key research issues. This workshop is intended to promote further research interests and activities related to multimedia data processing and analytics as well as to provide a forum for researchers and engineers to present their cutting-edge innovations and share their experiences on all aspects of the emerging multimedia systems and applications.

Workshop Chairs

Chenwei Deng
Beijing Institute of Technology, China

Zhenzhong Chen
Wuhan University, China

Weiyao Lin
Shanghai Jiao Tong University, China

Philip Chen
University of Macau, Macau

9:00 Opening Remarks

9:05 Greedy Layer-Wise Training of Long Short Term Memory Networks
Kaisheng Xu[1], Xu Shen[1], Ting Yao[2], Xinmei Tian[1], Tao Mei[2]
[1]University of Science and Technology of China, China, [2]Microsoft Research, Beijing, China

9:20 **Augmented Reality Sandpit Simulating Ant Colonies**
Lachlan Smith[1], Jon McCormack[1], Zixiang Xiong[1,2]
[1]Monash University, Australia, [2]Texas A&M University, USA

9:35 **Anomaly Detection and Localization: a Novel Two-Phase Framework based on Trajectory-Level Characteristics**
Kun Zhao, Bin Liu, Weihai Li, Nenghai Yu, Zhiqiang Liu
University of Science and Technology of China, China

9:50 **2D to 3D Label Propagation for Object Detection in Point Cloud**
Kanokphan Lertniphonphan, Satoshi Komorita, Kazuyuki Tasaka, Hiromasa Yanagihara
KDDI Research, Inc., Saitama, Japan

10:05 **RGB-D Semantic Segmentation: A Review**
Yaosi Hu[1], Zhenzhong Chen[1], Weiyao Lin[2]
[1]Wuhan University, China, [2]Shanghai Jiao Tong University, China

10:20 **Towards Augmenting Multimedia QOE with Wearable Devices: Perspectives from an Empirical Study**
Nadia Hussain, Gebremariam Mesfin, Alexandra Covaci, Gheorghita Ghinea
Brunel University, UK

10:35 **Coffee Break**

11:00 **Pyramid Networks with Densely Feature Fusion Models for Object Detection**
Shouzhi Huang[1], Xiaoyu Li[2], Zhuqing Jiang[1,3], Xiaoqiang Guo[2], Aidong Men[1]
[1]Beijing University of Posts and Telecommunications, China, [2]Academy of Broadcasting Science, China, [3]Beijing Key Laboratory of Network System and Network Culture, China

11:15 **S2L: Single-Stream Line for Complex Video Event Detection**
Zijun Xu[1], Li Su[1], Shuhui Wang[2], Qingming Huang[1], Yuan Zhang[3]
[1]University of Chinese Academy of Sciences, China, [2]Chinese Academy of Sciences, China, [3]Communication University of China, China

11:30 **Inverse and Transitivity of Cross-modal Correspondence in Mulsemedia**
Gebremariam Mesfin, Nadia Hussain, Alexandra Covaci, Gheorghita Ghinea
Brunel University, London, UK

11:45 **Angular Intra Prediction based Measurement Coding Algorithm for Compressively Sensed Image**
Jianbin Zhou[1], Jinjia Zhou[1,2], Li Guo[3]
[1]Hosei University, Japan, [2]JST, PRESTO, Japan, [3]Waseda University, Japan

12:00 **Lunch**

14:00 **Hyper Feature Fusion Pyramid Network for Object Detection**
Shouzhi Huang[1], Xiaoyu Li[2], Zhuqing Jiang[1,3], Xiaoqiang Guo[2], Aidong Men[1]
[1]Beijing University of Posts and Telecommunications, China, [2]Academy of Broadcasting Science, China, [3]Beijing Key Laboratory of Network System and Network Culture, China

14:15 **Person Re-identification with a Joint Learning CNN Network and a New Global Loss Function**
Linrui Xie[1], Guangtao Fu[2], Zhuqing Jiang[1], Aidong Men[1], Yun Zhou[2]
[1]Beijing University of Posts and Telecommunications, China, [2]Academy of Broadcasting Science, China

14:30 **When Will Breakfast Be Ready: Temporal Prediction of Food Readiness Using Deep Convolutional Neural Networks on Thermal Videos**
Yijun Jiang, Miao Luo, Sean Banerjee, Natasha Kholgade Banerjee
Clarkson University, USA

14:45 **Weighted Multi-Region Convolutional Neural Network for Action Recognition with Low-Latency Online Prediction**
Yunfeng Wang[1], Wengang Zhou[1], Qilin Zhang[2], Xiaotian Zhu[1], Houqiang Li[1]
[1]University of Science and Technology of China, China, [2]HERE Technologies, USA

15:00 **Premium HDR: The Impact of a Single Word on the Quality of Experience of HDR Video**
Peter Kara[1], Maria Martini[1], Aron Cserkaszky[2]
[1]Kingston University, UK, [2]Pazmany Peter Catholic University, Hungary

15:15 **An Audio-Visual Quality Assessment Methodology in Virtual Reality Environment**
Bo Zhang, Zhaoyu Yan, Jing Wang, Yiyu Luo, Shu Yang, Zesong Fei
Beijing Institute of Technology, China

15:30 **Coffee Break**

16:00 **Multimedia Fusion at Semantic Level in Vehicle Cooperative Perception**
Zhongyang Xiao, Zhaobin Mo, Kun Jiang, Diange Yang
Tsinghua University, China

16:15 **Spatio-Temporal Interactive Laws Feature Correlation Method to Video Quality Assessment**
Kuan-Hsien Liu[1], Tsung-Jung Liu[2], Hsin-Hua Liu[3], Soo-Chang Pei[3]
[1]National Taichung University of Science and Technology, Taiwan, [2]National Chung Hsing University, Taiwan, [3]National Taiwan University, Taiwan

16:30 **Fully Convolutional Network with Densely Feature Fusion Models for Object Detection**
Shouzhi Huang[1], Xiaoyu Li[2], Zhuqing Jiang[1,3], Xiaoqiang Guo[2], Aidong Men[1]
[1]Beijing University of Posts and Telecommunications, China, [2]Academy of Broadcasting Science, China, [3]Beijing Key Laboratory of Network System and Network Culture, China

16:45 **How Experts Search Different Than Novices- An Evaluation of the diveXplore Video Retrieval System at Video Browser Showdown 2018**
Klaus Schoeffmann, Bernd Münzer, Manfred J. Primus, Sabrina Kletz, Andreas Leibetseder
Klagenfurt University, Austria

17:00 **Scalable Motion Analysis Based Surveillance Video Denoising**
He Jiang, Guangtao Zhai, Huangkai Cai, Jie Yang
Shanghai Jiaotong University, China

17:15 **Quality Assessment for Tone-Mapped HDR Images Using Multi-Scale and Multi-Layer Information**
Qin He, Dingquan Li, Tingting Jiang, Ming Jiang
Peking University, China

17:30 **Attribute Driven Zero-Shot Classification and Segmentation**
Shu Yang[1], Yemin Shi[2], Yaowei Wang[1], Jing Wang[1], Zesong Fei[1]
[1]Beijing Institute of Technology, China, [2]Peking University, China

Friday, July 27, 2018

Hot Topics in 3D Multimedia
Time: 8:30 - 17:00
Room: Athenia AB

Overview

The 3D community continues to innovate and evolve, with greater focus on enabling augmented reality and virtual reality (AR/VR/MR) experiences. There have been amazing breakthroughs on the capture and acquisition in recent years, with the introduction of microlens camera arrays and the growing momentum behind large-scale multi-camera arrays, as well as 360-degree video and depth sensing devices. Display technology continues to advance as the emergence of head-mounted displays gain in popularity. The widespread increase in computational power has allowed an ever-increasing realism in 3D scene generation. Additionally, 3D audio has the potential to add to the immersive experience through surround sound and realistic sound field rendering.

While appropriate venues for presenting research at advanced stages are plentiful, the 3D multimedia community needs an appropriate venue for receiving feedback during early or initial stages of the development of radical and potentially disruptive technologies. This is the void that Hot3D tries to fill.

Workshop Chairs

Ioan Tabus
Tampere University of Technology, Finland

Zahir Alpaslan
Ostendo Technologies Inc., USA

Touradj Ebrahimi
Swiss Federal Institute of Technology (EPFL), Switzerland

Workshop

9:30 Keynote

9:30 **Recent Trends and Challenges in 360-Degree Video Compression**
Yan Ye
InterDigital

10:30 **Coffee Break**

11:00 Session: Estimation and Optimization for 3D and 360° Image and Video

11:00 **Depth Masking Based Binocular Just-Noticeable-Distortion Model**
Kai Zheng[1], Yana Zhang[1], Lingling Lv[2], Yang Cheng[1]
[1]Communication University of China, [2]Patent Examination Cooperation Sichuan Center of the Patent Office, SIPO

11:30 **Viewport-Driven Rate-Distortion Optimized Live 360° Video Network Multicast**
Ridvan Aksu[1], Jacob Chakareski[1], Viswanathan Swaminathan[2]
[1]University of Alabama, [2]Adobe

12:00 **Occlusion-and-Edge-Aware Depth Estimation From Stereo Images for Synthetic Refocusing**
Hua-Yu Chou, Kuang-Tsu Shih, Homer Chen
National Taiwan University

12:30 **Lunch**

13:30 Keynote

13:30 **QoE and Immersive Media**
Patrick Le Callet
University of Nantes

14:30 Session: Quality Assessment for 3D and Plenoptic Images

14:30 **Impact of Visualisation Strategy for Subjective Quality Assessment of Point Clouds**
Evangelos Alexiou, Touradj Ebrahimi
Swiss Federal Institute of Technology (EPFL)

15:00 **Coffee Break**

15:30 **A Novel Method for Stereo Image Quality Assessment**
Tien-Ying Kuo, Yu-Jen Wei, Kuan-Hung Wan, Shao-Jung Chuang
National Taipei University of Technology

16:00 **Quality Assessment of Compression Solutions for ICIP 2018 Grand Challenge on Light Field Image Coding**
Irene Viola, Touradj Ebrahimi
Swiss Federal Institute of Technology (EPFL)

16:30 **Position Paper**

16:30 **Full Parallax Light Field Display Interfaces**
Zahir Y. Alpaslan, Hussein S. El-Ghoroury
Ostendo

Friday, July 27, 2018

Machine Learning and Artificial Intelligence for Multimedia Creation

Time: 8:30 - 12:30
Room: Milos

Overview

This workshop focuses on the emerging field of multimedia creation using machine learning (ML) and artificial intelligence (AI) approaches. It aims to bring together researchers from ML and AI and practitioners from multimedia industry to foster multimedia creation. Multimedia creation, including style transfer and image synthesis, have been a major focus of machine learning and AI societies, owing to the recent technological breakthroughs such as generative adversarial networks (GANs). This workshop seeks to reinforce the implications to multimedia creation. It publishes papers on all emerging areas of content understanding and multimedia creation, all traditional areas of computer vision and data mining, and selected areas of artificial intelligence, with a particular emphasis on machine learning for pattern recognition. The applied fields such as art content creation, medical image and signal analysis, massive video/image sequence analysis, facial emotion analysis, control system for automation, content-based retrieval of video and image, and object recognition are also covered. The workshop is expected to provide an interactive platform to researchers, scientists, professors, and students to exchange their innovative ideas and experiences in the areas of Multimedia, and to specialize in the field of multimedia from underlying cutting-edge technologies to applications.

Workshop Chairs

Yanjia Sun
Automatic Data Processing (ADP), USA

Tianpei Xie
Amazon, USA

Sijia Liu
MIT-IBM Watson AI Lab
IBM Research, USA

Pin-Yu Chen,
IBM T. J. Watson Research Center, USA

8:30 **Opening Remarks**

8:40 **Keynote**

8:40 **A Multi-task Learning framework for Head Pose Estimation and Actor-Action Semantic Video Segmentation**
Yan Yan
Texas State University

9:21 **Video Super Resolution Based on Deep Convolution Neural Network with Two-stage Motion Compensation**
Haoyu Ren, Mostafa El-Khamy, Jungwon Lee
Samsung Research USA

9:39 **A Fast No-reference Screen Content Image Quality Prediction using Convolutional Neural Networks**
Zhengxue Cheng, Masaru Takeuchi, Kenji Kanai, Jiro Katto
Waseda University

9:57 **An Enhanced Deep Convolutional Neural Network for Person Re-identification**
Tiansheng Guo[1], Dongfei Wang[2], Zhuqing Jiang[1], Aidong Men[1], Yun Zhou[2]
[1]Beijing University of Posts and Telecommunications, [2]Academy of Broadcasting Science

10:15 **Single Image Haze Removal via Joint Estimation of Detail and Transmission**
Shengdong Zhang[1,2], Yao Jian[2], Wenqi Ren[1]
[1]Chinese Academy of Science, [2]Wuhan University

10:33 **Coffee Break**

10:46 **Deep Global and Local Saliency Learning with New Re-ranking for Person Re-Identification**
Wei Fei, Zhicheng Zhao, Fei Su
Beijing University of Posts and Telecommunications

11:04 **Hierarchical Learning of Sparse Image Representations using Steered Mixture of Experts**
Rolf Jongebloed[1], Ruben Verhack[2], Lieven Lange[1], Thomas Sikora[1]
[1]Technischen Universität Berlin, [2]Ghent University

11:22 **HDR Image Reconstruction Using Locally Weighted Linear Regression**
Xiaofen Li, Yongqing Huo
University of Electronic Science and Technology of China

11:40 **Supporting Collaboration Among Cyber Security Analysts Through Visualizing their Analytical Reasoning Processes**
Lindsey Thomas, Adam Vaughan, Zachary Courtney, Chen Zhong, Awny Alnusair
Indiana University Kokomo

11:58 **Robust Weighted Regression for Ultrasound Image Super-Resolution**
Walid Sharabati[1], Bowei Xi[2]
[1]Cerner Corporation, [2]Purdue University

12:16 **A Two Layer Pairwise Framework to Approximate Super pixel-based Higher order Conditional Random filed for Semantic Segmentation**
Li Sulimowicz[1], Ishfaq Ahmad[1], Alexander Aved[2]
[1]University of Texas, Arlington, [2]US Air Force Research Lab

Friday, July 27, 2018

Mobile Multimedia Computing
Time: 8:30 - 12:30
Room: Syros

Overview

The intimate presence of mobile devices in our daily life, such as smartphones and various wearable gadgets like smart watches, has dramatically changed the way we connect with the world around us. Nowadays, in the era of the Internet-of-Things (IoT), these devices are further extended by smart sensors and actuators and amend multimedia devices with additional data and possibilities. With a growing number of powerful embedded mobile sensors like camera, microphone, GPS, gyroscope, accelerometer, digital compass, and proximity sensor, there is a variety of data available and hence enables new sensing applications across diverse research domains comprising mobile media analysis, mobile information retrieval, mobile computer vision, mobile social networks, mobile human-computer interaction, mobile entertainment, mobile gaming, mobile healthcare, mobile learning, and mobile advertising. Therefore, the workshop on Mobile Multimedia Computing (MMC 2018) aims to bring together researchers and professionals from worldwide academia and industry for showcasing, discussing, and reviewing the whole spectrum of technological opportunities, challenges, solutions, and emerging applications in mobile multimedia.

Workshop Chairs

Wen-Huang Cheng
Academia Sinica, Taiwan

Kai-Lung Hua
National Taiwan University of Science and Technology, Taiwan

Klaus Schoeffmann
Klagenfurt University, Austria

Workshop

Tian Gan
Shandong University, China

Christian von der Weth
National University of Singapore, Singapore

Marta Mrak
British Broadcasting Corporation R & D, United Kingdom

9:00 **Opening Remarks**

9:10 **Session I: Mobile Multimedia System**

9:10 **Panorama Generation Based on Aerial Images**
Jyun-Gu Ye[1], Hua-Tsung Chen[2], Wen-Jin Tsai[2]
[1]National Taiwan University, Taiwan,
[2]National Chiao Tung University

9:30 **Style Transfer at 100+ FPS via Sub-pixel Super-resolution**
Haoyu Li, Xiangmin Xu, Bolun Cai, Kailing Guo, Xiaofen Xing
South China University of Technology

9:50 **Towards Energy-Efficient Adaptive MPEG-DASH Streaming Using HEVC**
Mikko Uitto, Martti Forsell
VTT Technical Research Centre of Finland Ltd.

10:10 **Enhancing Digital Zoom in Mobile Phone Cameras By Low Complexity Super-Resolution**
Farzad Toutounchi, Ebroul Izquierdo
QMUL

10:30 **Coffee Break**

11:00 **Session II: Mobile Multimedia Applications**

11:00 **Exploiting Category-specific Information for Image Popularity Prediction in Social Media**
Eric Massip[1], Shintami Hidayati[2], Wen-Huang Cheng[2], Kai-Lung Hua[3]
[1]Polytechnic University of Catalonia,
[2]Academia Sinica, [3]National Taiwan University of Science and Technology

11:20 **Integration of Graphic QR Code and Identity Douments by Laser Perforation to Enhance Anti-Countrfeiting Features**
Chia Tsen Sun[1], Pei-Chun Kuan[1], Yu-Mei Wang[1], Chun-Shien Lu[2], Hsi-Chun Wang[1]
[1]National Taiwan Normal University, [2]Academia Sinica

11:40 **Data Augmentation for CNN-Based People Detection in Aerial Images**
Hua-Tsung Chen[1], Che-Han Liu[1], Wen-Jin Tsai[2]
[1]National Chia Tung University, [2]National Chiao Tung University

12:00 **Mobile Interface Design for Online Movie Databases – Comparing Active Exploration With Standard UI Designs**
Wolfgang Hürst, Bruno dos Santos Carvalhal
Utrecht University

12:20 **Award Ceremony & Closing**

Friday, July 27, 2018

Multimodal Biometrics Learning
Time: 8:30 - 12:30
Room: Rhodes

Overview

Biometrics based recognition, identification and retrieval techniques become more and more important in our society. Great progress has been made in this area, focusing on heterogeneous cues (face, body (2D appearance and 3D volume), other unimodal biometrics such as finger and palm, gait, behavioral cues in general) which do not require user's collaboration. However, this problem is far from being completely solved, particularly in real-world applications under uncontrolled environments, where a large number of factors hinder the identification/recognition/retrieval performance, including lighting variations, different types of occlusion, large pose and view change, and so on.

The mission of the workshop is to explore the cutting edge research in non-collaborative (re) identification/recognition/retrieval, with a particular emphasis on the fusion of different modalities under cross-view setting. For example, the face recognition and the re-identification communities, even though they share many objectives, they rarely have interacted to hybridize novel recognition applications, where both the biometric patterns (face and body) can be jointly exploited. This holds true also for the communities of gait recognition and body re-identification, thermal body recognition, visual body recognition and other biometrics cues such as Iris Recognition at a distance. The workshop, in this sense, will be highly interdisciplinary, encouraging papers (even preliminary), where the modality fusion plays a primary role.

In addition, human-related identification/ recognition/retrieval techniques greatly rely on the development of feature and similarity learning strategy. Therefore, this workshop also aims to explore recent progress in feature and similarity learning (distance metric learning) for identification/recognition/retrieval. It has been

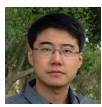
observed in recent years that the (re-)identification identification/recognition/retrieval performance can be largely improved when a robust feature representation or an appropriate distance/similarity function has been learned. In this aspect, this workshop will help the community to better understand the challenges and opportunities of feature and similarity learning techniques and their applications to (re-)identification for the next few years. In addition, with the great increasing number of features, the techniques addressing the large scale biometrics are also extremely required.

Workshop Chairs

Wei-Shi Zheng
Sun Yat-sen University, China

Cairong Zhao
Tongji University, China

Zhihui Lai
Shen Zhen University, China



Yang Yang
University of Electronic Science and Technology of China, China

Zhihua Wei
Tongji University, China

Workshop

8:30 **Opening Remarks**

8:40 **Palmprint and Dorsal Hand Vein Dualmodal Biometrics**
Dexing Zhong, Menghan Li, Huikai Shao, Shuming Liu
Xi'an Jiaotong University, China

9:00 **Center Based Pseudo-Labeling for Semi-supervised Person Re-identification**
Guodong Ding[1], Shanshan Zhang[1], Salman Khan[2], Zhenmin Tang[1]
[1]Nanjing University of Science and Technology, China, [2]Australian National University, Australia

9:20 **Multi-View Gait Identification Based on Stacked Sparse Auto-Encoders**
Suibing Tong[1], Yuzhuo Fu[1], Hefei Ling[2]
[1]Shanghai Jiao Tong University, China, [2]Huazhong University of Science and Technology, China

9:40 **Long Term Hand Tracking With Proposal Selection**
Qingshuang Chen, Fengqing Zhu
Purdue University, USA

10:00 **Multi-Stream Region Proposal Network for Pedestrian Detection**
Jianjun Lei[1], Yue Chen[1], Bo Peng[1], Qingming Huang[2], Nam Ling[3], Chunping Hou[1]
[1]Tianjin University, China, [2]University of Chinese Academy of Sciences, China, [3]Santa Clara University, USA

10:30 **Coffee Break**

10:50 **Manifold-Structure Preserving Biometric Templates - A Preliminary Study on Fully Cancelable Smartphone Biometric Templates**
Kiran B. Raja[1,2], R. Raghavendra[2], Christoph Busch[2]
[1]University of South-Eastern Norway, Norway, [2]Norwegian University of Science and Technology, Gjøvik, Norway

11:10 **Automatic Writer Verification Algorithm for Chinese Characters Using Semi-Global Features and Adaptive Classifier**
Pin-Xuan Lee, Jian-Jiun Ding, Ting-Chih Wang, Yih-Cherng Lee
National Taiwan University, Taiwan

Tuesday, July 24, 2018

Multimedia Signal Processing I
Time: 10:00 - 11:40
Room: Aventine A
Chair: Frederic Dufaux
CNRS

10:00 **Robust Tensor Principal Component Analysis in All Modes**
Longxi Chen, Yipeng Liu, Ce Zhu
University of Electronic Science and Technology of China

10:20 **No-Reference Image Sharpness Assessment Using Scale and Directional Models**
Zheng Zhang[1], Yu Liu[1], Hanlin Tan[1], Xiaoqing Yin[2], Maojun Zhang[1]
[1]National University of Defense Technology, [2]University of Sydney

10:40 **Interest Level Estimation of Items via Matrix Completion Based on Adaptive User Matrix Construction**
Tetsuya Kushima, Sho Takahashi, Takahiro Ogawa, Miki Haseyama
Hokkaido University

11:00 **Hybrid Noise for LIC-Based Pencil Hatching Simulation**
Qunye Kong, Yun Sheng, Guixu Zhang
East China Normal University

11:20 **Robust Contrast Enhancement via Graph-Based Cartoon-Texture Decomposition**
Deming Zhai[1], Xianming Liu[1], Xiangyang Ji[2], Yuanchao Bai[3], Debin Zhao[1], Wen Gao[3]
[1]Harbin Institute of Technology, [2]Tsinghua University, [3]Peking University

Tuesday, July 24, 2018

Multimedia Computing and Applications

Time: 10:00 - 11:40
Room: Aventine B
Chair: Shao-Yi Chien
National Taiwan University

10:00 **Improving CNN-Based Viseme Recognition Using Synthetic Data**
Andrea Britto Mattos, Dario Augusto Borges Oliveira, Edmilson da Silva Morais
IBM Research Brazil

10:20 **Aligning Audiovisual Features for Audiovisual Speech Recognition**
Fei Tao, Carlos Busso
University of Texas, Dallas

10:40 **Fast and Reliable Computational Rephotography on Mobile Device**
Yi-Bo Shi, Fei-Peng Tian, Dongxu Miao, Wei Feng
Tianjin University

11:00 **TransIM: Transfer Image Local Statistics Across EOTFs for HDR Image Applications**
Bihan Wen[1], Guan-Ming Su[2]
[1]University of Illinois, Urbana-Champaign, [2]Dolby Labs

11:20 **Multi-Party WebRTC Videoconferencing using Scalable VP9 Video: From Best-Effort Over-the-Top to Managed Value-Added Services**
Riza Kirmizioglu, Baris Kaya, A. Murat Tekalp
Koç University

Tuesday, July 24, 2018

Deep Learning for Multimedia I
Time: 10:00 - 11:40
Room: Aventine C
Chair: Xinfeng Zhang
University of Southern California

10:00 **SyncGAN: Synchronize the Latent Space of Cross-Modal Generative Networks**
Wen-Cheng Chen, Chien-Wen Chen, Min-Chun Hu
National Cheng Kung University

10:20 **Essay-Anchor Attentive Multi-Modal Bilinear Pooling for Textbook Question Answering**
Juzheng Li, Hang Su, Jun Zhu, Bo Zhang
Tsinghua University

10:40 **Trajectory Factory: Tracklet Cleaving and Re-Connection by Deep Siamese Bi-GRU for Multiple Object Tracking**
Cong Ma, Changshui Yang, Fan Yang, Yueqing Zhuang, Ziwei Zhang, Huizhu Jia, Don Xie
Peking University

11:00 **Enhanced Image Decoding via Edge-Preserving Generative Adversarial Network**
Qi Mao[1], Shiqi Wang[2], Shanshe Wang[1], Xinfeng Zhang[3], Siwei Ma[1]
[1]Peking University, [2]City University of Hong Kong, [3]University of Southern California

11:20 **Finer-Net: Cascaded Human Parsing with Hierarchical Granularity**
Jingwen Ye, Zunlei Feng, Yongcheng Jing, Mingli Song
Zhejiang University

Tuesday, July 24, 2018

Multimedia Signal Processing II

Time: 14:30 - 16:10
Room: Aventine A
Chair: Ivan Bajic
Simon Fraser University

14:30 **TLR: Transfer Latent Representation for Unsupervised Domain Adaptation**
Pan Xiao[1], Bo Du[1], Jia Wu[2], Lefei Zhang[1], Ruimin Hu[1], Xuelong Li[3]
[1]Wuhan University, [2]Macquarie University, [3]Chinese Academy of Sciences

14:50 **Content-Related Spatial Regularization for Visual Object Tracking**
Ruize Han, Qing Guo, Wei Feng
Tianjin University

15:10 **VCF: Velocity Correlation Filter, Towards Space-Borne Satellite Video Tracking**
Jia Shao[1], Bo Du[1], Chen Wu[1], Jia Wu[2], Ruimin Hu[1], Xuelong Li[3]
[1]Wuhan University, [2]Macquarie University, [3]Chinese Academy of Sciences

15:30 **Co-Saliency Detection via Hierarchical Consistency Measure**
Yonghua Zhang, Liang Li, Runmin Cong, Xiaojie Guo, Hui Xu, Jiawan Zhang
Tianjin University

15:50 **Color Image Noise Covariance Estimation with Cross-Channel Image Noise Modeling**
Li Dong[1], Jiantao Zhou[1], Tao Dai[2]
[1]University of Macau, [2]Tsinghua University

Tuesday, July 24, 2018

Big Data Analytic & Point Cloud Compression

Time: 14:30 - 16:10
Room: Aventine B
Chair: Jenq-Neng Hwang
University of Washington, Seattle

14:30 **User Portrait Modeling through Social Media**
Haiqian Gu[1], Jie Wang[2], Ziwen Wang[1,2], Bojin Zhuang[2], Fei Su[1]
[1]Beijing University of Posts and Telecommunications, [2]Ping An Technology (Shenzhen) Co., Ltd.

14:50 **Social-Guided Representation Learning for Images via Deep Heterogeneous Hypergraph Embedding**
Yunfei Chu, Chunyan Feng, Caili Guo
Beijing University of Posts and Telecommunications

15:10 **Joint Multi-View People Tracking and Pose Estimation for 3D Scene Reconstruction**
Zheng Tang, Renshu Gu, Jenq-Neng Hwang
University of Washington, Seattle

15:30 **Scalable Point Cloud Geometry Coding with Binary Tree Embedded Quadtree**
Birendra Kathariya[1], Li Li[1], Zhu Li[1], Jose Alvarez[2], Jianle Chen[2]
[1]University of Missouri, Kansas City, [2]Futurewei Technologies, Inc.

15:50 **Multi-View Surveillance Video Summarization via Joint Embedding and Sparse Optimization***
Rameswar Panda, Amit Roy-Chowdhury
University of California, Riverside

**This is an IEEE T-MM paper presented at ICME 2018*

Tuesday, July 24, 2018

Deep Learning for Multimedia II

Time: 14:30 - 16:10
Room: Aventine C
Chair: Houqiang Li
University of Science and Technology of China

14:30 **Adaptive Layerwise Quantization for Deep Neural Network Compression**
Xiaotian Zhu, Wengang Zhou, Houqiang Li
University of Science and Technology of China

14:50 **Feature Reinforcement Network for Image Classification**
Bingxu Lu[1], Qinghua Hu[1], Yijing Hui[2], Quan Wen[2], Min Li[2]
[1]Tianjin University, [2]China Automotive Technology & Research Center

15:10 **Improving Tiny Vehicle Detection in Complex Scenes**
Wei Liu[1], Shengcai Liao[2], Weidong Hu[1], Xuezhi Liang[2], Yan Zhang[1]
[1]National University of Defense Technology, [2]Chinese Academy of Sciences

15:30 **Aggregated Dilated Convolutions for Efficient Motion Deblurring**
Hong Miao, Wenqiang Zhang, Jiansong Bai
Fudan University

15:50 **Radical Analysis Network for Zero-Shot Learning in Printed Chinese Character Recognition**
Jianshu Zhang, Yixing Zhu, Jun Du, Lirong Dai
University of Science and Technology of China

Tuesday, July 24, 2018

Multimedia Signal Processing III
Time: 16:40 - 18:20
Room: Aventine A
Chair: Samson Cheung
University of Kentucky

16:40 **Robust Structured Multi-Task Multi-View Sparse Tracking**
Mohammadreza Javanmardi, Xiaojun Qi
Utah State University

17:00 **Quaternion Sparse Discriminant Analysis for Color Face Recognition**
Xiaolin Xiao, Yicong Zhou
University of Macau

17:20 **Learning Discriminative Geodesic Flow Kernel for Unsupervised Domain Adaptation**
Jianze Wei[1], Jian Liang[2], Ran He[2], Jinfeng Yang[1]
[1]Civil Aviation University of China, [2]Chinese Academy of Sciences

17:40 **Co-Referenced Subspace Clustering**
Xiaobo Wang[1], Zhen Lei[1], Hailin Shi[1], Xiaojie Guo[2], Xiangyu Zhu[1], Stan Li[1]
[1]Chinese Academy of Sciences, [2]Tianjin University

18:00 **Pointwise Shape-Adaptive Texture Filtering**
Xiqun Lu, Bolu Liu
Zhejiang University

Tuesday, July 24, 2018

Special Session: Human Activity Analytics

Time: 16:40 - 18:20
Room: Aventine B
Chair: Jiaying Liu
Peking University
Xiaoyan Sun
Microsoft Research Asia

16:40 **Hierarchical Dropped Convolutional Neural Network for Speed Insensitive Human Action Recognition**
Fanyang Meng[1], Hong Liu[1], Yongsheng Liang[2], Mengyuan Liu[3], Wei Liu[2]
[1]Peking University, [2]Shenzhen Institute of Information Technology, [3]Nanyang Technological University

17:00 **Temporal Attentive Network for Action Recognition**
Yemin Shi[1], Yonghong Tian[1], Tiejun Huang[1], Yaowei Wang[2]
[1]Peking University, [2]Beijing Institute of Technology

17:20 **Hierarchical Temporal Memory Enhanced One-Shot Distance Learning for Action Recognition**
Yixiong Zou[1], Yemin Shi[1], Yaowei Wang[2], Yu Shu[1], Qingsheng Yuan[3], Yonghong Tian[1]
[1]Peking University, [2]Beijing Institute of Technology, [3]University of Chinese Academy of Sciences

17:40 **Beyond View Transformation: Cycle-Consistent Global and Partial Perception GAN for View-Invariant Gait Recognition**
Shuangqun Li, Wu Liu, Huadong Ma, Shaopeng Zhu
Beijing University of Posts and Telecommunications

18:00 **Machine Learning Based Transportation Modes Recognition using Mobile Communication Quality**
Wataru Kawakami, Kenji Kanai, Bo Wei, Jiro Katto
Waseda University

Tuesday, July 24, 2018

Deep Learning for Multimedia III
Time: 16:40 - 18:20
Room: Aventine C
Chair: Lu Fang
Tsinghua University

16:40 **Accurate Image Super-Resolution Using Cascaded Multi-Column Convolutional Neural Networks**
Yuan Shuai, Yongfang Wang, Peng Ye, Yumeng Xia
Shanghai University

17:00 **Magnify-Net for Multi-Person 2D Pose Estimation**
Haoqian Wang[1], Wangpeng An[1], Xingzheng Wang[1], Lu Fang[1], Jiahui Yuan[2]
[1]Tsinghua University, [2]Beijing Samsung Telecom R&D Center

17:20 **Entity Competition Network for Video Classification**
Kang Shi[1], Weiqiang Wang[1], Changsheng Xu[2]
[1]University of Chinese Academy of Sciences, [2]Chinese Academy of Science

17:40 **Single Image Layer Separation via Deep ADMM Unrolling**
Risheng Liu, Zhiying Jiang, Xin Fan, Haojie Li, Zhongxuan Luo
Dalian University of Technology

18:00 **Dense Reconstruction from Monocular Slam with Fusion of Sparse Map-Points and CNN-Inferred Depth**
Xiang Ji, Xinchen Ye, Hongcan Xu, Haojie Li
Dalian University of Technology

Thursday, July 26, 2018

Multimedia Coding and Compression

Time: 10:00 - 11:40
Room: Aventine A
Chair: Mathias Wien
RWTH Aachen University

10:00 **Adaptive Weighted Sparse Principal Component Analysis**
Shuangyan Yi[1], Yongsheng Liang[2], Wei Liu[2], Fanyang Meng[2]
[1]Shenzhen Institute of Information Technology, [2]Peking University

10:20 **Fast HEVC to SCC Transcoding Based on Decision Trees**
Wei Kuang, Yui-Lam Chan, Sik-Ho Tsang, Wan-Chi Siu
Hong Kong Polytechnic University

10:40 **View Synthesis for Light Field Coding using Depth Estimation**
Xinpeng Huang, Ping An, Liang Shan, Ran Ma, Liquan Shen
Shanghai University

11:00 **Light Field Image Compression Based on Deep Learning**
Zhenghui Zhao[1], Shanshe Wang[1], Chuanmin Jia[1], Xinfeng Zhang[2], Siwei Ma[1], Jiansheng Yang[1]
[1]Peking University, [2]University of Southern California

11:20 **Fast Block Structure Determination in AV1-based Multiple Resolutions Video Encoding**
Bichuan Guo[1], Yuxing Han[2], Jiangtao Wen[1]
[1]Tsinghua University, [2]South China Agriculture University

Thursday, July 26, 2018

Multimedia Content Analytics I

Time: 10:00 - 11:40
Room: Aventine B
Chair: Xilin Chen
Chinese Academy of Sciences

10:00 **Robust Object Tracking via Part-Based Correlation Particle Filter**
Ning Wang, Wengang Zhou, Houqiang Li
University of Science and Technology of China

10:20 **Image Ordinal Classification and Understanding: Grid Dropout with Masking Label**
Chao Zhang[1], Ce Zhu[1], Jimin Xiao[2], Xun Xu[3], Yipeng Liu[1]
[1]University of Electronic Science and Technology of China, [2]Xi'an Jiaotong-Liverpool University, [3]National University of Singapore

10:40 **MSGC: A New Bottom-Up Model for Salient Object Detection**
Zhi-Jie Wang[1], Lizhuang Ma[2], Xiao Lin[3], Xiabao Wu[4]
[1]Sun Yat-Sen University, [2]Shanghai Jiao Tong University, [3]Shanghai Normal University, [4]Shanghai Zhihuan Software Technology Co., Ltd.

11:00 **Soft Clustering Guided Image Smoothing**
Liang Li, Xiaojie Guo, Wei Feng, Jiawan Zhang
Tianjin University

11:20 **Progressive Refinement: A Method of Coarse-to-Fine Image Parsing using Stacked Network**
Jiagao Hu[1], Zhengxing Sun[1], Yunhan Sun[2], Jinlong Shi[2]
[1]Nanjing University, [2]Jiangsu University of Science and Technology

Thursday, July 26, 2018

Deep Learning for Multimedia IV

Time: 10:00 - 11:40
Room: Aventine C
Chair: Marta Mrak
BBC

10:00 **CCT: A Cross-Concat and Temporal Neural Network for Multi-Label Action Unit Detection**
Qiaoping Hu, Fei Jiang, Chuanneng Mei, Ruimin Shen
Shanghai Jiao Tong University

10:20 **Occluded Person Re-Identification**
Jia-Xuan Zhuo, Zeyu Chen, Jian-Huang Lai, Guangcong Wang
Sun Yat-Sen University

10:40 **Multi-Task Self-Supervised Visual Representation Learning for Monocular Road Segmentation**
Jaehoon Cho, Youngjung Kim, Hyungjoo Jung, Changjae Oh, Jaesung Youn, Kwanghoon Sohn
Yonsei University

11:00 **Auditory-Inspired End-to-End Speech Emotion Recognition using 3D Convolutional Recurrent Neural Networks Based on Spectral-Temporal Representation**
Zhichao Peng[1], Zhi Zhu[1], Masashi Unoki[1], Jianwu Dang[2], Masato Akagi[1]
[1]Japan Advanced Institute of Science and Technology, [2]Tianjin University

11:20 **Full Image Recover for Block-Based Compressive Sensing**
Xuemei Xie, Chenye Wang, Jiang Du, Guangming Shi
Xidian University

Thursday, July 26, 2018

3D Multimedia

Time: 14:30 - 16:10
Room: Aventine A
Chair: Wolfgang Hürst
Utrecht University

14:30 **Portable Lumipen: Dynamic SAR in Your Hand**
Leo Miyashita[1], Tomohiro Yamazaki[2], Kenji Uehara[2], Yoshihiro Watanabe[1], Masatoshi Ishikawa[1]
[1]University of Tokyo, [2]Sony Semiconductor Solutions

14:50 **Deep Point Convolutional Approach for 3D Model Retrieval**
Zhenzhong Kuang[1], Jun Yu[1], Jianping Fan[2], Min Tan[1]
[1]Hangzhou Dianzi University, [2]University of North Carolina, Charlotte

15:10 **High Quality Depth Estimation from Monocular Images Based on Depth Prediction and Enhancement Sub-Networks**
Xiangyue Duan, Xinchen Ye, Yang Li, Haojie Li
Dalian University of Technology

15:30 **Hardware Synchronization of Multiple Kinects and Microphones for 3D Audiovisual Spatiotemporal Data Capture**
Yijun Jiang[1], David Russell[1], Timothy Godisart[2], Natasha Kholgade Banerjee[1], Sean Banerjee[1]
[1]Clarkson University, [2]Oculus Pittsburgh

Thursday, July 26, 2018

Multimedia Content Analytics II

Time: 14:30 - 16:10
Room: Aventine B
Chair: Wen-Huang Chen
Academia Sinica

14:30 **A Genre-Affect Relationship Network with Task-Specific Uncertainty Weighting for Recognizing Induced Emotion in Music**
Wei-Hao Chang, Jeng-Lin Li, Yun-Shao Lin, Chi-Chun Lee
National Tsing Hua University

14:50 **Pixel Meets Region: A Practical Framework for Salient Object Detection**
Yi Liu[1], Xuan Wang[2], Shuhan Qi[1], Jian Guan[2], Fengwei Jia[1], Lin Yao[3]
[1]Harbin Institute of Technology Shenzhen Graduate School, [2]Harbin Institute of Technology, [3]PKU-HKUST Shenzhen-Hong Kong Institute

15:10 **Dual Learning for Visual Question Generation**
Xing Xu[1], Jingkuan Song[1], Huimin Lu[2], Li He[3], Yang Yang[1], Fumin Shen[1]
[1]University of Electronic Science and Technology of China, [2]Kyushu Institute of Technology, [3]Qualcomm

15:30 **Discrete Graph Hashing via Affine Transformation**
Guohua Dong, Xiang Zhang, Long Lan, Xuhui Huang, Zhigang Luo
National University of Defense Technology

15:50 **Unsupervised Discovery of Character Dictionaries in Animation Movies***
Krishna Somandepalli[1], Naveen Kumar[2], Tanaya Guha[3], Shrikanth Narayanan[1]
[1]University of Southern California, [2]Sony, [3]India Institute of Technology, Kanpur

**This is an IEEE T-MM paper presented at ICME 2018*

Thursday, July 26, 2018

Deep Learning for Multimedia V
Time: 14:30 - 16:10
Room: Aventine C
Chair: Hongkai Xiong
Shanghai Jiao Tong University

14:30 **DeepQoE: A Unified Framework for Learning to Predict Video QoE**
Huaizheng Zhang[1], Han Hu[1], Guanyu Gao[1], Yonggang Wen[1], Kyle Guan[2]
[1]Nanyang Technological University, [2]Nokia Bell Labs

14:50 **Continuity-Discrimination Convolutional Neural Network for Visual Object Tracking**
Shen Li, Bingpeng Ma, Hong Chang, Shiguang Shan, Xilin Chen
Chinese Academy of Sciences

15:10 **Online Filter Weakening and Pruning for Efficient Convnets**
Zhengguang Zhou[1], Wengang Zhou[1], Richang Hong[2], Houqiang Li[1]
[1]University of Science and Technology of China, [2]Hefei University of Technology

15:30 **Towards Compact Visual Descriptor via Deep Fisher Network with Binary Embedding**
Jianqiang Qian, Xianming Lin, Hong Liu, Youming Deng, Rongrong Ji
Xiamen University

15:50 **Unsupervised Representation Learning with Prior-Free and Adversarial Mechanism Embedded Autoencoders**
Xing Gao, Hongkai Xiong
Shanghai Jiao Tong University

Thursday, July 26, 2018

Multimedia Security, Privacy and Forensics

Time: 16:40 - 18:20
Room: Aventine A
Chair: Weiyao Lin
Shanghai Jiao Tong University

16:40 **Abandoned Object Detection Using Pixel-Based Finite State Machine and Single Shot Multibox Detector**
Devadeep Shyam[1], Chinmayee Athalye[2], Alex Kot[1]
[1]Nanyang Technological University, [2]College of Engineering Pune

17:00 **Transformation on Computer-Generated Facial Image to Avoid Detection by Spoofing Detector**
Huy Nguyen[1], Ngoc-Dung T. Tieu[1], Hoang-Quoc Nguyen-Son[2], Junichi Yamagishi[2], Isao Echizen[2]
[1]Graduate University for Advanced Studies, [2]National Institute of Informatics

17:20 **Schmidt: Image Augmentation for Black-Box Adversarial Attack**
Yucheng Shi, Yahong Han
Tianjing University

17:40 **Face Morphing Detection Using Fourier Spectrum of Sensor Pattern Noise**
Le-Bing Zhang[1], Fei Peng[1], Min Long[2]
[1]Hunan University, [2]Changsha University of Science and Technology

18:00 **Edge Detection and Image Segmentation on Encrypted Image with Homomorphic Encryption and Garbled Circuit**
Delin Chen, Wenhao Chen, Jian Chen, Peijia Zheng, Jiwu Huang
Sun Yat-sen University

Thursday, July 26, 2018

Special Session: Deep Metric Learning for Multimedia Computing

Time: 16:40 - 18:20
Room: Aventine B
Chair: Jiwen Lu
Tsinghua University
Xiuzhuang Zhou
Beijing University of Posts and Telecommunications
Nikolaos Boulgouris
Brunel University London

16:40 **Rank-Consistency Multi-Label Deep Hashing**
Cheng Ma, Zhixiang Chen, Jiwen Lu, Jie Zhou
Tsinghua University

17:00 **Multi-Grained Deep Feature Learning for Pedestrian Detection**
Chunze Lin, Jiwen Lu, Jie Zhou
Tsinghua University

17:20 **Deep Multi-Metric Learning for Person Re-Identification**
Yongxin Ge[1], Xinqian Gu[2], Min Chen[1], Hongxing Wang[1], Dan Yang[1]
[1]Chongqing University, [2]University of Chinese Academy of Sciences

17:40 **Multi-View Deep Metric Learning for Volumetric Image Recognition**
Xueping Wang, Min Liu
Hunan University

Thursday, July 26, 2018

Multimedia Search and Recommendation

Time: 16:40 - 18:20
Room: Aventine C
Chair: Wanqing Li
University of Wollongong

16:40 **Deep Index-Compatible Hashing for Fast Image Retrieval**
Dayan Wu, Jing Liu, Bo Li, Weiping Wang
Chinese Academy of Sciences

17:00 **Key-Invariant Convolutional Neural Network Toward Efficient Cover Song Identification**
Xiaoshuo Xu, Xiaoou Chen, Deshun Yang
Peking University

17:20 **Saliency Deep Embedding for Aurora Image Search**
Xi Yang[1], Xinbo Gao[1], Bin Song[1], Nannan Wang[1], Dong Yang[2]
[1]Xidian University, [2]Xi'an Institute of Space Radio Technology

17:40 **Simultaneous Realization of Multiple Music Video Applications Based on Heterogeneous Network Analysis via Latent Link Estimation**
Yui Matsumoto, Ryosuke Harakawa, Takahiro Ogawa, Miki Haseyama
Hokkaido University

18:00 **A Study on Multimodal Video Hyperlinking with Visual Aggregation**
Mikail Demirdelen, Mateusz Budnik, Guillaume Gravier
Research Institute of Computer Science and Random Systems

Tuesday, July 24, 2018

Multimedia Signal Processing
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Chang-Su Kim
Korea University

Mural2Sketch: A Combined Line Drawing Generation Method for Ancient Mural Painting
Di Sun, Jiawan Zhang, Gang Pan, Zhan Rui
Tianjin University

Background-Suppressed Correlation Filters for Visual Tracking
Zhihao Chen, Qing Guo, Liang Wan, Wei Feng
Tianjin University

Depth Restoration with Normal-Guided Multiresolution Superpixel
Jinghui Qian, Jie Guo, Jingui Pan
Nanjing University

A Statistics-based Approach for Single Image Dehazing
Wonha Kim, Trung Bui
Kyunghee University

A Method to Generate Ghost-Free HDR Images in 360 Degree Cameras with Dual Fish-Eye Lens
Ankit Dhiman[1], Jayakrishna Alapati[2], Sankaranarayanan Parameswaran[1], Eunsun Ahn[3]
[1]Samsung R&D Institute India – Bangalore , [2]Huddly, [3]Samsung Electronics

An Improved Guided Filtering Algorithm for Image Enhancement
Jiafei Wu[1], Chong Wang[2], Yongze Xu[1]
[1]TCL Multimedia, [2]Ningbo University

Structure-Texture Decomposition via Joint Structure Discovery and Texture Smoothing
Xiaojie Guo, Siyuan Li, Liang Li, Jiawan Zhang
Tianjin University

Sparse Representation for Color Image Based on Geometric Algebra
Rui Wang[1], Yujie Wu[1], Miao Shen[1], Wenming Cao[2]
[1]Shanghai University, [2]Shenzhen University

Tuesday, July 24, 2018

Multimedia Quality Assessment and Metrics

Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Zhu Li
University of Missouri, Kansas City

DeepRN: A Content Preserving Deep Architecture for Blind Image Quality Assessment
Domonkos Varga[1], Dietmar Saupe[2], Tamas Sziranyi[3]
[1]Budapest University of Technology and Economics, [2]University of Konstanz, [3]SZTAKI

Scene-Aware Soccer Video QoE Assessment - A Compressed-Domain Approach
Fan Li[1], Yixin Mei[1], Ziyi Liu[1], Pamela Cosman[2]
[1]Xi'an Jiaotong University, [2]University of California, San Diego

Image Exposure Assessment: A Benchmark and a Deep Convolutional Neural Networks Based Model
Lijun Zhang, Lin Zhang, Xiao Liu, Ying Shen, Dongqing Wang
Tongji University

Spherical Structural Similarity Index for Objective Omnidirectional Video Quality Assessment
Sijia Chen[1], Yingxue Zhang[1], Yiming Li[1], Zhenzhong Chen[1], Zhou Wang[2]
[1]Wuhan University, [2]University of Waterloo

Super-Resolution Quality Assessment: Subjective Evaluation Database and Quality Index Based on Perceptual Structure Measurement
Wenfei Wan, Jinjian Wu, Guangming Shi, Yongbo Li, Weisheng Dong
Xidian University

Modeling Continuous Video QoE Evolution: A State Space Approach
Nagabhushan Eswara[1], Hemanth Sethuram[2], Soumen Chakraborty[2], Kuchi Kumar[1], Abhinav Kumar[1], Sumohana S.[1]
[1]IIT Hyderabad, [2]Intel Technology India

Point Cloud Quality Assessment Metric Based on Angular Similarity
Evangelos Alexiou, Touradj Ebrahimi
École Polytechnique Fédérale De Lausanne

No Reference Quality Assessment for Stitched Panoramic Images Using Convolutional Sparse Coding and Compound Feature Selection
Suiyi Ling[1], Gene Cheung[2], Patrick Le Callet[1]
[1]University of Nantes, [2]National Institute of Informatics

Tuesday, July 24, 2018

Multimedia Security and Applications

Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Chun-Shien Lu
Academia Sinica

Grayscale-Based Block Scrambling Image Encryption for Social Networking Services
Warit Sirichotedumrong[1], Tatsuya Chuman[1], Shoko Imaizumi[2], Hitoshi Kiya[1]
[1]Tokyo Metropolitan University, [2]Chiba University

Ensemble Learning Based on Convolutional Kernel Networks Features for Kinship Verification
Qiang Guo, Ma Bo, Tianming Lan
Beijing Institute of Technology

RAM: A Region-Aware Deep Model for Vehicle Re-Identification
Xiaobin Liu[1], Shiliang Zhang[1], Qingming Huang[2], Wen Gao[1]
[1]Peking University, [2]University of Chinese Academy of Sciences

A Noise Robust Face Hallucination Framework via Cascaded Model of Deep Convolutional Networks and Manifold Learning
Han Liu, Zhen Han, Jin Guo, Xin Ding
Wuhan University

Panoramic Light Field Video Acquisition
Jing Lv[1], Feng Dai[1], Qiang Zhao[1], Hongliang Li[1], Yike Ma[1], Yongdong Zhang[2]
[1]Chinese Academy of Sciences, [2]University of Science and Technology of China

Optimized Feature-Based Image Registration for RGB and NIR pairs
Amir Hossein Farzaneh, Xiaojun Qi
Utah State University

Challenges in Autonomous UAV Cinematography: An Overview
Ioannis Mademlis, Vasileios Mygdalis, Nikos Nikolaidis, Ioannis Pitas
Aristotle University of Thessaloniki

Tuesday, July 24, 2018

Multimedia and Human Analytics
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Michael Lyu
Chinese University of Hong Kong

Personalized Sequential Check-In Prediction: Beyond Geographical and Temporal Contexts
Shenglin Zhao, Xixian Chen, Irwin King, Michael Lyu
Chinese University of Hong Kong

Consistency-Exclusivity Regularized Deep Metric Learning for General Kinship Verification
Xiuzhuang Zhou[1], Zheng Zhang[1], Zeqiang Wei[2], Kai Jin[2], Min Xu[2]
[1]Beijing University of Posts and Telecommunications, [2]Capital Normal University

ADD: Actionness-Pooled Deep-Convolutional Descriptor
Tingting Han, Hongxun Yao, Xiaoshuai Sun, Wenlong Xie, Yanhao Zhang
Harbin Institute of Technology

Skeleton-Indexed Deep Multi-Modal Feature Learning for High Performance Human Action Recognition
Sijie Song[1], Cuiling Lan[2], Junliang Xing[3], Wenjun Zeng[2], Jiaying Liu[1]
[1]Peking University, [2]Microsoft Research, [3]Chinese Academy of Sciences

Fi-Cap: Robust framework to Benchmark Head Pose Estimation in Challenging Environments
Sumit Jha, Carlos Busso
University of Texas, Dallas

Real-Time Multiple People Tracking with Deeply Learned Candidate Selection and Person Re-Identification
Long Chen, Haizhou Ai, Zijie Zhuang, Chong Shang
Tsinghua University

Skeleton-Based Human Action Recognition Using Spatial Temporal 3D Convolutional Neural Networks
Juanhui Tu[1], Mengyuan Liu[2], Hong Liu[1]
[1]Peking University, [2]Nanyang Technological University

Tuesday, July 24, 2018

Deep Learning for Multimedia I
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Yonghong Tian
Peking University

A Unified CNN-RNN Approach for In-Air Handwritten English Word Recognition
Ji Gan, Weiqiang Wang, Ke Lu
University of Chinese Academy of Sciences

Pose Guided Deep Model for Pedestrian Attribute Recognition in Surveillance Scenarios
Dangwei Li, Xiaotang Chen, Zhang Zhang, Kaiqi Huang
Chinese Academy of Sciences

SFCM: Learn a Pooling Kernel for Weakly Supervised Object Localization
Zongxian Li[1], Yemin Shi[1],Yonghong Tian[1], Wei Zeng[1], Yaowei Wang[2]
[1]Peking University, [2]Beijing Institute of Technology

ODN: Opening the Deep Network for Open-set Action Recognition
Yu Shu[1], Yemin Shi[1], Yaowei Wang[2], Yixiong Zou[1], Qingsheng Yuan[3], Yonghong Tian[1]
[1]Peking University, [2]Beijing Institute of Technology, [3]University of Chinese Academy of Sciences

Edge Guided Generation Network for Video Prediction
Kai Xu[1], Guorong Li[2], Huijuan Xu[3], Weigang Zhang[4], Qingming Huang[1]
[1]University of Chinese Academy of Sciences, [2]Chinese Academy of Sciences, [3]Boston University, [4]Harbin Institute of Technology, Weihai

Multi-label Dilated Recurrent Network for Sequential Face Alignment
Tong Yang[1], Shizheng Qin[1], Junchi Yan[2], Wenqiang Zhang[1]
[1]Fudan University, [2]Shanghai Jiao Tong University

Learning Adaptive Selection Network for Real-Time Visual Tracking
Jiangfeng Xiong, Xiangmin Xu, Bolun Cai, Xiaofen Xing, Kailing Guo
South China University of Technology

Tuesday, July 24, 2018

Deep Learning for Multimedia II
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Yi-Hsuan Yang
Academia Sinica

Unsupervised Local Facial Attributes Transfer Using Dual Discriminative Adversarial Networks
Yu Li[1], Maosen Li[1], Ya Zhang[1], Wang Ying[2]
[1]Shanghai Jiao Tong University, [2]Academy of Broadcasting Science

Multi-Path Feature Fusion Network for Saliency Detection
Hengliang Zhu, Xin Tan, Yangyang Hao, Zhiwen Shao, Lizhuang Ma
Shanghai Jiao Tong University

Saliency Detection by Deep Network with Boundary Refinement and Global Context
Xin Tan, Hengliang Zhu, Zhiwen Shao, Xiaonan Hou, Yangyang Hao, Lizhuang Ma
Shanghai Jiao Tong University

A Dual Prediction Network for Image Captioning
Yanming Guo[1], Yu Liu[2], Maaike H.T. de Boer[3], Liu Li[1], Michael S. Lew[2]
[1]National University of Defense Technology, [2]Leiden University, [3]TNO

Densely Stacked Generative Adversarial Networks
Youcheng Ben, Chun Yuan
Tsinghua University

Visual Relationship Detection based on Guided Proposals and Semantic Knowledge Distillation
François Plesse[1], Alexandru Ginsca[1], Bertrand Delezoide[1], Françoise Preteux[2]
[1]CEA LIST, [2]Ecole des Ponts ParisTech

Accurate and Efficient Video De-Fencing Using Convolutional Neural Networks and Temporal Information
Chen Du, Byeongkeun Kang, Zheng Xu, Ji Dai, Truong Nguyen
University of California, San Diego

Thursday, July 26, 2018

Multimedia Coding & Communications
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Zongming Guo
Peking University

Dynamic Adaptation of Multimedia Presentations for Videoconferencing in Application Mobility
Francisco Javier Velazquez-Garcia[1], Pål Halvorsen[2], Haakon Stensland[2], Frank Eliassen[1]
[1]University of Oslo, [2]Simula Research Laboratory & University of Oslo

Spatio-Temporal Large Margin Nearest Neighbor (ST-LMNN) based on Riemannian Features for Individual Identification
Yong Su, Zhiyong Feng, Meng Xing
Tianjin University

Feature Aware 3D Mesh Compression Using Robust Principal Component Analysis
Aris Lalos, Gerasimos Arvanitis, Aristotelis Spathis-Papadiotis, Konstantinos Moustakas
University of Patras

Two Pass Rate Control for Consistent Quality Based on Down-Sampling Video in HEVC
Yu-Yao Shen, Chih Hung Kuo
National Cheng Kung University

Stackelberg Game Based Rate Allocation for HEVC Region of Interest Coding
Zizheng Liu, Xiang Pan, Yiming Li, Zhenzhong Chen
Wuhan University

Neural Network Based Inter Prediction for HEVC
Yang Wang[1], Xiaopeng Fan[1], Chuanmin Jia[2], Debin Zhao[1], Wen Gao[2]
[1]Harbin Institute of Technology, [2]Peking University

Asymmetric Block Based Compressive Sensing for Image Signals
Siwang Zhou, Shuzhen Xiang, Xingting Liu, Heng Li
Hunan University

CUB360: Exploiting Cross-Users Behaviors for Viewport Prediction in 360 Video Adaptive Streaming
Yixuan Ban[1], Lan Xie[1], Zhimin Xu[1], Xinggong Zhang[1], Zongming Guo[1], Yue Wang[2]
[1]Peking University, [2]Beijing ByteDance Technology Co., Ltd.

Thursday, July 26, 2018

Multimedia Content Analytics

Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Pamela Cosman
University of California, San Diego

Refining Attention: A Sequential Attention Model for Image Captioning
Fang Fang[1], Qinyu Li[2], Hanli Wang[1], Pengjie Tang[1]
[1]Tongji University, [2]Lanzhou City University

Local Binary Pattern with Random Forest for Acoustic Scene Classification
Shamsiah Abidin[1], Xianjun Xia[1], Roberto Togneri[1], Ferdous Sohel[2]
[1]University of Western Australia, [2]Murdoch University

Inferring Emotions from Image Social Networks using Group-Based Factor Graph Model
Wenjing Cai, Jia Jia, Wentao Han
Tsinghua University

Depth Images Could Tell Us More: Enhancing Depth Discriminability for RGB-D Scene Recognition
Dapeng Du, Xiangyang Xu, Tongwei Ren, Gangshan Wu
Nanjing University

Ensemble of Label Specific Features for Multi-Label Classification
Xiaoya Wei, Ziwei Yu, Changqing Zhang, Qinghua Hu
Tianjin University

Semantic Manifold Alignment in Visual Feature Space for Zero-Shot Learning
Changsu Liao[1], Li Su[1], Weigang Zhang[2], Qingming Huang[1]
[1]University of Chinese Academy of Sciences, [2]Harbin Institute of Technology, Weihai

PDNet: Prior-Model Guided Depth-Enhanced Network for Salient Object Detection
Chunbiao Zhu[1], Xing Cai[1], Kan Huang[1], Thomas H. Li[2], Gary Li[1]
[1]Peking University, [2]Gpower Semiconductor Inc.

Frame-Subsampled, Drift-Resilient Long-Term Video Object Tracking
Xuan Wang, Yu Hen Hu, Robert Radwin, John Lee
University of Wisconsin, Madison

Thursday, July 26, 2018

3D Multimedia
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Min Chen
University of Washington, Bothell

Convex Constrained Clustering with Graph-Laplacian PCA
Yuheng Jia, Sam Kwong, Junhui Hou, Wu Wenhui
City University of Hong Kong

Image Deblur for 3D Sensing Mobile Devices
Chung-Hua Chu
National Taichung University of Science and Technology

Individualization of Head Related Transfer Functions Based on Radial Basis Function Neural Network
Lian Meng, Xiaochen Wang, Wei Chen, Chunling Ai, Ruimin Hu
Wuhan University

Region Based User-Generated Human Body Scan Registration
Zongyi Xu, Qianni Zhang
Queen Mary University of London

Video Stereo Matching with Temporally Consistent Belief Propagation
Hsin-Yu Hou, Sih-Sian Wu, Da-Fang Chang, Liang-Gee Chen
National Taiwan University

Tensor Sensing for RF Tomographic Imaging
Tao Deng[1], Feng Qian[1], Xiao-Yang Liu[2], Manyuan Zhang[1], Anwar Walid[3]
[1]University of Electronic Science and Technology of China, [2]Columbia University, [3]Bell Laboratories

A Subjective Study of Viewer Navigation Behaviors When Watching 360-Degree Videos on Computers
Fanyi Duanmu[1], Yixiang Mao[1], Shuai Liu[1], Sumanth Srinivasan[2], Yao Wang[1]
[1]New York University, [2]Vimeo, Inc.

Poster

Thursday, July 26, 2018

Multimedia Search and Recommendation

Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Junsong Yuan
State University of New York, Buffalo

Support Vector Metric Learning on Symmetric Positive Definite Manifold
Hao Cheng[1], Pengfei Zhu[1], Qilong Wang[2], Changqing Zhang[1], Qinghua Hu[1]
[1]Tianjin University, [2]Dalian University of Technology

Adaptive Co-Weighting Deep Convolutional Features for Object Retrieval
Jiaxing Wang[1], Jihua Zhu[1], Shanmin Pang[1], Zhongyu Li[2], Yaochen Li[1], Xueming Qian[1]
[1]Xi'an Jiaotong Universtiy, [2]University of North Carolina, Charlotte

Deep Image Retrieval: Indicator and Gram Matrix Weighting for Aggregated Convolutional Features
Zhipeng Wang, Xuanlu Xiang, Zhicheng Zhao, Fei Su
Beijing University of Posts and Telecommunications

Unsupervised Multiple-Instance Learning for Instance Search
Zhenzhen Wang[1], Junsong Yuan[2]
[1]Nanyang Technological University, [2]State University of New York, Buffalo

Deep Learning Based Identity Verification in Renaissance Portraits
Akash Gupta, Niluthpol Mithun, Conrad Rudolph, Amit Roy-Chowdhury
University of California, Riverside

Balance the Loss: Improving Deep Hash via Loss Weighting and Semantic Preserving
Quan Zhou[1], Shuhan Qi[1], Xuan Wang[1], Jian Guan[1], Fengwei Jia[1], Lin Yao[2]
[1]Harbin Institute of Technology Shenzhen Graduate School, [2]PKU-HKUST Shenzhen-Hong Kong Institute

Visual Confusion Label Tree for Image Classification
Yuntao Liu, Yong Dou, Ruochun Jin, Rongchun Li
National University of Defense Technology

Thursday, July 26, 2018

Deep Learning for Multimedia III
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Sanghoon Lee
Yonsei University

Cascade Mask Generation Framework for Fast Small Object Detection
Guangting Wang[1], Zhiwei Xiong[1], Dong Liu[1], Chong Luo[2]
[1]University of Science and Technology of China, [2]Microsoft Research Asia

Background Subtraction Based on Deep Pixel Distribution Learning
Chenqiu Zhao[1], Tat-Jen Cham[1], Xinyu Ren[2], Jianfei Cai[1], Haichen Zhu[3]
[1]Nanyang Technological University, [2]Chongqiing University, [3]Stevens Institute of Technology

Deep Background Subtraction with Guided Learning
Xuezhi Liang[1], Shengcai Liao[1], Xiaobo Wang[1], Wei Liu[2], Yuxuan Chen[2], Stan Li[1]
[1]Chinese Academy of Sciences, [2]National University of Defense Technology

Major-Subordinate-Task Learning for Image Orientation Estimation
Yilin He, Wengang Zhou, Houqiang Li
University of Science and Technology of China

Feed-Net: Fully End-To-End Dehazing
Shengdong Zhang[1], Wenqi Ren[2], Yao Jian[1]
[1]Wuhan University, [2]Chinese Academy of Sciences

Playing Technique Classification Based on Deep Collaborative Learning of Variational Auto-Encoder and Gaussian Process
Sih-Huei Chen, Yuan-Shan Lee, Min-Che Hsieh, Jia-Ching Wang
National Central University

Enhancing CNN Incremental Learning Capability with an Expanded Network
Shanshan Cai[1], Zhuwei Xu[1], Zhichao Huang[2], Yueru Chen[1], C.-C. Jay Kuo[1]
[1]University of Southern California, [2]Tsinghua University

Thursday, July 26, 2018

Deep Learning for Multimedia IV
Time: 13:00 - 14:30
Room: Vicino Ballroom
Chair: Yap-Peng Tan
Nanyang Technological University

From Thumbnails to Summaries - A Single Deep Neural Network to Rule Them All
Hongxiang Gu[1], Viswanathan Swaminathan[2]
[1]University of California, Los Angeles, [2]Adobe

Text-Independent Speaker Verification Using 3D Convolutional Neural Networks
Amirsina Torfi, Jeremy Dawson, Nasser Nasrabadi
West Virginia University

SeeTheVoice: Learning from Music to Visual Storytelling of Shots
Wen-Li Wei[1], Jen-Chun Lin[2], Tyng-Luh Liu[1], Yi-Hsuan Yang[1], Hsin-Min Wang[1], Hsiao-Rong Tyan[3], Mark Liao[1]
[1]Academia Sinica, [2]Yuan Ze University, [3]Chung Yuan Christian University

FF-CMNET: A CNN-Based Model for Fine-Grained Classification of Car Models Based on Feature Fusion
Ye Yu[1], Qiang Jin[1], Chang Wen Chen[2]
Hefei University of Technology, [2]State University of New York, Buffalo

Integrating Articulatory Features into Acoustic-Phonemic Model for Mispronunciation Detection and Diagnosis in L2 English Speech
Shaoguang Mao[1], Zhiyong Wu[1], Xu Li[2], Runnan Li[1], Xixin Wu[2], Helen Meng[2]
[1]Tsinghua University, [2]Chinese University of Hong Kong

Depth Aware Portrait Segmentation Using Dual Focus Images
Nitin Singh, Manoj Kumar, Mahesh PJ, Rituparna Sarkar
Samsung R&D Institute-Bangalore

Integrating Entropy Skeleton Motion Maps and Convolutional Neural Networks for Human Action Recognition
Noureldin Elmadany
Ryerson University

Tuesday, July 24, 2018

Time: 18:40 - 19:40
Room: Aventine C

Video Compression using CIE L*a*b* Color Space
Samruddhi Kahu
Visvesvaraya National Institute of Technology, Nagpur

Autonomous Multimedia Mobile Applications
Francisco Javier Velazquez-Garcia
University of Oslo

Integration of Graphic QR Code and Identity Documents by Laser Perforation to Enhance Multiple Anti-Counterfeiting Features
Chia Tsen Sun
National Taiwan Normal University

Video Transmission Over Underwater Acoustics Channels
Rana Hegazy
University of California, San Diego

TransIM: Transfer Image Local Statistics Across EOTFs for HDR Image Applications
Bihan Wen
University of Illinois, Urbana-Champaign

Real or Fake Images: Attacking and Reinforcing the Machine Learning Systems
Huy Nguyen
SOKENDAI

Perceptual QoE Modeling and Optimization for HTTP Video Streaming
Nagabhushan Eswara
Indian Institute of Technology, Hyderabad

Head Pose Estimation in Naturalistic Environments
Sumit Jha
University of Texas, Dallas

Panel

Wednesday, July 25, 2018

Should Challenges on Public Datasets be the Primary Driver of Multimedia Research?

Time: 14:00 - 15:30
Room: Aventine ABC

Synopsis

With more and more data challenges such as ImageNet and ActivityNet organized in leading conferences and workshops, it becomes popular to evaluate the performance of algorithms in benchmark datasets. Such challenges are becoming increasingly popular on academic research. Should challenges and competitions on public datasets be the primary driver of multimedia research? Does high quality research necessarily correspond to high ranks in challenges, and vice versa? This panel will discuss the both the positive and negative influences of data challenges on academic research and research community.

Moderator

Junsong Yuan
State University of New York, Buffalo, USA

Panelists

Mohan Kankanhalli
National University of Singapore, Singapore

Wenjun Zeng
Microsoft Research Asia, China

Xilin Chen
Chinese Academy of Science, China

Tao Mei
JD Research, China

Zhou Ren
Snap, USA

Panel

Wednesday, July 25, 2018

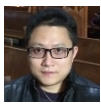
Commercialization of Multimedia Technologies: Challenges and Opportunities

Time: 15:30 - 17:00
Room: Aventine ABC

Synopsis

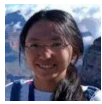
Multimedia technology is undergoing a vigorous development and revolution, fueled by the success of deep learning algorithms. With rapid innovation in software and hardware to build deep learning models, however, organizations face the challenge to select the right tools that will enable them to leverage AI in enterprise applications. This drives the business need for a common process and open standard to simplify the operational deployment and integration of machine learning algorithms. This panel will invite several leading senior scientists in Multimedia and focus on discussing the topic received increasingly attention, i.e., the challenges and opportunities in the commercialization of multimedia Technologies.

Moderator



Liang Lin
SenseTime Group Ltd., China
Sun Yat-sen University, China

Panelists



Xiaodan Liang
Carnegie Mellon University, USA

Zhu Li
University of Missouri, USA

Fatih Porikli
Huawei, USA
Australia National University, Australia

Lei Zhang
Microsoft Research, USA

Wen-Huang Cheng
Academia Sincia, Taiwan

Wednesday, July 25, 2018

InterDigital: 5G is Here - Is it time to celebrate?

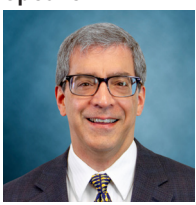
Time: 10:00 - 10:30
Room: Aventine DEFG
Speaker: Robert A. DiFazio
InterDigital, USA

Abstract

The widely anticipated 5G cellular specifications, 3GPP Release 15, are here. Deployments are starting, devices will appear soon, and there's plenty of buzz about who's first, who's best and what is to come. 5G brings great promises of 20 Gbps data rates, 1 ms latency, long battery life, and network enhancements: a Service Based Architecture, Network Function Virtualization, and Network Slicing. But what does it all mean and what is to come? Are we overly enthusiastic, or are those who are ambivalent or skeptical justified?

This talk will take a brief look at the evolution of cellular standards, the expectations, the successes, and the failures. It will then focus on how 5G is different and discuss how success will follow from leveraging the flexible 5G technologies for a larger ecosystem that can benefit from the broadband continuous coverage of cellular networks. Advanced multimedia services are one of the most important use cases. Yet, success may also depend on high performance localized applications using mobile edge computing, IoT, new entrants operating in unlicensed spectrum, contributions to the automobile industry's plans for autonomous and assisted driving, non-terrestrial networks offering the ability to integrate satellite systems, unmanned aerial vehicles, robotics, and as history shows, those yet-to-be-imagined applications.

Speaker



Dr. Robert A. DiFazio, Head of Research & Development, Vice President, InterDigital Labs, InterDigital Communications, Inc. Dr. Robert A. DiFazio is the Head of Research & Development

and Vice President of InterDigital Labs, where he leads a group of engineers who design and develop advanced technologies and applications for mobile communications. He manages and actively participates in numerous projects addressing 5G cellular technology, next generation Wi-Fi, millimeter wave radio systems, small cell and heterogeneous wireless networks, advanced video standards and platforms, emerging network technology, IoT and machine-to- machine communications, and advanced sensor systems for navigation and localization. He contributes to technology planning at InterDigital and the company's collaboration with many universities. Dr. DiFazio has almost forty years of experience in research, design, implementation, and testing of new technologies for commercial and military wireless systems. Prior to InterDigital, he spent more than twenty years at BAE Systems working on software defined radios, smart antenna systems, jam resistant modems, and low probability of intercept communication and navigation systems. He has a Ph.D. from the NYU Tandon School of Engineering (formerly, Brooklyn Poly). He serves on the Industry Advisory Boards for the NYU Tandon Department of Electrical Engineering and Computer Science and for New York Institute of Technology. He is a Senior Member of the IEEE and holds over forty issued and numerous pending US patents.

Wednesday, July 25, 2018

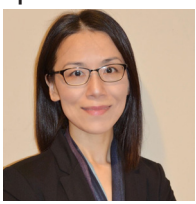
Tencent: Neural Network in Video Compression and Standard

Time: 10:30 - 11:00
Room: Aventine DEFG
Speaker: Shan Liu
Tencent America, USA

Abstract

HEVC (High Efficiency Video Coding) has emerged as a major step forward in video compression and standardization. This achievement was recognized by the Emmy Engineering Award in October 2017. At the same time new video compression technologies continue being actively developed beyond HEVC to suit the rapidly growing market demands. A Call for Proposals was jointly issued by ISO/IEC and ITU-T in October 2017 to launch a new standardization project to capture these advances. More than 40 responses were received in April 2018, among which some new elements were presented besides more conventional video coding techniques, including the utilization of neural networks for video compression. Neural network or deep learning technologies have been researched for enhancing video and image qualities, and more recently, video and image compression. This talk will look into the recent work on neural video compression for the next video compression standard and discuss the opportunities as well as challenges.

Speaker



Shan Liu is a Distinguished Scientist and Vice President of Tencent Media Lab at Tencent America. Prior to Tencent she was the Chief Scientist and Head of America Media Lab at Futurewei Technologies, a.k.a. Huawei USA. She also held senior management and technical positions at MediaTek, Mitsubishi Electric Research Laboratories, Sony Electronics / Sony Computer Entertainment America, and IBM T.J. Watson Research Center. Dr. Liu is the inventor of more than 200 US and global

patent applications and the author of more than 30 journal and conference articles. Many of her inventions have been adopted by international standards such as ITU-T H.265 | ISO/IEC HEVC, MPEG-DASH and OMAF, as well as utilized in widely sold commercial products. She has chaired and co-chaired a number of ad-hoc and technical groups through standard development and served as co-Editor of Rec. ITU-T H.265 v4 | ISO/IEC 23008-2:2017. She has been in technical and organizing committees, or an invited speaker, at various international conferences such as IEEE ICIP, VCIP, ICNC, ICME and ACM Multimedia. She served in Industrial Relationship Committee of IEEE Signal Processing Society 2014-2015 and was appointed the VP of Industrial Relations and Development of Asia-Pacific Signal and Information Processing Association (APSIPA) 2016-2017. Dr. Liu obtained her B.Eng. degree in Electronics Engineering from Tsinghua University, Beijing, China and M.S. and Ph.D. degrees in Electrical Engineering from University of Southern California, Los Angeles, USA.

Wednesday, July 25, 2018

5G-enabled Multimedia User Experience
Time: 14:00 - 15:30
Room: Aventine DEFG

Synopsis

5G is the next big thing in mobile communications. With key technology advances, it promises faster speeds and lower latency, and opens the door to a whole new set of use cases for smartphones and other consumer products. It is expected that 2019 as the earliest possible launch date for the first "true" 5G smartphones.

At ICME 2018, we're excited to announce the panel discussion on "5G-enabled Multimedia User Experience". We have invited 4 outstanding panelists from industry, who will focus on discussing how 5G low latency and faster network speed will enhance the multimedia user experience whether it is audiovisual streaming, mobile gaming, or augmented/virtual/mixed reality.

Moderator

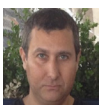
Khaled El-Maleh
Qualcomm, USA

Panelists

Robert A. DiFazio
InterDigital, USA

Ajay Luthra
ARRIS, USA

Imed Bouazizi
Samsung Research America, USA



Manuel Tiglio
CEO and Chair of FASTechMedia, USA

Wednesday, July 25, 2018

XR: Virtual, Augmented and Mixed Reality
Time: 15:30 - 17:00
Room: Aventine DEFG

Synopsis

XR, or X Reality, encompasses many means of combining digital and real-world realities. XR applications can take different forms, such as virtual reality (VR), augmented reality (AR), mixed reality (MR), and more. XR users generate new forms of reality by bringing digital objects into the physical world and bringing physical world objects into the digital world. XR has applications in many industries, including architecture, real estate, health care, retail, travel, media and entertainment, marketing, education, enterprise, and so on.

To truly bring out the sense of reality, XR experience must be delivered at the highest quality. This puts significant demands on the processing speed and power of hardware and software implementations and on the bandwidth required for high quality delivery. Advanced capturing, processing, compression and display technologies (sensors, displays, and infrastructures) need to be developed. Companies large and small are innovating to improve the XR ecosystem. International standardization development organizations such as ISO/IEC MPEG and ITU-T/VCEG have also taken up the tasks of defining compression and delivery standards to enable interoperability among XR applications.

At ICME 2018, we're excited to announce the panel discussion on "XR: Virtual, Augmented and Mixed Reality." We have invited a list of outstanding panelists, who will cover a wide range of topics related to XR, from content creation to light field displays in labs, and from hardware and software implementations to the latest and upcoming international standards.

Industry Panel

Moderator

Yan Ye
InterDigital, USA

Panelists

Jill M. Boyce
Intel, USA

Philip A. Chou
8i, USA

Serafin Diaz
Qualcomm, USA

Jon Karafin
Light Field Lab, USA

Jens-Rainer Ohm
RWTH Aachen University, Germany

Wednesday, July 25, 2018

Time: 11:00 - 12:30
Room: Vicino Ballroom

Server-based Smart Adaptive Bit Rate (SABR) Streaming with Statistical Multiplexing
Ajay Luthra*, Mark Schmidt, Praveen Moorthy
Arris

Are the Streaming Format Wars Over?
Ali C. Begen*, Yasser F Syed
DASH-IF, NetworkedMedia, Comcast

Enhanced Action Recognition with Visual Attribute-augmented 3D Convolutional Neural Network
Wengang Zhou, Houqiang Li, Qilin Zhang, Yunfeng Wang*
University of Science and Technology of China, HERE Technologies

Eye Gazing Enabled Driving Behavior Monitoring and Prediction
Jiangchuan Liu, Feng Wang, Xiaoyi Fan*, Yuhe Lu, Danyang Song
Simon Fraser University, The University of Mississippi

Scalable Cloud Service For Multimedia Analysis based on Deep Learning
Bingkun Bao, Honghong Zhu, Yangyang Xiang*, Shuen Lyu, Lusong Li, Harsh Munshi
Nanjing University of Posts and Telecommunications, Graymatics Inc., Beihang University, Harbin Institute of Technology

Smartphone-based Crowdsourcing for Panoramic Virtual Tour Construction
Jiangchuan Liu, Zhi Wang, Chi Xu*, Qiao Chen, Yueming Hu
Simon Fraser University, Tsinghua University, South China Agricultural University

Mobile Learning System with Context-Aware Interactions and Point-of-Interest Understanding
Oscal T.-C. Chen*, Yu-Ling Hsueh, Jerry Chih-Yuan Sun, Sung-Nien Yu, Huang-Chen Lee, Ching-Chun Huang
National Chung Cheng University, National Chiao Tung University

Industry Poster

TV News Story Segmentation Using Deep Neural Network
Zhu Liu*, Yuan Wang
AT&T, New York University

Data-driven Shoe Last Generation Based on Preference-aware GAN
Yanlong Dong, Shan Huang*, Zhi Wang, Yong Jiang, Xu Zhang, Rui Gao
Tsinghua University, Epoque

S-Net: A Lightweight Convolutional Neural Network for N-dimensional Signals
Yingxuan Cui*, Yunhui Shi, Wenbin Yin, Xiaoyan Sun
Beijing University of Technology, Microsoft Research Asia, Harbin Institute of Technology

Intra Block Copy for Next Generation Video Coding
Xiang Li, Shan Liu, Xiaozhong Xu*
Tecent

Compact Web Video Summarization Via Supervised Learning
Yang Wang*, Bo Han, Kit Thambiratnam, Darui Li
Microsoft

High Quality Real-Time Panorama on Mobile Devices
Pankaj Kumar Bajpai*, Jaehyun Kim, Akshay Upadhyay, Vamsee Kalyan Bandlamudi, Sandeep Jana
Samsung R&D Institute India - Banglore, Samsung Electronics

Adjusting Content Workflow Infrastructures for HDR
Yasser F Syed*, Ali C. Begen
Comcast, NetworkedMedia, DASH-IF

Selfie Stitch – Dual Homography Based Image Stitching for Wide-Angle Selfie
Sourabh Yadav*, Jaehyun Kim, Sankaranarayanan Parameswaran, Srishti Goel, Pradeep Choudhary, Pankaj Bajpai
Samsung R&D Institute India - Banglore, Hike Messenger, Samsung Electronics

Fast Mode Decision in HEVC Intra Prediction, Using Region Wise CNN Feature Classification
Shiba Kuanar*, Kamisetty Rao, Christopher Conly
University of Texas, Arlington

A Mobile Application for Running Form Analysis Based on Pose Estimation Technique
Masaru Ichikawa, Ryota Shinayama, Takehiro Tagawa, Kazunari Takeichi*
ASICS Corporation

Content-Adaptive Resolution Control to Improve Video Coding Efficiency
Maryam Jenab*, Mehdi Saeedi, Shahram Shiranin, Ihab Amer, Boris Ivanovic, Gabor Sines, Yang Liu
McMaster University, AMD

Improving Pedestrian Detection in Crowds with Synthetic Occlusion Images
Zijie Zhuang, Chong Shang*, Long Chen, Haizhou Ai, Rui Chen
Tsinghua University

July 24-26, 2018

Booths
Time: 8:30 - 18:30
Room: Vicino Ballroom

Companies
Acer
InterDigital
Qualcomm
Tencent

Wednesday, July 25, 2018

Papers
Time: 17:00 - 19:00
Room: Vicino Ballroom

Dehazing With a See-Through Near-Eye Display
Kuang-Tsu Shih, Kai-En Lin, Homer Chen*

Radiometric Temperature-Based Pedestrian Detection for 24 Hour Surveillance
Sungho Kim*, Taehwan Kim

Harnessing Smartphone Users' Contribution for Virtual Tour Construction
Chi Xu*, Qiao Chen, Jiangchuan Liu, Zhi Wang, Yueming Hu

Adversarial Generation of Defensive Trajectories in Basketball Games
Chieh-Yu Chen, Wenze Lai, Hsin-Ying Hsieh, Yu-Shuen Wang*, Wen-Hsiao Peng, Jung-Hong Chuang

Augmented Reality Sandpit Simulating Ant Colonies
Lachlan Smith, Jon McCormack, Zixiang Xiong*

Eye Tracking-Based 360 VR Foveated/Tiled Video Rendering
Hyunwook Kim, Eun-Seok Ryu*, Woochool Park

Side Meetings

Monday, July 23, 2018

Palatine A 9:30 - 11:00	IEEE TMM Steering Committee (TMM SC)(10)

Tuesday, July 24, 2018

Mykonos AB 11:50 - 13:30	IEEE Transactions on Multimedia Editorial Board (TMM EB) (40, internet)
Athenia A 11:50 - 13:30	SPS Multimedia Signal Processing Technical Committee (MMSP TC) (10, internet)
Athenia B 14:00 - 16:00	ICME Steering Committee (ICME SC) (20)

Wednesday, July 25, 2018

Mykonos AB 11:50 - 13:30	ComSoc Multimedia Communications Technical Committee (ComSoc MMTC) (20-30)
Athenia A 11:50 - 13:30	ICME 2019 Organizing Committee (ICME 2019 OC) (8)
Athenia B 11:50 - 13:30	Computer Society Technical Committee on Multimedia Computing (TCMC) (20)

Thursday, July 26, 2018

Mykonos AB 11:50 - 13:30	CAS Multimedia Systems and Applications Technical Committee (MSATC) (30, internet)
Athenia A 11:50 - 13:30	IEEE Multimedia Magazine Editorial Board (MM EB) (20)

Social Events

ICME 2018 Reception
Monday, July 23th, 2018
Time: 17:00 - 20:00
Location: Asteria Terrace

ICME 2018 Student Career Dinner
Tuesday, July 24th, 2018
Time: 19:40 - 22:00
Location: Asteria Terrace

ICME 2018 Banquet
Wednesday, July 25th, 2018
Time: 19:00 - 22:00
Location: Aventine Ballroom

Local Information

San Diego

Long famous for near-perfect weather, beautiful beaches and friendly locals, San Diego is now known for its vibrant urban culture, unique neighborhoods, industry-leading craft beer and a buzzing culinary scene. Take advantage of your week in sunny San Diego and discover local attractions such as **Balboa Park**, the largest urban cultural park in the U.S. and a 1,200-acre oasis that captivates visitors with its Spanish Colonial Revival architecture—including the iconic California Tower, one of San Diego's most recognizable structures—17 museums, beautiful gardens, theaters and the world-famous **San Diego Zoo**. Or venture outdoors and explore 70 miles of beautiful coastline. **Torrey Pines State Natural Reserve**, set atop dramatic ocean cliffs above the Pacific, is a coastal wilderness full of hiking trails and breathtaking views (and located only 10 minutes away from the Hyatt Regency La Jolla at Aventine - meeting venue for ICME 2018!)

Described by Forbes as one of "America's coolest cities," San Diego offers many things to do and see. Visit The San Diego Tourism Authority's homepage at www.sandiego.org to explore the many possibilities!

Language: English

Currency: USD

Climate: warm, comfortable weather year-round

Visas: Please refer to your local travel consultant for visa information prior to travel

By Air

San Diego International Airport's convenient downtown location is just one of its many attributes. Within minutes of stepping outside the terminal into the glorious San Diego sunshine, delegates can be at their hotel or meeting facility ready to start the day without precious time wasted. The airport's historic Green Build Expansion of Terminal 2 opened featuring 10 new gates, more comfortable passenger waiting areas, enhanced curbside check-in and exciting new dining and shopping areas including several signature San Diego restaurants like Stone Brewing Company and Phil's BBQ. Shuttles, taxis and private limousines whisk delegates to their hotels with speed and comfort, making a positive first impression for meetings and conventions.

Airport Shuttles

Shuttle service is available at the transportation plazas across from San Diego Airport Terminals 1 and 2, and curbside at the Commuter Terminal. Several shuttle companies with vans and buses are also available for hire from the airport.

Limousines and Town Cars

Many limousine companies provide service from San Diego International Airport and around the county for special occasions.

New All-In-One Rental Center

Travel to San Diego just got a lot easier. The new Rental Car Center at San Diego International Airport provides visitors to the destination an easier, more reliable, and less congested experience for renting a vehicle. The Rental Car Center is home to most of the rental car companies including national brands, local companies, and independent businesses in one central location. The facility dramatically reduces the number of shuttle buses and lessens the impact of cars on North Harbor Drive. The building can accommodate more than 5,400 vehicles in the parking structure's 2-million square foot design. Continuing San Diego International Airport's commitment to a long-term sustainability plan, the facility was designed to achieve Leadership in Energy and Environmental

Design (LEED) Silver certification from the U.S. Green Building Code. www.san.org

Taxis/Rideshare

Many companies provide taxicab service at the San Diego International Airport. Signage leads visitors to the transportation plazas, where a transportation coordinator places visitors with the first available taxi. If utilizing Rideshare services, after you land at San Diego International Airport, find the pickup zone in the app. Terminal 1 pickups will be on the second curb from the terminal between the first and second crosswalks. For Terminal 2, you'll be directed to the lower level on the curb furthest from the terminal between the second and third crosswalks.

MTS (San Diego Metropolitan Transit System)
Public transit is available to and from the airport and downtown San Diego on MTS's Route 992 which stops at Terminals 1 and 2 and the Commuter Terminal. It operates 5 a.m.–11 p.m. daily, with service every 15 minutes on weekdays and every 30 minutes on weekends. The bus connects with the San Diego Trolley, Coaster and Amtrak Station and is wheelchair accessible.

San Diego Trolley
Delegates can't miss MTS's bright red trolley cars that crisscross San Diego's downtown and beyond. The San Diego Trolley provides convenient service from the San Diego Convention Center to various points downtown and on to Old Town and Mission Valley. Express trolleys serve Petco Park and Qualcomm Stadium on event days.

Trains
The historic Santa Fe Depot is located in downtown San Diego, within walking distance to the San Diego Embarcadero and the heart of downtown. It offers service for Amtrak and the North County Coaster. The North County Coaster provides train service linking downtown San Diego and Old Town to the region's coastal communities including Encinitas, Solana Beach, Carlsbad and Oceanside. Amtrak's Pacific Surfliner runs along the Southern California coastline serving key locations like Anaheim, Los Angeles and Santa Barbara with two stops in San Diego. Both trains offer relaxing and convenient ways to enjoy the California coastline in all its glory.

Rideshare
In addition to traditional taxi service, several app-based car services are available in San Diego.

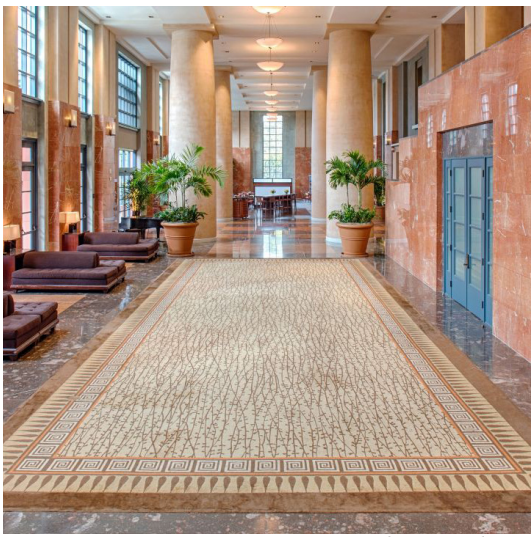
Venue

The Hyatt Regency La Jolla at Aventine

ICME 2018 will be held at the Hyatt Regency La Jolla at Aventine - enjoy a seaside destination with the cham of a European village and the panache of Southern California. Located in the city known as "The Jewel of the Pacific," the La Jolla hotel offers incomparable beaches, shopping, dining, galleries and attractions, and is located only 13.1 miles/22 minutes from the San Diego International Airport. The hotel features 417 guestrooms and suites, seven restaurants and bars, a 24-hour fitness center, Junior Olympic-size heated outdoor pool with individual cabanas, pool bar, oversize firepits, and two tennis courts. Amenities include free Wi-Fi in guestrooms, valet parking, self-parking, dry cleaning and laundry services, a self-service business center, and more. It is also only four miles away from the world renowned 36-hole Torrey Pines municipal golf course.

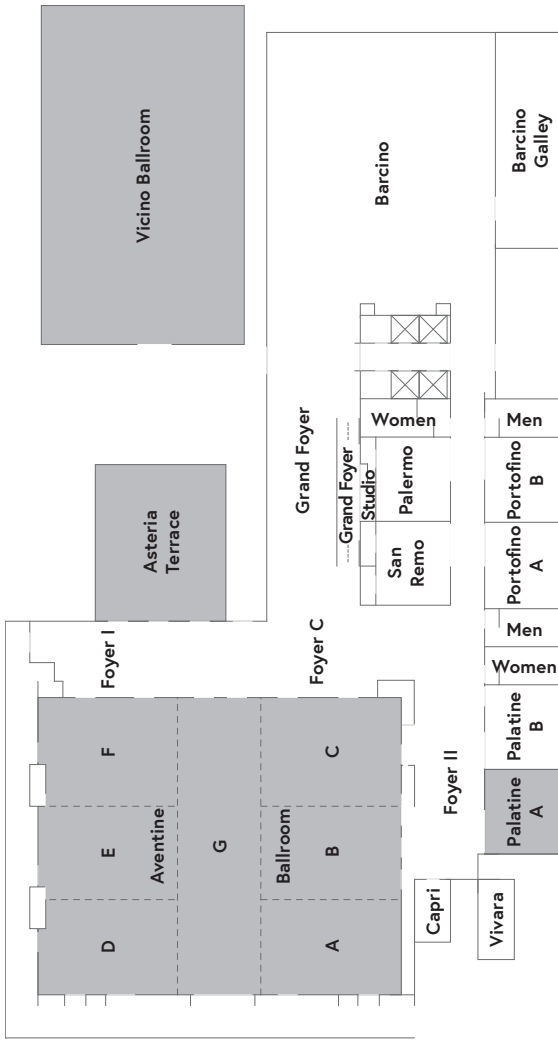
Welcome Reception/Banquet

The welcome reception of ICME 2018 will be held on Monday, July 23rd at 5:00 PM in the Grand Foyer of the Hyatt Regency La Jolla. The banquet of ICME 2018 will be celebrated in the Aventine Ballroom on Wednesday, July 25th at 7:00 PM.



View down Grand Foyer

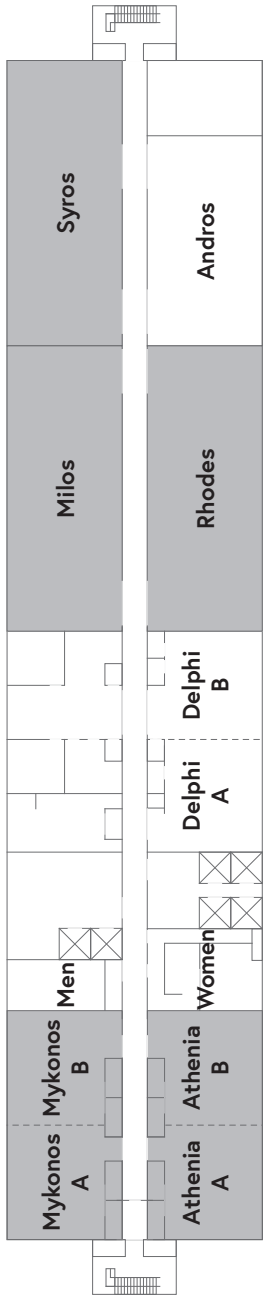
The Hyatt Regency La Jolla at Aventine
First Floor Plan
(exterior pool, courts excluded)



Venue

The Hyatt Regency La Jolla at Aventine

Second Floor Plan



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Acknowledgments

The ICME2018 Organizing Committee wishes to thank the following organizations for the contribution and support to the Conference:

University of Southern California
University of California, San Diego
Acer
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Microsoft
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IEEE Communications Society
IEEE Computer Society
IEEE Signal Processing Society
Asia Pacific Signal and Information Processing Association

Notes

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