

Conference  
Guide

# ICME 2016



IEEE  
International Conference on Multimedia & Expo

---

July 11-15, 2016

Seattle, WA, USA

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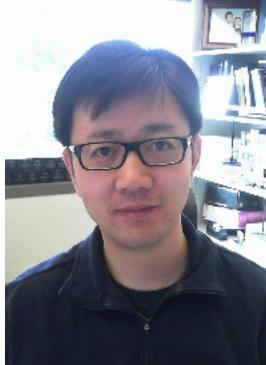
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## A Message from the General Chairs



On behalf of the Organizing Committee, it is our great pleasure to welcome you to the 2016 IEEE International Conference on Multimedia and Expo (ICME 2016) and the beautiful city of Seattle, Washington, USA. It has been a real honor and privilege to serve as the General Chairs of this conference. Since 2000, ICME has been the flagship multimedia conference sponsored by four IEEE societies: Circuit 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.

This year, ICME will deliver a stimulating, informative and delightful program. Some highlights include three plenary talks on the latest exciting topics of multimedia; a wide range of tutorials and workshops; two panel sessions and an industry forum that will bring us important messages from the industry and four technical committees, a new hands-on expo program that let you experience first-hand the latest technology from the industry, three grand challenges, a revamped student program, etc. Conference registrants have full access to the program including all plenary talks, main conference technical sessions, workshops, tutorials, panel discussions, industry forum, student programs, grand challenges, as well as demos and exhibits without additional charge.

Many individuals and organizations contributed to the success of this conference. We would like to acknowledge the tremendous efforts of the Technical Program Chairs, Philip Chou (Microsoft Research), Anthony Vetro (Mitsubishi Electric Research

Laboratories), Lap-Pui Chau (Nanyang Technological University), Jenq-Neng Hwang (University of Washington), Yung-Hsiang Lu (Purdue University) and Max Mühlhäuser (Technical University of Darmstadt); the Plenary Chairs, John Apostolopoulos (Cisco) and Antonio Ortega (University of Southern California); the Workshop Chairs, Pascal Frossard (Ecole polytechnique fédérale de Lausanne) and Ivana Totic (Ricoh Innovations Corporation); the Tutorial Chairs, Yap-Peng Tan (Nanyang Technological University) and Lexing Xie (Australian National University); the Special Session Chairs, Aljoscha Smolic (Disney Research) and Luigi Atzori (University of Cagliari); the Panel Chairs, Fernando Pereira (Instituto Superior Técnico) and Gene Cheung (National Institute of Informatics); the Award Chair, Chang Wen Chen (SUNY Buffalo); the Industrial Program Chairs, Onur Gulyuz (Polytechnic University) and Ton Kalker (Huawei); the Student Program Chairs, Jane Z. Wang (University of British Columbia) and Ivan Bajić (Simon Fraser University); the Grand Challenge Chairs, Christian Timmerer (Alpen-Adria-Universität Klagenfurt) and Andrew Gallagher (Google); and the Demo/Expo Chairs, Jacob Chakareski (University of Alabama) and Qiong Liu (FXPAL).

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.

We would like to further extend our appreciation to the Finance Chairs, Ying Li (IBM Research) and Yi Wu (Intel Labs); the Web Chairs, Jie Liang (Simon Fraser University), Mohammad Akbari (Simon Fraser University) and Cheng Jin (Fudan University); the Social Media Chair, Shao-Yi Chien (National Taiwan University); the Local/Events Chairs, Zicheng Liu (Microsoft Research), Jue Wang (Adobe Research) and Lu Xia (Amazon); the Publicity Chairs, Kiyoharu Aizawa (University of Tokyo) and Maria Martini (Kingston University, London); the Sponsorship Chairs, Belle Tseng (Apple Inc.), Yen-Kuang Chen (Intel Research) and Zhu Li (University of Missouri, Kansas City); the Publication Chairs, Junsong Yuan (Nanyang Technological University) and Chia-Wen Lin (National Tsing Hua University); and the Registration Chairs, YingLi Tian (City University of New York) and Yan Tong (University of South Carolina). 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 building a beautiful web site, creating a concise yet modern conference logo, 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, Professor Fei-Fei Li (Stanford University), Professor Mark Billinghurst (University of South Australia) and Dr. Dariu M. Gavrila (Daimler R&D in Ulm). 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 TCs. 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 sponsors, including the National Science Foundation, Amazon Video, MERL, Microsoft Research, Adobe, Intel RealSense, Disney Research, MediaTek, ITRI, Cisco, Google, and IEEE Seattle WIE and YP.

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.

We sincerely hope that you will enjoy your time at ICME 2016 and the beautiful summer of Seattle. Thank you!

#### General Chairs

Cha Zhang, Microsoft Research

Ming-Ting Sun, University of Washington, USA

Tsuhan Chen, Nanyang Technological University, Singapore

# A Message from the Technical Program Chairs



As the Technical Program Chairs, we happily welcome you to Seattle to participate in the ICME 2016 Technical Program. We have put together a strong, multi-faceted program, and we hope you enjoy it.

## Keynotes

Spearheading the conference are keynotes given by Professor Mark Billinghurst (U. South Australia), Professor Fei-Fei Li (Stanford), and Distinguished Scientist Dariu Gavrila (Daimler R&D), who are leading authorities respectively in wearable computing and augmented and virtual reality, image understanding and deep learning, and autonomous vehicles – three of the most attractive and timely areas in multimedia today – who will share their thoughts on what will be important tomorrow.

## Technical Sessions

The backbone of the conference are high quality technical sessions, comprising 152 papers resulting from a stringent 15% acceptance rate (out of 512 submissions) for oral papers and the next 15% for posters. The paper reviews involved the efforts of 42 area chairs and almost 800 reviewers. All reviews were double-blind, and all papers received at least three reviews, with an average of over four reviews per paper. Decisions were based on author feedback (rebuttals) and active discussions. Daily poster sessions have exclusive time where they do not compete with other technical sessions.

## Special Sessions

We have four timely and relevant special sessions: *Deep Learning for Multimedia Computing*, *Free Navigation and Immersive 3D*, *Multimedia Cloud Computing and Big Data*, and *Multimedia Quality Assessment*. The first two emphasize themes of our keynote speakers. The papers in the special sessions are included in the 15% oral

acceptance rate, and undergo the same double-blind review process, ensuring special sessions of the highest quality.

## Panels

We are proud to bring you two remarkable panels, which we hope everyone will attend. The first, *Making the Virtual Real: The Future of Augmented and Virtual Reality*, will be moderated by our keynote speaker Mark Billinghurst, and features key players in AR/VR: Steve Seitz (U. Washington and Google), Shahram Izadi (Microsoft Research), and Jeremy Selan (Valve). The second, *Multimedia Research and Products: Increasing Impact*, will be moderated by Adriana Dumitras (Skype), and features leaders from each of our four societies: Touradj Ebrahimi (EPFL), Jenq-Neng Hwang (U. Washington), Haohong Wang (TCL Research America), and John R. Smith (IBM Watson), respectively representing IEEE Signal Processing, Circuits and Systems, Communications, and Computer Societies.

## Industry Forum

In a session that promises to be outstanding, *Ultra HD - Roadmap of High Quality A/V Content to the Home*, moderator Patrick Griffis (Technology Vice President, Dolby) will lead the discussion on the rapidly changing world of television, among presenters Don Eklund (Executive Vice President of Advanced Technologies, Sony Pictures), Thierry Fautier (Vice President of Video Strategy, Harmonic), and Nandhu Nandhakumar (Senior Vice President, CTO Office, LG).

## Best Student Paper Award Session

The four finalists for the Best Student Paper Award will present their work on Tuesday afternoon following the AR/VR panel discussion. The Awards Committee will assess these papers based on the novelty of the work and presentation quality. The winner will be announced at the banquet.

## Grand Challenge Sessions

Come see how challengers have vied with each other for honor and glory in three Grand Challenges: *Light-Field Image Compression*, *bitmovin Dynamic Adaptive Streaming over HTTP*, and *MSR Image Recognition*. Choose to attend in-depth sessions for each Grand Challenge, or just the summary session.

## **Demonstrations**

Five demonstrations will be presented during the Wednesday afternoon poster session.

## **Hands-On Expo**

The Hands-On Expo is a new element this year, in which companies with multimedia technologies are invited to explain how their technologies work, and most importantly to give hands-on and tutorial time to attendees, so that attendees can go home and try it for themselves. This year, two Industry heavyweights, Intel and Microsoft, will be presenting their respective work: *Intel RealSense* and *Microsoft Cognitive Services*. Check it out.

## **Three-Minute Thesis Competition**

Hear over a dozen theses presented in three minutes each, as the presenters explain the significance of their hard work while vying for the top prize.

## **Student-Industry Luncheon**

Students, hear what's going on in industry. Industry attendees, meet the future workforce. Nobody can turn down a free lunch.

## **Workshops**

Workshops on Monday and Friday are the bookends of the conference, holding it together and providing a forum for more in-depth exchanges on focused multimedia themes. Twelve workshops have been organized with a total of 99 accepted papers. Something is sure to pique your interest among the four workshops on Monday (relating to Mobile, 3D, e-Health, and e-Commerce) and eight on Friday (relating to Mobile/Cloud/Smart Cities, Sparsity and Compressive Sensing, Packet Video, Affective Computing, Privacy, Big Data, Art, and Cooking and Eating).

## Tutorials

Always FREE, tutorials at ICME are a great way to come up to speed on particular topics. This year we have six tutorials, on *Collaborative Mixed and Virtual Reality*, *Interactive Search in Video and Lifelog Repositories*, *Graph Signal Processing for Image Compression and Restoration*, *Quality of Experience*, *Situation Recognition from Multimodal Data*, and *High Efficiency Video Coding (HEVC)*.

In closing, we would especially like to thank

- Our almost 2000 submitting authors, without whose content there would be little to discuss;
- Our 988 reviewers, without whose expertise there would be no way to select;
- Our 42 area chairs, for processing 2590 reviews, and keeping within your acceptance budgets;
- Our 14 special session organizers, for proposing timely special sessions and serving as area chairs as well;
- Our 8 grand challenge organizers, Touradj Ebrahimi, Peter Schelkens, Fernando Pereira, Christopher Müller, Yuxiao Hu, and Lei Zhang, for proposing and organizing successful challenges;
- Our plenary speakers, Fei-Fei Li, Mark Billinghurst, and Dariu Gavrila, for anchoring our conference;
- Our industry forum presenters, Patrick Griffis, Don Eklund, Thierry Fautier, and Nandhu Nandhakumar;
- Our panelists and moderators, Mark Billinghurst, Steve Seitz, Shahram Izadi, Jeremy Selan, Adriana Dumitras, Touradj Ebrahimi, Jenq-Neng Hwang, Haohong Wang, and John R. Smith;
- Our hands-on expo presenters Anders Grunnet-Jepsen, Cha Zhang, Emad Barsoum, and Kenneth Tran;
- Our representatives from industry, for advising students at the student-industry luncheon;
- Our 41 session chairs for keeping us on schedule;
- Our 12 tutorial presenters, for maintaining the tradition of high-quality free tutorials at ICME;
- Our 40 workshop organizers, putting together twelve great workshops;
- Our web chairs, Jie Liang, Mohammad Akbari, and Cheng Jin for rapid and thorough posting of the technical program;

- Our plenary chairs John Apostolopoulos and Antonio Ortega, workshop chairs Pascal Frossard and Ivana Tosic, tutorial chairs Yap-Peng Tan and Lexing Xie, industry chairs Onur Guleryuz and Ton Kalker, student chairs Ivan Bajic and Jane Wang, special session chairs Aljoscha Smolic and Luigi Atzori, Demo/Expo chairs Qiong Liu and Jacob Chakareski, grand challenge chairs Andrew Gallagher and Christian Timmerer, and awards chair Chang Wen Chen and his six committee members, Homer Chen, Martha Larson, Jiebo Luo, Joern Ostermann, Yap Peng Tan, and Qi Tian – for all of their help in contributing to the technical program this year; and
- All of you for being here to participate, making this a lively community dedicated to the advancement of multimedia.

ICME 2016 Technical Program Co-Chairs,  
Philip A. Chou, Microsoft Research  
Anthony Vetro, Mitsubishi Electric Research Labs  
Lap-Pui Chau, Nanyang Technological University  
Jenq-Neng Hwang, University of Washington  
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## Grand Challenge Chairs

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Kuiyuan Yang	Kwok-Wai Hung	Lai-Man Po
Lai-Tee Cheok	Lamberto Ballan	Laszlo Boszormenyi
Laura Toni	Laurent Amsaleg	Laurent Denoue
Lefei Zhang	Lei Zhang	Lei Qin
Li Song	Li Zhao	Li Meng
Liang Li	Liang Peng	Liang Zheng
Liangping Ma	Lianwen Jin	Lidan Shou
Lifang Wu	Lifeng Sun	Lin Sun
Lin Zhang	Linbo Qing	Lingfen Sun
Lingxi Xie	Liqiang Nie	Liquan Shen
Li-Wei Kang	Lixin Duan	Lizhi Wang
Lode Jorissen	Long Xu	Lu Yang
Lu Fang	Luca Cuccovillo	Lucio Bianchi
Lucio Marcenaro	Luis P_Rez-Freire	Luis Ducla Soares
Luis Javier Rodriguez-Fuentes	Luming Zhang	Lyndon Hill
M Shorfuzzaman	Ma Rahman	Maha El Choubassi
Mahmoud Reza Hashemi	Maia Zaharieva	Majdi Rawashdeh
Manish Narwaria	Manoranjan Paul	Manoranjan Mohanty
Mao Ye	Maocheng Jia	Marc Decombas

Marc Chaumont	Marcel Worring	Marco Grangetto
Marco Bertini	Marco Carli	Marek Domanski
Margrit Gelautz	Maria Trocan	Maria Paula Queluz
Maria-Dolores Cano	Mario Doeller	Mark Liao
Markus Kampmann	Marta Mrak	Martin Reisslein
Martin Rerabek	Marwa Mahmoud	Mathias Lux
Matteo Naccari	Matthew Cooper	Matthias Kirchner, S Kirchner
Matthieu Cord	Matthieu Perreira Da Silva	Max Mühlhäuser
Mayoore Jaiswal	Mayumi Ueda	Mea Wang
Mehedi Hassan	Mehedi Masud	Mehrdad Panahpour Tehrani
Mei-Chen Yeh	Mei-Juan Chen	Mei-Ling Shyu
Meng Wang	Miao Sun	Miaojing Shi
Michael Wakin	Michael Santoro	Michael Lew
Michael Bleyer	Michele Merler	Michele Buccoli
Michele Svanera	Mickael Raulet	Miguel Rodrigues
Min Xu	Min-Chun Hu	Ming Li
Mingdi Xue	Mingli Song	Ming-Ming Cheng
Mingyu Chen	Minoru Kurabayashi	Minyue Li
Mi-Yen Yeh	Mohamad Eid	Mohamed Shehata
Mohamed Amir Shafiq	Mohammad Hosseini	Mohammad Hossain
Mohammad Soleymani	Mohammad Anwar Hossain	Mohammed Fauzi
Mohammed Aabed	Mohammed F. Alhamid	Mortuza Ali
Motaz Alfarraj	Muhammad Shafique	Mukesh Saini
Murat Tekalp	Naimul Mefraz Khan	Naiyang Guan
Nam Ik Cho	Naoki Chiba	Naoko Nitta
Nasir Memon	Natacha Ruchaud	Nazia Alam
Neeraj Gadgil	Ngai-Man Cheung	Nikolaos Thomos
Ning Zhang	Ning Feng	Nkiruka Uzuegbunam
Noel O'connor	Norishige Fukushima	Nuno Roma
Nuno Rodrigues	Olgierd Stankiewicz	Olivier Debeir
Olivier Meur	Onur Guleryuz	Oscal T.-C. Chen
Ovidio Salvetti	Pan Pan	Pao-Chi Chang
Pascal Lorenz	Patrick Lambert	Patrik Goorts
Patrizio Campisi	Paulo Nunes	Pedro Assuncao
Pedro Correia	Pedro Comesana-Alfaro	Pei-Hsuan Tsai
Pei-Kuei Tsung	Pei-Yu Lin	Peng Zhang
Peng Fu	Peng Cui	Peter Eisert
Peter Kovacs	Peter Kara	Petia Radeva

Petros Daras	Petros Boufounos	Phil Chou
Phil Sallee	Philip Chou	Philipp Fechteler
Philippe Roose	Philippe Bekaert	Pietro Mororio
Pietro Zanuttigh	Pinar Duygulu	Pinghua Zhao
Po-Chang Su	Po-Chyi Su	Pong Yuen
Prabhu Natrajan	Pradeep Atrey	Qia Wang
Qiang Li	Qiang Wu	Qianqian Xu
Qiaohong Li	Qifei Wang	Qin Jin
Qin Shi	Qinghe Du	Qingming Huang
Qingshan Liu	Qingzhong Liu	Qiong Liu
Qiwei Wang	Qixiang Ye	R Babu
Rachel Chiang	Ralph Ewerth	Ran He
Raymond Fu	Razib Iqbal	Regunathan Radhakrishnan
Reji Mathew	Reju Vaninirappuputhenpurayil	Remi Trichet
Reuben Farrugia	Ricardo De Queiroz	Richard Harvey
Rémi Cogranne	Robert Cohen	Roberto Caldelli
Rodrigo Laiola Guimarães	Roger Zimmermann	Rolf Bardeli
Roman Fedorov	Rongshan Yu	Ruchir Srivastava
Rufael Mekuria	Rui Cai	Rui Shen
Rui Huang	Rui Zhang	Rui Min
Ruigang Yang	Ruimao Zhang	Ruiping Wang
Ruxin Wang	Ryosuke Harakawa	Sabu Emmanuel
Salehe Erfanianejadi	Samuel Cheng	Sanjeev Mehrotra
Santi Planet	Satoshi Nishiguchi	Sebastian Egger
Seishi Takamura	Sen-Ching Cheung	Sergio Faria
Shamim Hossain	Shangfei Wang	Shang-Hong Lai
Shaohui Liu	Shaohui Mei	Shao-Ping Lu
Shaowu Peng	Shashikant Patil	Shengkui Zhao
Shiai Zhu	Shigeru Kuriyama	Shih-Wei Sun
Shiliang Zhang	Shin'ichi Satoh	Shintami Hidayati
Shiqian Wu	Shiva Sundaram	Shivanand Guness
Shiyu Chang	Shizheng Wang	Shouyuan Yang
Shu Shi	Shuai Zhao	Shuai Li
Shu-Ching Chen	Shuhua Zhang	Shuhui Wang
Shujun Li	Shuqiang Jiang	Shyi-Chyi Cheng
Sid-Ahmed Berrani	Siddhartha Dutta	Sidong Liu
Sik-Ho Tsang	Simone Milani	Singh Kamal
Sk Alamgir Hossain	Sk Md Mizanur Rahman	Slim Essid

Song Wang	Songqing Chen	Sophie Fosson
Soren Forchammer	Søren Forchhammer	Stavros Petridis
Stavroula Mougiakakou	Stefan Winkler	Stefan Petscharnig
Stefan Rueger	Stefania Cecchi	Stefania Colonnese
Stefano Squartini	Stefano Tubaro	Stefanos Vrochidis
Stefanos Kollias	Stelvio Cimato	Stevan Rudinac
Suhail Aldarrab	Sundaresh Ram	Sunil Kumar
Tai-Chiu Hsung	Taka Senoh	Takaaki Shiratori
Takafumi Koike	Takuji Narumi	Takuya Funatomi
Tamer Shanableh	Tanya Ignatenko	Tao Zhuo
Tao Chen	Tasos Dagiuklas	Ted 'Zixia' Huang
Teng Li	Thinh Nguyen	Thomas Steiner
Thorsten Laude	Tian Gan	Tian-Sheuan Chang
Tiesong Zhao	Tim Bruylan	Timothy Shih
Tingting Jiang	Tiziana D'orazio	Tiziano Bianchi
Tom Bäckström	Tomohiro Ikai	Tomoo Inoue
Ton Kalker	Toru Tamaki	Toshihiko Yamasaki
Touqeer Ahmad	Truyen Tran	Tsung-Han Tsai
Tzu-Yi Hung	Uday Thakur	Ulrich Reiter
Ulugbek Kamilov	Vanessa Testoni	Vasileios Mezaris
Vassilios Vonikakis	Velibor Adzic	Venkatesh Narasimha Murthy
Victor Fragoso	Viktoria Fodor	Vivek Singh
Vladan Velislavljevic	Vladimir Stankovic	Wael Louis
Wai Lam Hoo	Wanlei Zhao	Wanli Ouyang
Wanqing Li	Wanxin Xu	Wei Jiang
Wei Huang	Wei Feng	Wei Bian
Wei Wu	Wei Tsang Ooi	Wei Yang Lin
Wei-Bang Chen	Weifeng Liu	Weihong Deng
Wei-Lin Ku	Weiqi Yan	Wei-Shi Zheng
Wei-Ta Chu	Weiyao Lin	Wen Yu Su
Wenbin Zou	Wen-Chieh Steve Lin	Wengang Zhou
Wenhai Hong	Wen-Hsiao Peng	Wen-Huang Cheng
Wenjing Jia	Wenying Wen	Werner Bailer
Wesley De Neve	William Puech	Wing-Kuen Ling
Wolfgang Hürst	Wonjun Kim	Xavier Sevillano
Xenophon Zabulis	Xi Jiang	Xia Rui
Xiang Li	Xiang Liu	Xiangjun Shen
Xiangwei Kong	Xiangyang Xue	Xiangyu Wang

Xiangzeng Zhou	Xianjie Chen	Xianming Liu
Xiao Wu	Xiaodan Liang	Xiaojing Ma
Xiaojun Qi	Xiaoming Nan	Xiaoqiang Li
Xiaoshuai Sun	Xiaowei Zhao	Xiaoyan Sun
Xiaoyi Jiang	Xiao-Yong Wei	Xiaoyu Wang
Xiaozhong Xu	Xin Lu	Xin Feng
Xin Dang	Xin Jin	Xing Wang
Xinggang Wang	Xinmei Tian	Xintao Hu
Xinyu Ou	Xinyu Lin	Xinyu Huang
Xirong Li	Xiulian Peng	Xiushan Nie
Xu Zhao	Xu Wang	Xuan Jing
Xuansong Xie	Xuefeng Liang	Xueliang Liu
Xuelong Li	Xueming Qian	Xuguang Lan
Xuping Zhang	Ya Li	Yahong Han
Yan Wang	Yan Lu	Yan Li
Yan Yan	Yang Cao	Yang Wang
Yang Xiao	Yang Yu	Yang Song
Yannis Avrithis	Yanwei Liu	Yanwu Xu
Yan-Ying Chen	Yao Zhao	Yao-Jen Chang
Yazeed Alaudah	Yen-Liang Lin	Yezhou Yang
Yiannis Patras	Yi-Chong Zeng	Yi-Chu Wang
Yifan Zhang	Yihong Wu	Yi-Hsuan Yang
Yi-Hui Chen	Yijuan (Lucy) Lu	Yi-Leh Wu
Yimin Zhou	Ying Cao	Yingli Tian
Yingming Li	Yi-Wen Chen	Yi-Wen Liu
Yixin Chen	Yizhen Huang	Yong Yang
Yong Xia	Yongdong Zhang	Yonghong Tian
Yonghuai Liu	Yongwei Zhu	Yongxin Ge
Yo-Sung Ho	Yu Guan	Yuanlu Xu
Yu-Chiang Frank Wang	Yue Liu	Yue Li
Yuexian Zou	Yu-Gang Jiang	Yuk-Hee Chan
Yukihiro Bandoh	Yumig Fang	Yuming Fang
Yun Ye	Yun Yu	Yun Zhang
Yung-Hui Li	Yung-Yao Chen	Yung-Yu Chuang
Yunyu Shi	Yusuke Matsui	Yuta Nakashima
Yuwei Wu	Yuwen He	Yuxin Peng
Zakia Hammal	Zechao Li	Ze-Nian Li
Zhan Ma	Zhangyang Wang	Zhaoxiang Zhang

Zhen Wei

Zhengguo Li

Zhenpeng Bian

Zheru Chi

Zhibo Chen

Zhiling Long

Zhiyong Wu

Zhizhong Fu

Zhou Wang

Zhuo Wei

Zhenbao Liu

Zhenghao Xi

Zhenqi Xu

Zhi Liu

Zhifeng Chen

Zhineng Chen

Zhiyong Wang

Zhongfei Zhang

Zhu Liu

Ziming Zhang

Zheng Fang

Zhenhua Chai

Zhenzhong Chen

Zhi Zhou

Zhilin Zhang

Zhiwei Xiong

Zhizheng Wu

Zhongyuan Wang

Zhu Li

Zongming Guo

# Conference Information

## On-Site Registration

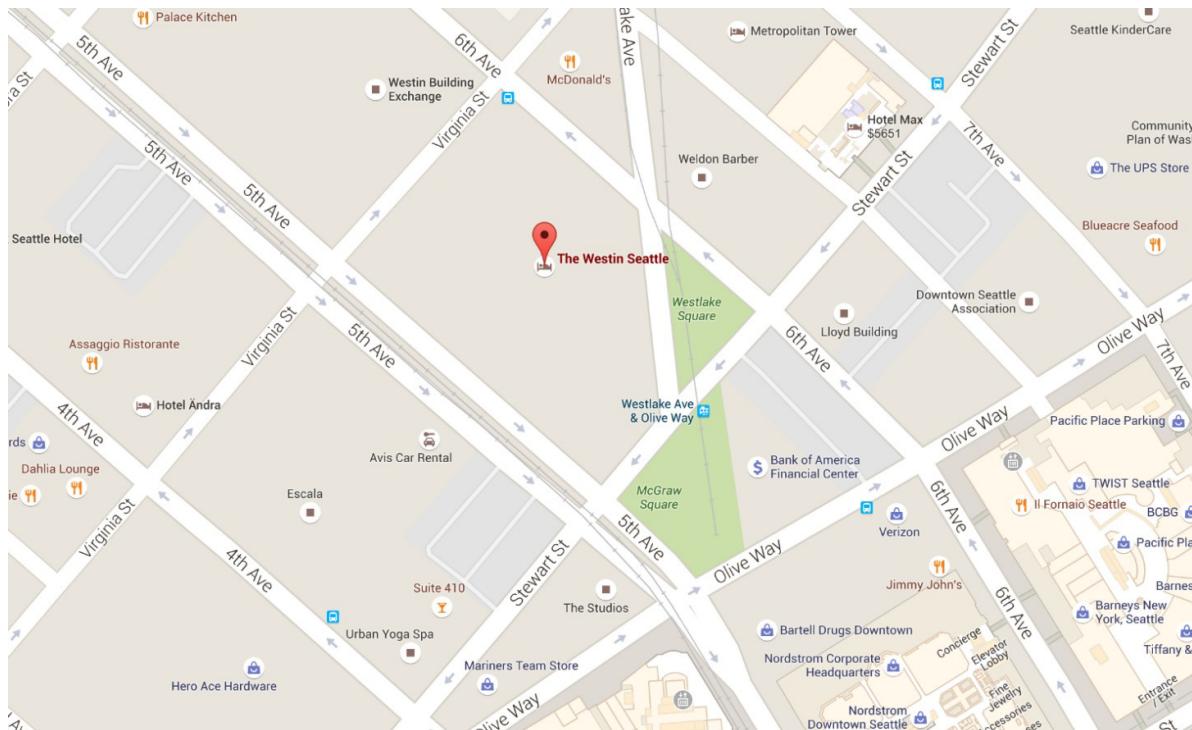
### Opening Times

Monday to Wednesday: 7:30 – 18:00

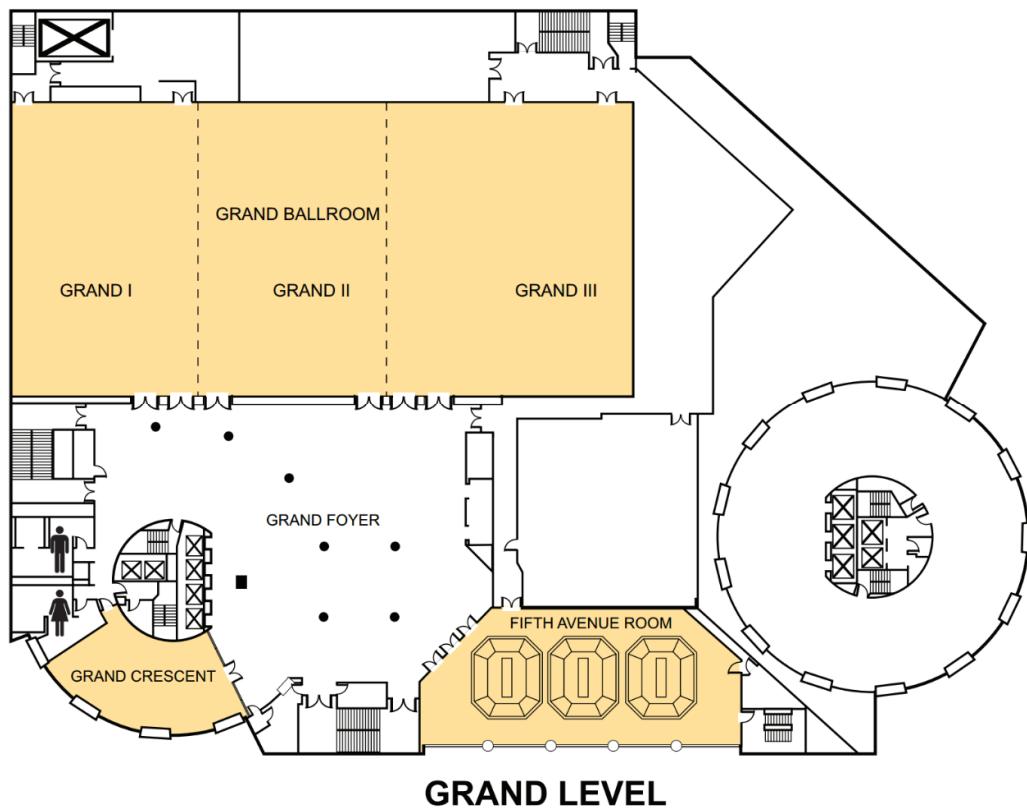
Thursday and Friday: 8:00 – 17:30

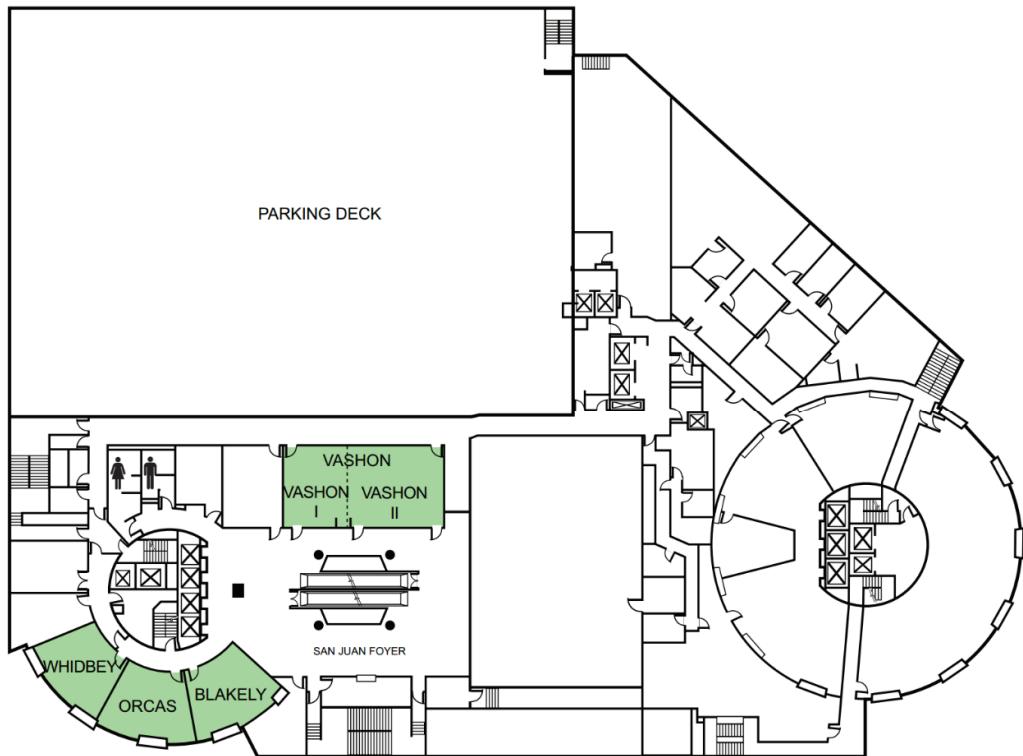
### Venue

ICME 2016 will be held at **The Westin Seattle** located at *1900 Fifth Avenue, Seattle, Washington, USA.*

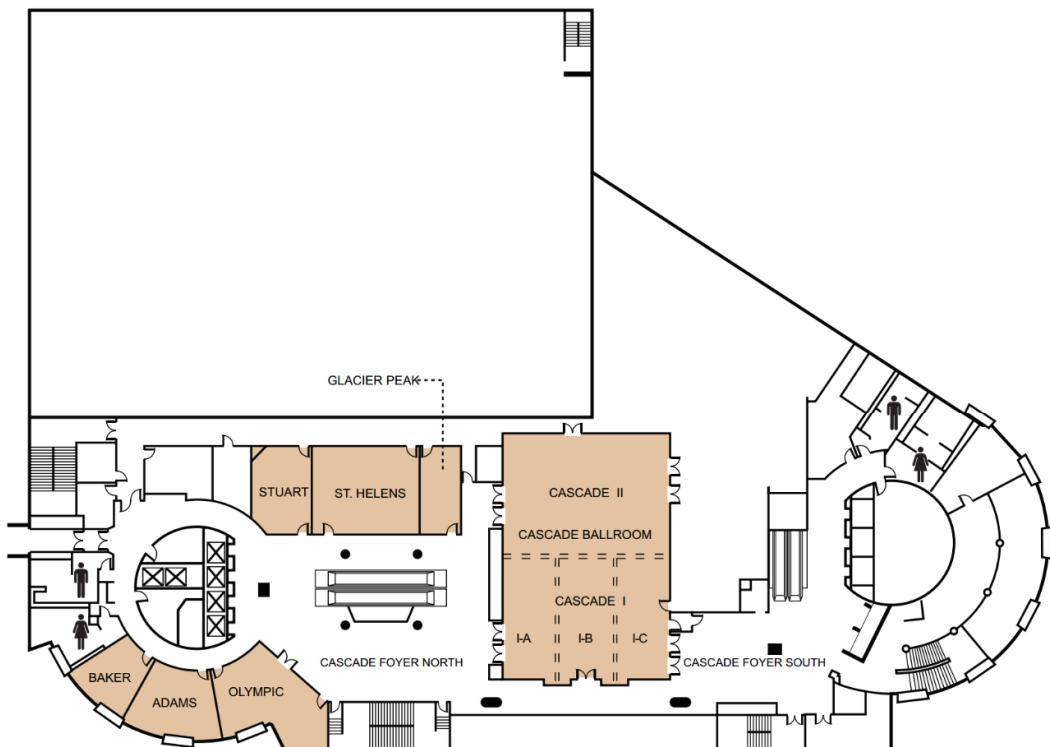


## Floor Plans





**SAN JUAN LEVEL**



**MEZZANINE LEVEL**

## Location and Transportation

Transportation Options to and from the Westin Seattle:

Centrally located in downtown Seattle, getting here is simple with frequent airport shuttle service, taxi service, car rental companies, or Seattle's local transit system. Contact our hotel team at 206-728-1000 for more information or to assist with making transportation arrangements.

*Note: Estimated charges, fees, and schedules below are not guaranteed by hotel. Travel distance may be affected by local conditions and traffic.*

Getting to the conference venue:

### AIRPORT

Seattle/Tacoma International Airport (SEA)

- Travel Distance: Approximately 24.14 km/15.0 miles
- Taxi service is readily available at Sea-Tac Airport on the third floor of the parking garage
- Approximately \$45 USD each way

Downtown Airporter by Shuttle Express

- Downtown Airporter departs from Level 3 of the parking garage, island 2. Follow the signs to ground transportation, taxis, limos, hotel shuttles on the third floor of the parking garage.
- Adults: One-way ticket is \$18 USD and roundtrip is \$31 USD; children 17 and under ride free.
- Hours: Departures from SeaTac Airport and downtown Seattle 24-hours day, every day. Leaves SeaTac Airport approximately every 30 minutes
- Please note that reservations are required for trips from downtown to the airport. For additional information, visit [www.downtownairporter.com](http://www.downtownairporter.com) or call 855-566-3300

Light Rail

- Guests can ride Sound Transit's Link Light Rail from downtown to the airport
- Cost: \$3.00 each way
- Time: 35 minutes each way

## **PRIVATE CAR SERVICE**

- The Westin Seattle can make arrangements for a limo, sedan, or van service for your arrival and departure. Rates are by hours needed, vehicle type, and number of passengers. There are a variety of rental car companies within close proximity of the hotel and of Sea-Tac Airport.

## **RAILWAY**

### King Street Station

- Travel Distance: Approximately 3.22 km/2.0 miles from The Westin Seattle
- A taxi from King Street Station to The Westin Seattle is approximately \$10 USD

## **PORT**

### Pier 69

- Travel Distance: Approximately 0.8 km/0.5 miles from The Westin Seattle
- Taxis are available at the Pier 69, the Colman Dock ferry terminal, and at cruise ship terminals
- A taxi from Pier 69 to The Westin Seattle is approximately \$10 USD
- The Downtown Airporter can transport guests in both directions for \$12 each way; kids 17 and under ride free. Contact The Westin Seattle Concierge for reservations

## **BUS**

### Greyhound Bus Station

- Travel Distance: Approximately 0.6 km/0.37 miles from The Westin Seattle
- A taxi from the Greyhound Bus Station to The Westin Seattle is approximately \$10 USD

## **RENTAL CAR**

- Dollar Rent A Car: 206-682-1316
- Hertz Car Rental: 800-654-3131

- Budget Car Rental: 800-527-0700
- National Car Rental: 800-227-7368
- Avis Rent A Car: 800-331-1212
- Thrifty Car Rental: 206-624-1133

## **TAXI**

- Taxis are available at the front drive of the hotel 24 hours a day

# Social Events

## ICME 2016 Reception

Time: 6:30pm - 10pm, Monday, July 11th, 2016

Location: Space Needle

Commute options between Westin Hotel and Space Needle:

1. **Monorail:** The recommended commute option is Seattle Monorail. It departs every 10 minutes between Space Needle and Westlake Center, which is a 3-5 min walk from the Westin Hotel (see the map below). There are no other stops. It closes at 11pm during the summer. One-way ticket for adult is \$2.25 and roundtrip is \$4.5. Cash only.



2. **Walk:** It's about a 20-minute walk one way. It should be a pleasant walk both ways as the sunset is 9:06pm and it won't become dark until 10:40pm. The chance of rain is very low. Erring on the side of caution, we recommend walk in small groups back to the hotel.
3. **Car:** It's a short 6-min drive. Parking at Space Needle could be expensive so we recommend using Uber or cab services. uberX costs around \$6 and cab around \$10.

## ICME 2016 Banquet

Time: 7:00pm - 10:00pm, Wednesday, July 13, 2016

Location: Westin Hotel, Grand Ballroom

# Program at a Glance

## Monday, July 11, 2016 (Tutorials & Workshops)

	Cascade I-A	Cascade I-B	Cascade I-C	St. Helens	Vashon	Grand Crescent
9:00 - 10:15	Mobile Multimedia Computing (MMC)	Hot Topics in 3D (Hot3D)	Multimedia Services and Technologies for E-health (MUST-EH)	"Mulsemmedia"-based Collaborative Mixed/Virtual Reality Environments (MVR)	Interactive Search in Video & Lifelog Repositories (IS)	Graph Signal Processing for Image Compression and Restoration (GSP)
10:15 - 10:45				Coffee		
10:45 - 12:00	MMC (cont'd)	Hot3D (cont'd)	MUST-EH (cont'd)	MVR (cont'd)	IS (cont'd)	GSP (cont'd)
12:00 - 14:00	Lunch		TMM SC Meeting		Lunch	
14:00 - 15:15	MMC (cont'd)	Hot3D (cont'd)		Quality of Experience in Multimedia Systems and Services (QoE)	Situation Recognition from Multimodal Data (SR)	High Efficiency Video Coding: Coding Tools & Specification (HEVC)
15:15 - 15:45				Coffee		
15:45 - 17:00	MMC (cont'd)	Hot3D (cont'd)	Multimedia for e-Commerce	QoE (cont'd)	SR (cont'd)	HEVC (cont'd)
17:00-17:50						

## Tuesday, July 12, 2016 (Main Program)

	Grand I & II	Grand III	Cascade I	Cascade II	Blakely	Vashon
8:30 - 8:40		Opening Ceremony				
8:40 - 9:40		Plenary: Mark Billinghurst				
9:40 - 10:00	Coffee					
10:00 - 11:40		Grand Challenge: Lightfield Image Compression	Image/Video Content Analysis	Audio/Speech Signal Processing		
11:40 - 13:00		Lunch			MM FB Meeting	MMSP TC Meeting (SPS)
13:00 - 14:20		Panel: Making the Virtual Real -- The Future of Augmented and Virtual Reality				
14:20 - 14:30						
14:30 - 15:20		Best Student Paper Award	Special Session: Free Navigation and Immersive 3D	Object Tracking		
15:20 - 15:50	Coffee and Posters: * Image/Video Content Analysis I * Acoustic/Multimodal Content Analysis * 3D/Depth Processing * Quality Assessment					
15:50 - 17:00						
17:00 - 17:20		Grand Challenge: bitmovin	Special Session: Multimedia Cloud Computing and Big Data	Multimodal Interaction		
17:20 - 18:00						
18:00 - 20:00						TMM EB Meeting

## Wednesday, July 13, 2016 (Main Program)

	Grand I & II	Grand III	Cascade I	Cascade II	Blakely	Vashon
8:40 - 9:40		Plenary: Fei-Fei Li				
9:40 - 10:00	Coffee					
10:00 - 11:40		Grand Challenge: MSR Image Recognition	Visual Signal Processing	Object Detection and Segmentation		
11:40 - 13:20		Lunch			MSA TC Meeting (CASS)	TCMC Meeting (Computer)
13:20 - 14:00		Industry Forum: Ultra HD - Roadmap of High Quality A/V Content to the Home	Special Session: Quality Assessment	Multimodal Content Analysis		
14:00 - 14:40						
14:40 - 15:00	Coffee and Posters:  * Image/Video Content Analysis II				Hands-On Expo: Microsoft Cognitive Service	ICME SC Meeting
15:00 - 16:00	* Multimedia Understanding  * Mobile & Social Media  * Demos					
16:00 - 16:40						
16:40 - 17:00						
17:00 - 18:00	Banquet Prep	Grand Challenges: Summary Session	Visual Coding	Multimedia Search and Retrieval		Happy hour mixer, WIE and YP, IEEE Seattle chapter
18:00 - 19:00						
19:00 - 22:00	Banquet					

## Thursday, July 14, 2016 (Main Program)

	Grand I & II	Grand III	Cascade I	Cascade II	Blakely	
8:40 - 9:40		Plenary: Dariu M. Gavrila				
9:40 - 10:00	Coffee					
10:00 - 11:20		Three-Minute Thesis Competition	Face Processing and Analysis	Multimedia Systems and Applications		
11:20 - 11:40						
11:40 - 13:00		Lunch			MMTC Meeting (ComSoc)	Student- Industry Luncheon (Fifth Avenue Room)
13:00 - 14:20		Panel: Multimedia Research and Products -- Increasing Impact				
14:20 - 15:40	Coffee and Posters:  * Image/Video Content Analysis III  * Multimedia Search & Retrieval  * Multimedia Systems & Applications  * Multimedia Coding				ICME 2017 OC Meeting	Hands-On Expo: Intel RealSense (Vashon)
15:40 - 16:00						
16:00 - 16:20						
16:20 - 17:00		Special Session: Deep Learning for Multimedia Computing	Crowd Analysis	Multimedia Networking and Communication		

## Friday, July 15, 2016 (Workshops)

	Cascade II	Cascade I-A	Cascade I-B	Cascade I-C	Vashon	Grand Crescent
9:00 - 10:15	Multimedia Mobile Cloud for Smart City (MMCC)	Sparsity and Compressive Sensing in MM	Packet Video Workshop (PV)	Affective Social Multimedia Computing (ASMC)	Privacy Issues in Multimedia (PIM)	Multimedia Big Data Processing and Analytics (MBD)
10:15 - 10:45				Coffee		
10:45 - 12:00	MMCC (cont'd)	MM-SPARSE (cont'd)	PV (cont'd)	ASMC (cont'd)	PIM (cont'd)	MBD (cont'd)
12:00 - 13:30			Lunch			
13:30 - 14:00						
14:00 - 15:15		MM-SPARSE (cont'd)	PV (cont'd)	ASMC (cont'd)	Multimedia Artworks Analysis (MMArt)	Multimedia for Cooking and Eating Activities (CEA)
15:15 - 15:45				Coffee		
15:45 - 17:00		MM-SPARSE (cont'd)	PV (cont'd)	ASMC (cont'd)		CEA (cont'd)

# Technical Program

## Plenary Talks

**Title: Empathic Computing: Design for Understanding**

**Speaker: Mark Billinghurst (Univ. South Australia)**

**Schedule: 8:40-9:40, Tuesday, July 12, 2016**

**Room: Grand III**

### **Abstract:**

In an era where people share more about themselves than ever before, can technology be used to create deeper empathy and understanding? This talk describes Empathic Computing, systems that help people better understand each other, and how to design for understanding. There have been several decades of research on Affective Computing systems that recognise a user's emotion, but until recently there has been little research on how to use technology to share emotions between people. Technology such as wearable computing, smart sensors, and Augmented and Virtual Reality, can be combined together to enable people to capture their surroundings and feelings and share them with others. In order to do this there are interesting problems to be solved in recognising emotion, replicating emotion, and measuring the impact of emotion, among other topics. Examples of how to do this will be shared from leading research groups, including the Empathic Computing Laboratory at the University of South Australia, and directions described for future work. The 1980's were about Multi-media, the 2000's Social Media and 2020's could be the decade of Empathic Media.



**Title: A Quest for Visual Intelligence in Computers**

**Speaker: Fei-Fei Li (Stanford University)**

**Schedule: 8:40-9:40, Wednesday, July 13, 2016**

**Room: Grand III**

**Abstract:**

It takes nature and evolution more than five hundred million years to develop a powerful visual system in humans. The journey for AI and computer vision is about fifty years. In this talk, I will briefly discuss the key ideas and the cutting edge advances in the quest for visual intelligences in computers. I will particularly focus on the latest work developed in my lab for both image and video understanding, powered by big data and the deep learning (a.k.a. neural network) architecture.



**Title: The Intelligent Vehicles (R)evolution**

**Speaker: Dariu M. Gavrila (Daimler R&D in Ulm)**

**Schedule: 8:40-9:40, Thursday, July 14, 2016**

**Room: Grand III**

**Abstract:**

The automotive field is in the midst of a transformation. Cheap sensors and powerful hardware, coupled with machine learning algorithms and big data rapidly advance the capabilities of modern vehicles. In the traditional vehicle sector, where the driver is under control, the automation level is gradually increased; witness the ever more sophisticated autopilots for the highway introduced in premium cars nowadays (e.g. Mercedes-Benz E-Class 2016 Drive Pilot). At the same time, a new vehicle sector is emerging: that of self-driving vehicles, where the human driver is no longer necessary and where control is exerted remotely by an operator, as part of a mobility service. What can be automated in a vehicle? Why does vehicle automation make sense? How does the technology work? What are the remaining hurdles? When will automated vehicles come about? This talk will provide some answers.



## Tutorials

**Title:** **“Mulsemmedia”-based Collaborative Mixed/Virtual Reality Environments**

Lecturer(s): Balakrishnan Prabhakaran (University of Texas at Dallas, USA)

Time: 9:00-12:00, Monday, July 11, 2016

Room: St. Helens

**Title:** **Interactive Search in Video & Lifelog Repositories**

Lecturer(s): Frank Hopfgartner (University of Glasgow, UK), Klaus Schoeffmann (Klagenfurt University, Austria)

Time: 9:00-12:00, Monday, July 11, 2016

Room: Vashon

**Title:** **Graph Signal Processing for Image Compression & Restoration**

Lecturer(s): Gene Cheung (National Institute of Informatics, Japan), Xianming Liu (Harbin Institute of Technology, China)

Time: 9:00-12:00, Monday, July 11, 2016

Room: Grand Crescent

**Title:** **Situation Recognition from Multimodal Data**

Lecturer(s): Vivek Singh (Rutgers University, USA), Siripen Pongpaichet (University of California at Irvine, USA), Ramesh Jain (University of California at Irvine, USA)

Time: 14:00-17:00, Monday, July 11, 2016

Room: Vashon

**Title:** **Quality of Experience in Multimedia Systems and Services**

Lecturer(s): Christian Timmerer (Alpen-Adria-Universität Klagenfurt, Austria), Fernando Pereira (Instituto de Telecomunicações, IST, Portugal), Touradj Ebrahimi (EPFL, Switzerland)

Time: 14:00-17:00, Monday, July 11, 2016

Room: St. Helens

**Title:** High Efficiency Video Coding – Coding Tools and Specification

Lecturer(s): Mathias Wien (RWTH Aachen University, Germany)

Time: 14:00-17:00, Monday, July 11, 2016

Room: Grand Crescent

## Panels

<b>Title:</b>	<b>Making the Virtual Real -- The Future of Augmented and Virtual Reality</b>
<b>Moderator:</b>	Mark Billinghurst (University of South Australia)
<b>Panelists:</b>	Steve Seitz (University of Washington and Google, USA), Shahram Izadi (Microsoft Research, USA), and Jeremy Selan (Valve Corporation, USA)
<b>Time:</b>	13:00-14:20, Tuesday, July 12, 2016
<b>Room:</b>	Grand III

Augmented and Virtual Reality (AR/VR) are emerging technologies that both blur the boundary between the physical and digital worlds; AR can seamlessly blend the physical and digital content, enhancing the real world experience, while VR completely immerses the user in digital content, enhancing the virtual experience. Both AR and VR involve multiple media from audio to haptics, with the core technical disciplines of the Multimedia research community all being highly applicable. It is commonly believed that the widespread commercialization of AR and VR could well be as impactful to the future of the human experience as the introduction of radio and television in the past.

After nearly 50 years of research and development, 2016 promises to be a breakout year for AR and VR. Many of the advances are taking place in Seattle, US, in development at companies like Google, Microsoft, Facebook, and Valve, a thriving start-up community, and research labs at the University of Washington and other academic institutions.

With this panel, we aim to give an overview of the future of AR and VR. We have collected together some of the key players who will discuss 1) the importance of AR and VR as new media of high relevance to the Multimedia community, 2) the timeliness of 2016 as a breakout year for AR/VR technologies, and 3) what can be expected over the next 5 to 10 years of development in the fields.

**Title:** **Multimedia Research and Products -- Increasing Impact**

Moderator: Adriana Dumitras (Microsoft)

Panelists: Touradj Ebrahimi (EPFL, Switzerland), Jenq-Neng Hwang (University of Washington, USA), Haohong Wang (TCL, USA), John R. Smith (IBM, USA)

Time: 13:00-14:20, Thursday, July 14, 2016

Room: Grand III

In this panel, we examine the impact of the research being done by the community: its trajectory, and how to amplify it. Panelists are leaders in each of ICME's sponsoring societies: Circuits and Systems, Communications, Computer, and Signal Processing Societies. They will address questions such as the following, and engage the audience in a discussion of our future.

- What were the most significant advances in multimedia over the last 5-10 years and how are they impacting the current research and future products?
- What will be disruptive to multimedia research and products in the next 5-10 years? What are the most innovative lines of research today?
- What can we do together as a community to further advance multimedia research and its impact on society?
- Are there any emerging areas that are not being enough addressed by the ICME community that deserve more attention?

# Demonstrations

**Wednesday, July 13, 2016**

**14:40-16:40**

**Poster Session Wed-PO-4: Demonstrations**

Room: Grand I & II

**(Wed-31) A 360-Degree 4K×2K Panoramic Video Recording over Smart-Phones**

*Tsu-Ming Liu, Chi-Cheng Ju, Yu-Hao Huang, Tsui-Shan Chang, Kai-Min Yang, Yi-Ting Lin  
Mediatek Inc.*

**(Wed-32) Creative Color Designs for Product Packaging**

*Ying Li  
IBM T. J. Watson Research*

**(Wed-33) Flexible Media Transport Framework for Android**

*Sándor Molnár, Péter Megyesi, Szilárd Solymos, Zsolt Kramer, Zoltán Móczár  
Budapest University of Technology and Economics*

**(Wed-34) Machine Learning-Based Behavior Recognition System for a Basketball Player Using Multiple Kinect Cameras**

*Wei-Yuan Kuo<sup>1</sup>, Chien-Hao Kuo<sup>1</sup>, Shih-Wei Sun<sup>2</sup>, Pao-Chi Chang<sup>1</sup>, Ying-Ting Chen<sup>2</sup>, Wen-Huang Cheng<sup>3</sup>*

<sup>1</sup>*National Central University*

<sup>2</sup>*Taipei National University of the Arts*

<sup>3</sup>*Academia Sinica*

**(Wed-35) Automated Platform for Recording High Quality Short Scientific Videos**

*Samuel Toba, Russell Silber, Michael David  
American Chemical Society*

# Grand Challenges

**Tuesday, July 12, 2016**

**10:00-11:40**

## **Grand Challenge Session: Lightfield Image Compression**

Chairs: Touradj Ebrahimi, Peter Schelkens, Fernando Pereira

Room: Grand III

### **Pseudo-Sequence-Based Light Field Image Compression**

*Dong Liu<sup>1</sup>, Lizhi Wang<sup>2</sup>, Li Li<sup>1</sup>, Zhiwei Xiong<sup>3</sup>, Feng Wu<sup>1</sup>, Wenjun Zeng<sup>3</sup>*

<sup>1</sup>*University of Science & Technology of China*

<sup>2</sup>*Xidian University*

<sup>3</sup>*Microsoft Research Asia*

### **HEVC-based Light Field Image Coding with Bi-Predicted Self-Similarity Compensation**

*Caroline Conti, Paulo Nunes, Luís Ducla Soares*

*Instituto de Telecomunicações*

### **Light Field HEVC-Based Image Coding Using Locally Linear Embedding and Self-Similarity Compensated Prediction**

*Ricardo Monteiro<sup>1,2</sup>, Luis Lucas<sup>1,5</sup>, Caroline Conti<sup>1,2</sup>, Paulo Nunes<sup>1,2</sup>, Nuno Rodrigues<sup>1,3</sup>, Sérgio Faria<sup>1,3</sup>, Carla Pagliari<sup>4</sup>, Eduardo Silva<sup>5</sup>, Luís Ducla Soares<sup>1,2</sup>*

<sup>1</sup>*Instituto de Telecomunicações*

<sup>2</sup>*Universidade de Lisboa*

<sup>3</sup>*Politécnico de Leiria*

<sup>4</sup>*Instituto Militar de Engenharia*

<sup>5</sup>*Universidade Federal do Rio de Janeiro*

### **High Efficiency Coding of Light Field Images Based on Tiling and Pseudo-Temporal Data Arrangement**

*Cristian Perra<sup>1</sup>, Pedro Assuncao<sup>2</sup>*

<sup>1</sup>*University of Cagliari*

<sup>2</sup>*Instituto de Telecomunicacoes*

### **Compression of Unfocused Plenoptic Images Using a Displacement Intra Prediction**

*Yun Li, Roger Olsson, Mårten Sjöström*

*Mid Sweden University*

**17:00-18:00**

**Grand Challenge Session: bitmovin Grand Challenge on Dynamic Adaptive Streaming over HTTP**

Chair: Christian Timmerer

Room: Grand III

**An Adaptative Bitrate Algorithm for Dash**

*Yunlong Li<sup>1</sup>, Yue Wang<sup>1</sup>, Shanshe Wang<sup>1</sup>, Siwei Ma<sup>1,2</sup>*

*<sup>1</sup>Peking University*

*<sup>2</sup>Peking University Shenzhen Graduate School*

**Buffer-based Control Theoretic Approach for Dynamically HTTP Streaming**

*Zhimin Xu<sup>1,2</sup>, Chao Zhou<sup>1</sup>, Li Liu<sup>1</sup>, Xinggong Zhang<sup>1,3</sup>, Zongming Guo<sup>1,3</sup>*

*<sup>1</sup>Peking University*

*<sup>2</sup>Beijing University of Posts & Telecommunications*

*<sup>3</sup>Cooperative Medianet Innovation Center*

**A Bio-Inspired Http-Based Adaptive Streaming Player**

*Yusuf Sani<sup>1</sup>, Andreas Mauthe<sup>1</sup>, Christopher Edwards<sup>1</sup>, Mu Mu<sup>2</sup>*

*<sup>1</sup>Lancaster University*

*<sup>2</sup>The University of Northampton*

**Wednesday, July 13, 2016**

**10:00-11:40**

**Grand Challenge Session: MSR Image Recognition Challenge**

Chairs: Yuxiao Hu and Lei Zhang

Room: Grand III

**Deep Multi-Context Network for Fine-Grained Visual Recognition**

*Xinyu Ou<sup>1,2,3</sup>, Zhen Wei<sup>2,4</sup>, Hefei Ling<sup>1</sup>, Si Liu<sup>2</sup>, Xiaochun Cao<sup>2</sup>*

<sup>1</sup>*Huazhong University of Science and Technology*

<sup>2</sup>*Chinese Academy of Science*

<sup>3</sup>*Yunnan Open University*

<sup>4</sup>*University of Electronic Science and Technology of China*

**Ensemble Deep Neural Networks for Domain-Specific Image Recognition**

*Wenbo Li, Chuan Ke*

*Chinese Academy of Science*

**Improve Dog Recognition by Mining More Information from Both Click-through Logs and Pre-Trained Models**

*Guotian Xie<sup>1</sup>, Kuiyuan Yang<sup>2</sup>, Yalong Bai<sup>3</sup>, Min Shang<sup>4</sup>, Yong Ru<sup>2</sup>, Jianhuang Lai<sup>1</sup>*

<sup>1</sup>*Sun Yat-Sen University*

<sup>2</sup>*Microsoft Research*

<sup>3</sup>*Harbin Institute of Technology*

<sup>4</sup>*Tsinghua University*

**Learning to Recognition from Bing Clickture Data**

*Chenghua Li, Qiang Song, Yuhang Wang, Hang Song, Qi Kang, Cheng Jian,*

*Hanqing Lu*

*Chinese Academy of Science*

**17:00-18:00**

**Grand Challenge Summary Session**

Chairs: Andrew Gallagher and Christian Timmerer

Room: Grand III

**Grand Challenge on Light-Field Image Compression**

*Touradj Ebrahimi, Peter Schelkens, Fernando Pereira*

**bitmovin Grand Challenge on Dynamic Adaptive Streaming over HTTP**

*Christian Timmerer*

**ICME 2016 Image Recognition Grand Challenge**

*Yuxiao Hu, Lei Zhang, Jin Li, Sanjeev Mehrotra*

# Industry Forum

## Title: Ultra HD - Roadmap of High Quality A/V Content to the Home

Ultra HD content appears to be on the brink of replacing HD content and enter the mainstream as a newer and more sensational way of delivering media to consumers. Companies across the industry are coming together with the aim to streamline an approach to standards, consumer offering, and technologies. 4K resolution, High Dynamic Range, Wide Color Gamut, High Frame rates, and object based audio are some elements that contribute to the improved user experience. Listen to experts from various segments of the media industry to learn about the current status and the phasing of the deployment of these new technologies. The panelists will address a broad range of topics including products, services and workflows for the production and distribution of content. The status and directions of various relevant standards and promotional forums, consumer device features and experiences, and content formats and capabilities.

Time: 13:20-15:00, Wednesday, July 13, 2016

Room: Grand III

### Moderator:

**Patrick Griffis**, Technology Vice President, Office of the CTO, Dolby Laboratories.

### Panelists:

**Don Eklund**, Senior Vice President, New Format Promotion Sony Corporation of America

**Thierry Fautier** (Vice President of Video Strategy, Harmonic)

**Nandhu Nandhakumar** (Senior Vice President, CTO Office, LG Electronics)

### Format

- Moderator: Introduction to Next Gen Video and Audio (Patrick Griffis)
- Content Production: Workflows and Technologies (Don Eklund)
- Distribution: Challenges and Solutions (Thierry Fautier)
- Consumer Device Implications (Nandhu Nandhakumar)
- Panel Discussion and Q&A

# Hands-on Expo

## Hands-On Expo No. 1: Microsoft Cognitive Services

Time: 14:40-16:40, Wednesday, July 13, 2016

Room: Blakely

Presenters:

Cha Zhang (Principal Researcher, Microsoft Research)

Emad Barsoum (Principal Developer, Microsoft Research)

Kenneth Tran (Senior Developer, Microsoft Research)

### Description

Microsoft Cognitive Services is a set of APIs and SDKs for computer vision, speech, language processing, and search based on research in machine intelligence from Microsoft. These REST APIs make it easy to build intelligent experiences with images, video, text and speech understanding on any platform. This session will include technical talks by the researchers behind Emotion and Image Captioning API, followed by an hour of hands on workshop where you'll learn how to build an experience using our Vision API and Language Understanding Intelligent Service.

### Talk #1: Emotion Recognition from Images in the Wild

Speaker: Cha Zhang, Principal Researcher, MSR

Abstract: Recognizing people's emotions have many potential applications including advertising, gaming, autism intervention, personal assistant, etc. In this talk, I'll present our effort in creating the Emotion API for images in the wild. I will discuss the challenges we faced, how we collected the data, and how to build an algorithm to estimate emotions from images. Emotion API is currently shipped as part of the Microsoft Cognitive Service.

### Talk #2: Rich Image Captioning in the Wild

Speaker: Kenneth Tran, Senior RSDE, MSR

Abstract: We present an image caption system that addresses new challenges of automatically describing images in the wild. The challenges include high quality caption quality with respect to human judgments, out-of-domain data handling, and low latency required in many applications. Built on top of a state-of-the-art framework, we developed a deep vision model that detects a broad range of visual concepts, an entity recognition model that identifies celebrities and landmarks, and a confidence model for the caption output. Experimental results show that our caption engine

outperforms previous state-of-the-art systems significantly on both in-domain dataset (i.e. MS COCO) and out-of-domain datasets.

**Remark: If you would like to participate in the hands on demo, please bring a laptop with Python 3 installed.**

### **Hands-On Expo No. 2: Intel RealSense**

Time: 13:00-16:00, Thursday, July 14, 2016

Room: Vashon

Presenter:

Anders Grunnet-Jepsen (CTO & Director of Advanced Technology Group, Perceptual Computing, Intel Corporation)

### **Description**

Intel's RealSense Technology is making great strides in "sensifying computing" by providing breakthrough innovation in hardware and software. Intel is developing a family of RealSense Depth Cameras, processors, image processors, and application specific integrated circuits that will allow a computer to sense its surroundings much like humans are able to, to capture the world in both shape and color. These sensors are currently in over a million PCs today. This technology is very exciting in bringing new features to PCs and laptops where you can now use them to scan people, objects and rooms in 3D in a matter of minutes, or do instant live green-screen background segmentation or allow for remote gesture interaction with a computer, to name a few. However, where we see major growth opportunity for this technology is in new markets emerging that are growing fast, including drones, robots, AR/VR, and smart buildings and homes. This talk will present Intel's depth sensors and show how they are being applied to PCs and beyond. The presentation will take about 1.5 hrs and it will be followed by the handing out of a limited number of RealSense Camera modules. We will walk you through the installation (briefly) and will focus on bringing you quickly up and showing you some samples in the RealSense SDK. Please bring your own Windows 10 (or Windows 8) Laptop with a USB3 connector. Other operating systems are also supported, but will not be demoed.

## **Student Programs**

### **Three-Minute Thesis Competition**

Time: 10:00-11:20, Thursday, July 14, 2016

Room: Grand III

### **Student Industry Luncheon**

Time: 11:40-13:00, Thursday, July 14, 2016

Room: Fifth Avenue Room

## Side Meetings

**Title:** IEEE Transactions on Multimedia Steering Committee

**Chair:** Alan Hanjalic

**Time:** 12:00-14:00, Monday, July 11, 2016

**Room:** Cascade I-C

**Title:** SPS Multimedia Signal Processing Technical Committee (MMSP TC)

**Chair:** Enrico Magli

**Time:** 11:40-13:00, Tuesday, July 12, 2016

**Room:** Vashon

**Title:** IEEE Multimedia Magazine Editorial Board (MM EB)

**Chair:** Yong Rui

**Time:** 11:40-13:00, Tuesday, July 12, 2016

**Room:** Blakely

**Title:** IEEE Transactions on Multimedia Editorial Board (TMM EB)

**Chair:** Chang Wen Chen

**Time:** 18:00-20:00, Tuesday, July 12, 2016

**Room:** Vashon

**Title:** CAS Multimedia Systems and Applications Technical Committee (MSA TC)

**Chair:** Zicheng Liu

**Time:** 11:40-13:20, Wednesday, July 13, 2016

**Room:** Blakely

**Title:** Computer Society Technical Committee on Multimedia Computing (TCMC)

**Chair:** Mei-Ling Shyu

**Time:** 11:40-13:20, Wednesday, July 13, 2016

**Room:** Vashon

- Title:** **ICME Steering Committee (ICME SC)**  
Chair: Haohong Wang  
Time: 14:00-16:00, Wednesday, July 13, 2016  
Room: Vashon
- Title:** **Happy hour mixer , WIE and YP - Hosted by IEEE Seattle**  
Description: Come join us for happy hour. Hosted by IEEE Seattle. All are welcome.  
Chair: Sheree Wen  
Time: 17:00-19:00, Wednesday, July 13, 2016  
Room: Vashon
- Title:** **Comsoc Multimedia Communications Technical Committee (MMTC)**  
Chair: Yonggang Wen  
Time: 11:40-13:00, Thursday, July 14, 2016  
Room: Blakely
- Title:** **ICME 2017 Organizing Committee (ICME 2017 OC)**  
Chair: Joern Ostermann  
Time: 14:20-16:20, Thursday, July 14, 2016  
Room: Blakely

# Main Program

## Oral Sessions

**Tuesday, July 12, 2016**

**10:00-11:40**

### **Oral Session Tue-AM-1: Image/Video Content Analysis**

Chair: Tao Mei (Microsoft Research Asia, China)

Room: Cascade I

#### **Distance Learning by Treating Negative Samples Differently and Exploiting Impostors with Symmetric Triplet Constraint for Person Re-identification**

*Xiaoke Zhu<sup>1,4</sup>, Xiao-Yuan Jing<sup>1,3</sup>, Fei Wu<sup>1,3</sup>, Weishi Zheng<sup>2</sup>, Ruimin Hu<sup>1</sup>, Chunxia Xiao<sup>1</sup>, Chao Liang<sup>1</sup>*

<sup>1</sup>*Wuhan University*

<sup>2</sup>*Sun Yat-Sen University*

<sup>3</sup>*Nanjing University of Posts and Telecommunications*

<sup>4</sup>*Henan University*

#### **Approximate Convex Decomposition for 2D Shapes based on Visibility Range**

*Zhiyang Li<sup>1</sup>, Wenyu Qu<sup>3</sup>, Heng Qi<sup>2</sup>, Milos Stojmenovic<sup>4</sup>*

<sup>1</sup>*Dalian Maritime University*

<sup>2</sup>*Dalian University of Technology*

<sup>3</sup>*Tianjin University*

<sup>4</sup>*Singidunum University*

#### **Tracking Undulatory Body Motion of Multiple Fish based on Midline Dynamics Modeling**

*Shuo Hong Wang<sup>1</sup>, Xi En Cheng<sup>1,2</sup>, Yan Qiu Chen<sup>1</sup>*

<sup>1</sup>*Fudan University*

<sup>2</sup>*Jingdezhen Ceramic Institute*

#### **Extracting and Describing Liver Capsule Contour in High-frequency Ultrasound Image for Early HBV Cirrhosis Diagnosis**

*Xiang Liu<sup>1,2</sup>, Jialin Song<sup>3</sup>, Jing Wen Zhao<sup>1</sup>, Yan Qiu Chen<sup>1</sup>, Jian Quan Zhang<sup>3</sup>*

<sup>1</sup>*Fudan University*

<sup>2</sup>*Shanghai University of Engineering Science*

<sup>3</sup>*Second Military Medical University*

**\*Salient object detection for RGB-D image via saliency evolution**

*Jingfan Guo, Tongwei Ren, Jia Bei*

*Nanjing University*

*\*This paper also appears in Poster Session Tue-PO-1: Image/Video Content Analysis I.*

**10:00-11:40**

**Oral Session Tue-AM-2: Audio/Speech Signal Processing**

Chair: Mingxing Xu (Tsinghua University, China)

Room: Cascade II

**Multichannel Reduction Based on Sound Field Within Two Ears**

*Dengshi Li, Ruimin Hu, Xiaochen Wang, Guo Wu, Zheng Zhang, Weiping Tu*

*Wuhan University*

**A Perceptually Motivated Approach via Sparse and Low-rank Model for Speech Enhancement**

*Gang Min<sup>1,2</sup>, Xiongwei Zhang<sup>1</sup>, Jibin Yang<sup>1,3</sup>, Wei Han<sup>1</sup>, Xia Zou<sup>1</sup>*

*<sup>1</sup>PLA University of Science and Technology*

*<sup>2</sup>Xi'an Communications Institute*

*<sup>3</sup>Nanjing University of Science and Technology*

**Joint Optimization of Audible Noise Suppression and Deep Neural Networks for Single-Channel Speech Enhancement**

*Wei Han<sup>1</sup>, Xiongwei Zhang<sup>1</sup>, Gang Min<sup>1,2</sup>, Meng Sun<sup>1</sup>, Jibin Yang<sup>1</sup>,*

*<sup>1</sup>PLA University of Science and Technology*

*<sup>2</sup>Xi'an Communications Institute*

*<sup>3</sup>Nanjing University of Science and Technology*

**Phonetic Posteriorgrams for Many-to-One Voice Conversion without Parallel Data Training**

*Lifa Sun, Kun Li, Hao Wang, Shiyin Kang, Helen Meng*

*Chinese University of Hong Kong*

**DBLSTM-Based Multi-Scale Fusion for Dynamic Emotion Prediction in Music**

*Xinxing Li, Jiashen Tian, Mingxing Xu, Yishuang Ning, Lianhong Cai*

*Tsinghua University*

**14:30-15:50**

**Oral Session Tue-MD-1: Best Student Paper Award Session**

Chair: Chang Wen Chen (State University of New York at Buffalo, USA)

Room: Grand III

## **Large-Scale Vehicle Re-Identification in Urban Surveillance Videos**

*Xinchen Liu, Wu Liu, Huadong Ma, Huiyuan Fu*

*Beijing University of Posts and Telecommunications*

## **Exploring Auditory Network Composition during Free Listening to Audio**

### **Excerpts via Group-Wise Sparse Representation**

*Shijie Zhao<sup>1,2</sup>, Junwei Han<sup>1</sup>, Xi Jiang<sup>2</sup>, Xintao Hu<sup>1</sup>, Jinglei Lv<sup>1,2</sup>, Shu Zhang<sup>2</sup>, Bao Ge<sup>3</sup>, Lei Guo<sup>1</sup>, Tianming Liu<sup>2</sup>*

*<sup>1</sup>Northwestern Polytechnical University*

*<sup>2</sup>University of Georgia*

*<sup>3</sup>Shanxi Normal University*

## **Blind Quality Assessment of Compressed Images via Pseudo Structural Similarity**

*Xiongkuo Min<sup>1</sup>, Guangtao Zhai<sup>1</sup>, Ke Gu<sup>1</sup>, Yuming Fang<sup>2</sup>, Xiaokang Yang<sup>1</sup>, Xiaolin Wu<sup>1</sup>, Jiantao Zhou<sup>3</sup>, Xiaoming Liu<sup>4</sup>*

*<sup>1</sup>Shanghai Jiao Tong University*

*<sup>2</sup>Jiangxi University of Finance and Economics*

*<sup>3</sup>University of Macau*

*<sup>4</sup>Harbin Institute of Technology*

## **Effective HEVC Intra Coding Unit Size Decision based on Online Progressive Bayesian Classification**

*Jiawei Chen, Lu Yu*

*Zhejiang University*

**14:30-15:50**

## **Oral Session Tue-MD-2: Special Session on Free Navigation and Immersive 3D**

Chairs: Masayuki Tanimoto (Nagoya Industrial Science Research Institute, Japan),

Gauthier Lafruit (Université Libre de Bruxelles, Belgium), Joël Jung (Orange Labs, France)

Room: Cascade I

## **Efficient MRF-based Disocclusion Inpainting in Multiview Video**

*Beerend Ceulemans<sup>1,2</sup>, Shao-Ping Lu<sup>1,2</sup>, Gauthier Lafruit<sup>3</sup>, Peter Schelkens<sup>1,2</sup>, Adrian Munteanu<sup>1,2</sup>*

*<sup>1</sup>iMinds VZW*

*<sup>2</sup>Vrije Universiteit Brussel*

*<sup>3</sup>Université Libre de Bruxelles*

## New Results in Free-Viewpoint Television Systems for Horizontal Virtual Navigation

Marek Domański, Maciej Bartkowiak, Adrian Dziembowski, Tomasz Grajek, Adam Grzelka, Adam Łuczak, Dawid Mieloch, Jarosław Samelak, Olgierd Stankiewicz, Jakub Stankowski, Krzysztof Wegner  
Poznan University of Technology

## Efficient Plenoptic Imaging Representation: Why Do We Need It?

Fernando Pereira<sup>1</sup>, Eduardo A.B. da Silva<sup>2</sup>

<sup>1</sup>Instituto Superior Técnico - Instituto de Telecomunicações

<sup>2</sup>Universidade Federal do Rio de Janeiro

## \*Content-Adaptive Focus Configuration for Near-Eye Multi-Focal Displays

Wanmin Wu<sup>1</sup>, Patrick Llull<sup>2</sup>, Ivana Tosic<sup>1</sup>, Noah Bedard<sup>1</sup>, Kathrin Berkner<sup>1</sup>, Nikhil Balram<sup>1</sup>

<sup>1</sup>Ricoh Innovations Corporation

<sup>2</sup>Duke University

\*This paper also appears in Poster Session Tue-PO-3: 3D & Depth Processing.

14:30-15:50

## Oral Session Tue-MD-3: Object Tracking

Chair: Hsu-Yung Cheng (National Central University, Zhongli, Taiwan)

Room: Cascade II

### 3D Tracking Targets via Kinematic Model Weighted Particle Filter

*Xi En Cheng<sup>1,2</sup>, Shuo Hong Wang<sup>1</sup>, Yan Qiu Chen<sup>1</sup>*

<sup>1</sup>Fudan University

<sup>2</sup>Jingdezhen Ceramic Institute

### \*Structure-Regularized Compressive Tracking

*Qing Guo, Wei Feng, Ce Zhou, Bin Wu*

*Tianjin University*

\*This paper also appears in Poster Session Wed-PO-1: Image/Video Content Analysis II.

### Online Video Tracking Using Collaborative Convolutional Networks

*Hao Guan, Xiangyang Xue, An Zhiyong*

*Fudan University*

### Robust Online Visual Tracking via a Temporal Ensemble Framework

*Hao Guan, Xiangyang Xue*

*Fudan University*

**17:00-18:00**

**Oral Session Tue-PM-1: Special Session on Multimedia Cloud Computing and Big Data**

Chairs: Zheng-Jun Zha (University of Science and Technology of China, China), Gwendal Simon (Telecom Bretagne, France), Shervin Shirmohammadi (University of Ottawa, Canada), Xiaokang Yang (Shanghai Jiao Tong University, China)

Room: Cascade I

**A Comparative Evaluation: Different Methods for Simplifying the Deep Compositional Features**

*Shuang Qiu, Shikui Wei, Yao Zhao*

*Beijing Jiaotong University*

**Person Re-identification via Rich Color-gradient Feature**

*Lingxiang Wu<sup>1,2</sup>, Jinqiao Wang<sup>2</sup>, Guibo Zhu<sup>2</sup>, Min Xu<sup>3</sup>, Hanqing Lu<sup>2</sup>*

<sup>1</sup>*University of Technology Sydney*

<sup>2</sup>*Chinese Academy of Sciences*

<sup>3</sup>*University of Technology Sydney*

**A Graph Based Multimodal Geospatial Interpolation Framework**

*Mengfan Tang<sup>1</sup>, Pranav Agrawal<sup>1</sup>, Feiping Nie<sup>2</sup>, Siripen Pongpaiche<sup>1</sup>, Ramesh Jain<sup>1</sup>*

<sup>1</sup>*University of California, Irvine*

<sup>2</sup>*Northwestern Polytechnical University*

**17:00-18:00**

**Oral Session Tue-PM-2: Multimodal Interaction**

Chair: Zicheng Liu (Microsoft Research, Redmond, USA)

Room: Cascade II

**Understanding Spatial Correlation in Eye-Fixation Maps for Visual Attention in Videos**

*Tariq Alshawi, Zhiling Long, Ghassan Alregib*

*Georgia Institute of Technology*

**\*Simultaneous Estimation of Gaze Direction and Visual Focus of Attention for Multi-Person-to-Robot Interaction**

*Benoit Massé, Sil'eye Ba, Radu Horaud*

*INRIA Grenoble Rhône-Alpes*

*\*This paper also appears in Poster Session Wed-PO-1: Image/Video Content Analysis II.*

**Hand Gesture Recognition based on Canonical Formed Superpixel Earth Mover's Distance**

*Chong Wang<sup>1</sup>, Zhong Liu<sup>2</sup>, Jieyu Zhao<sup>1</sup>*

<sup>1</sup>*Ningbo University*

<sup>2</sup>*University of Hong Kong*

**Wednesday, July 13, 2016**

**10:00-11:40**

**Oral Session Wed-AM-1: Visual Signal Processing**

Chair: Min-Jen Tsai (National Chiao Tung University, Taiwan)

Room: Cascade I

**Spherical Superpixel Segmentation**

*Qiang Zhao, Liang Wan, Jiawan Zhang*

*Tianjin University*

**Adaptive Multi-Dimension Sparsity based Coefficient Estimation for Compression Artifact Reduction**

*Jing Mu<sup>1</sup>, Xinfeng Zhang<sup>2</sup>, Ruiqin Xiong<sup>1</sup>, Siwei Ma<sup>1</sup>, Wen Gao<sup>1</sup>*

<sup>1</sup>*Peking University*

<sup>2</sup>*Nanyang Technological University*

**\*Local- and Holistic- Structure Preserving Image Super Resolution via Deep Joint Component Learning**

*Yukai Shi, Keze Wang, Li Xu, Liang Lin*

*Sun Yat-Sen University*

**\*This paper also appears in Poster Session Thu-PO-1: Image/Video Content Analysis III.**

**Sparse Two-Dimensional Singular Value Decomposition**

*Junhui Hou, Jie Chen, Lap-Pui Chau, Ying He*

*Nanyang Technological University*

**\*Shape-Optimizing Hybrid Warping for Image Stitching**

*Qingpeng Chai, Shiguang Liu*

*Tianjin University*

**\*This paper also appears in Poster Session Thu-PO-3: Multimedia Systems and Applications.**

**10:00-11:40**

**Oral Session Wed-AM-2: Object Detection and Segmentation**

Chair: Jörn Ostermann (Leibniz Universität Hannover, Germany)

Room: Cascade II

**Shape-Guided Segmentation for Fine-Grained Visual Categorization**

*Ming Sun, Jufeng Yang, Bo Sun, Kai Wang*

*Nankai University*

**\*A Novel Obstacle Detection Method based on Distortion of Laser Pattern**

*Zichao Guo, Hong Liu, Yueliang Qian, Xiangdong Wang*

*Chinese Academy of Science*

*\*This paper also appears in Poster Session Wed-PO-2: Multimedia Understanding.*

**\*Video Object Segmentation Aggregation**

*Tianfei Zhou<sup>1</sup>, Yao Lu<sup>1</sup>, Huijun Di<sup>1</sup>, Jian Zhang<sup>2</sup>*

*<sup>1</sup>Beijing Institute of Technology*

*<sup>2</sup>University of Technology Sydney*

*\*This paper also appears in Poster Session Wed-PO-1: Image/Video Content Analysis II.*

**A Robust Automatic Object Segmentation Method for 3D Printing**

*Tzu-Kuei Huang, Ying-Hsuang Wang, Ta-Kai Lin, Yung-Yu Chuang*

*National Taiwan University*

**Segmentation of 3D Articulated Meshes Using Shape Diameter Function and Curvature Information**

*Meha Hachani<sup>1</sup>, Azza Ouled Zaid<sup>2</sup>, Raoua Khwaldi<sup>2</sup>*

*<sup>1</sup>ENIT Tunisia*

*<sup>2</sup>ISI Tunis*

**13:20-15:00**

**Oral Session Wed-MD-1: Special Session on Quality Assessment**

Chairs: Yuming Fang (Jiangxi University of Finance and Economics, China), Hantao Liu (Cardiff University, UK), Zhenzhong Chen (Wuhan University, China), Weisi Lin (Nanyang Technological University, Singapore)

Room: Cascade I

**Quality-of-Experience Prediction for Streaming Video**

*Zhengfang Duanmu, Abdul Rehman, Kai Zeng, Zhou Wang*

*University of Waterloo*

**No-reference Image Quality Assessment Based on High Order Derivatives**

*Qiaohong Li, Weisi Lin, Yuming Fang*

*Nanyang Technological University*

**Full-Reference Perceptual Quality Assessment for Stereoscopic Images Based on Primary Visual Processing Mechanism**

*Yu Cao, Wenhao Hong, Lu Yu  
Zhejiang University*

**Learning-Based Quality Assessment of Retargeted Stereoscopic Images**

*Yi Liu, Lifeng Sun, Shiqiang Yang  
Tsinghua University*

**13:20-15:00**

**Oral Session Wed-MD-2: Multimodal Content Analysis**

Chair: Yu-Chang Frank Wang (Academic Sinica, Taipei, Taiwan)

Room: Cascade II

**A Soundtrack Generation System to Synchronize the Climax of a Video Clip with Music**

*Haruki Sato<sup>1</sup>, Tatsunori Hirai<sup>1</sup>, Tomoyasu Nakano<sup>2</sup>, Masataka Goto<sup>2</sup>, Shigeo Morishima<sup>3</sup>*

<sup>1</sup>*Waseda University*

<sup>2</sup>*National Institute of Advanced Industrial Science and Technology*

<sup>3</sup>*Waseda Research Institute for Science and Engineering*

**Recognizing Heterogeneous Cross-Domain Data via Generalized Joint Distribution Adaptation**

*Yuan-Ting Hsieh<sup>1</sup>, Shih-Yen Tao<sup>1</sup>, Yao-Hung Hubert Tsai<sup>2</sup>, Yi-Ren Yeh<sup>3</sup>, Yu-Chiang Frank Wang<sup>2</sup>*

<sup>1</sup>*National Taiwan University*

<sup>2</sup>*Academia Sinica*

<sup>3</sup>*National Kaohsiung Normal University*

**Robust Latent Poisson Deconvolution from Multiple Imperfect Features for Web Topic Detection**

*Fei Tao<sup>1</sup>, Junbiao Pang<sup>2</sup>, Chunjie Zhang<sup>34</sup>, Liang Li<sup>34</sup>, Weigang Zhang<sup>1</sup>, Qingming Huang<sup>34</sup>, Guiping Su<sup>3</sup>*

<sup>1</sup>*University of Chinese Academy of Sciences*

<sup>2</sup>*Beijing University of Technology*

<sup>3</sup>*Harbin Institute of Technology*

<sup>4</sup>*Chinese Academy of Sciences*

**Inferring Users' Emotions for Human-Mobile Voice Dialogue Applications**

*Boya Wu<sup>123</sup>, Jia Jia<sup>123</sup>, Tao He<sup>4</sup>, Juan Du<sup>1</sup>, Xiaoyuan Yi<sup>1</sup>, Yishuang Ning<sup>1</sup>*

<sup>1</sup>*Tsinghua University*

<sup>2</sup>*Ministry of Education, China*

<sup>3</sup> Tsinghua National Laboratory for Information Science and Technology

<sup>4</sup> Sichuan University

**16:40-18:00**

**Oral Session Wed-PM-1: Visual Coding**

Chairs João Ascenso (Instituto de Telecomunicações, Portugal)

Room: Cascade I

**Dictionary Learning for Kernel Sparse Coding**

*Huaping Liu<sup>12</sup>, Jie Qin<sup>12</sup>, Chenwei Deng<sup>3</sup>, Fuchun Sun<sup>12</sup>*

<sup>1</sup> Tsinghua University

<sup>2</sup> State Key Lab. of Intelligent Technology and Systems

<sup>3</sup> Beijing Institute Technology

**Digital Holography: Benchmarking Coding Standards and Representation Formats**

*José Peixeiro, Catarina Brites, Joao Ascenso, Fernando Pereira  
University of Lisbon*

**\*Lossless Depth Map Coding Using Binary Tree Based Decomposition and Context-Based Arithmetic Coding**

*Shampa Shahriyar<sup>1</sup>, Manzur Murshed<sup>2</sup>, Mortuza Ali<sup>3</sup>, Manoranjan Paul<sup>2</sup>*

<sup>1</sup> Monash University

<sup>2</sup> Federation University

<sup>3</sup> Charles Sturt University

*\*This paper also appears in Poster Session Thu-PO-4: Multimedia Coding.*

**Visual Data Deblocking Using Structural Layer Priors**

*Siyuan Li<sup>1</sup>, Jiawan Zhang<sup>1</sup>, Xiaojie Guo<sup>2</sup>*

<sup>1</sup>Tianjin University

<sup>2</sup> State Key Laboratory of Information Security

**16:40-18:00**

**Oral Session Wed-PM-2: Multimedia Search and Retrieval**

Chair: Yong Rui (Microsoft Research Asia, China)

Room: Cascade II

**Robust Image Matching via Feature Guided Gaussian Mixture Model**

*Jiayi Ma<sup>1</sup>, Junjun Jiang<sup>2</sup>, Yuan Gao<sup>3</sup>, Jun Chen<sup>2</sup>, Chengyin Liu<sup>1</sup>*

<sup>1</sup> Wuhan University

<sup>2</sup> China University of Geosciences

<sup>3</sup> City University of Hong Kong

**Cross-modal Hashing through Ranking Subspace Learning**

*Kai Li, Guojun Qi, Jun Ye, Kien A. Hua*

*University of Central Florida*

**Graph-Based Web Video Search Reranking Through Consistency Analysis**

**Using Spectral Clustering**

*Soh Yoshida, Takahiro Ogawa, Miki Haseyama*

*Hokkaido University*

**Generalized Residual Vector Quantization for Large Scale Data**

*Shicong Liu, Junru Shao, Hongtao Lu*

*Shanghai Jiao Tong University*

**Thursday, July 14, 2016**

**10:00-11:40**

**Oral Session Thu-AM-1: Face Processing and Analysis**

Chair: Shao-Yi Chien (National Taiwan University, Taiwan)

Room: Cascade I

**One-shot Deep Neural Network for Pose and Illumination Normalization**

**Face Recognition**

*Zhongjun Wu, Weihong Deng*

*Beijing University of Posts and Telecommunications*

**Robust Online Face Tracking-by-Detection**

*Francesco Comaschi<sup>1</sup>, Sander Stuijk<sup>1</sup>, Twan Basten<sup>1,2</sup>, Henk Corporaal<sup>1</sup>*

<sup>1</sup>*Eindhoven University of Technology*

<sup>2</sup>*TNO Embedded Systems Innovation*

**With One Look: 3D Face Shape Estimation from a Single Snapshot**

*Chia-Po Wei, Yu-Chiang Frank Wang*

*Academia Sinica*

**Robust Face Image Alignment Using Structural Priors**

*Xiaojie Guo, Dongdai Lin*

*State Key Laboratory of Information Security*

**Patch-Based Face Hallucination with Multitask Deep Neural Network**

*Wei-Jen Ko, Shao-Yi Chien*

*National Taiwan University*

**10:00-11:40**

**Oral Session Thu-AM-2: Multimedia Systems and Applications**

Chair: Yuta Nakashima (Nara Institute of Science and Technology, Japan)

Room: Cascade II

**A Pipeline-Based Runtime Technique for Improving Ray-Tracing on HSA-Compliant Systems**

*Chih-Chen Kao, Yu-Tsung Miao, Wei-Chung Hsu*

*National Taiwan University*

**\*Human Action Recognition-Based Video Summarization for RGB-D Personal Sports Video**

*Antonio Tejero de Pablos, Yuta Nakashima, Tomokazu Sato, Naokazu Yokoya*

*Nara Institute of Science and Technology*

*\*This paper also appears in Poster Session Wed-PO-2: Multimedia Understanding.*

**Adaptive Affinity Matrix for Unsupervised Metric Learning**

*Yaoyi Li, Junxuan Chen, Yiru Zhao, Hongtao Lu*

*Shanghai Jiao Tong University*

**Parameterized Reconstruction Based Fourier Ptychography**

*Weixin Jiang, Yongbing Zhang, Qionghai Dai*

*Tsinghua University*

**Digital Forensics for Printed Character Source Identification**

*Min-Jen Tsai, Chien-Lun Hsu, Jin-Sheng Yin, Imam Yuadi*

*National Chiao Tung University*

**16:00-17:20**

**Oral Session Thu-PM-1: Special Session on Deep Learning for Multimedia Computing**

Chairs: Benoit Huet (Eurecom, France), Jiebo Luo (University of Rochester, USA),

Guo-Jun Qi (University of Central Florida, USA)

Room: Grand III

**Deep Conditional Neural Network for Image Segmentation**

*Qiurui Wang<sup>1</sup>, Chun Yuan<sup>1</sup>, Yan Liu<sup>2</sup>*

<sup>1</sup>*Tsinghua University*

<sup>2</sup>*Hong Kong Polytechnic University*

**On-premise Signs Detection and Recognition Using Fully Convolutional Networks**

*Yong-Xiang Wang, Chih-Hsin Hsueh, Hung-Yi Lo, Min-Chun Hu*

<sup>1</sup>*National Cheng Kung University*

<sup>2</sup>*Foxconn Technology Co.*

**Crowd Video Retrieval via Deep Attribute-Embedding Graph Ranking**

*Yanhao Zhang<sup>1</sup>, Lei Qin<sup>2</sup>, Sicheng Zhao<sup>1</sup>, Rongrong Ji<sup>3</sup>, Xiusheng Lu<sup>1</sup>, Hongxun*

*Yao<sup>1</sup>, Qingming Huang<sup>1,2</sup>,*

<sup>1</sup>*Harbin Institute of Technology*

<sup>2</sup>*Chinese Academy of Sciences*

<sup>3</sup>*Xiamen University*

**Multimedia Event Detection via Deep Spatial-Temporal Neural Networks**

*Jingyi Hou, Xinxiao Wu, Feiwu Yu, Yunde Jia*

*Beijing Institute of Technology*

**16:00-17:20**

**Oral Session Thu-PM-2: Crowd Analysis**

Chairs: Anthony Vetro (Mitsubishi Electric Research Laboratories, USA)

Room: Cascade I

**Example-Based Visual Object Counting with a Sparsity Constraint**

*Yi Wang<sup>1</sup>, Yuexian Zou<sup>1</sup>, Jin Chen<sup>1</sup>, XiaoLin Huang<sup>1</sup>, Cheng Cai<sup>2</sup>*

<sup>1</sup>*Peking University*

<sup>2</sup>*Northwest A&F University*

**Robust Low Rank Dynamic Mode Decomposition for Compressed Domain**

**Crowd and Traffic Flow Analysis**

*Caglayan Dicle<sup>1</sup>, Hassan Mansour<sup>2</sup>, Dong Tian<sup>2</sup>, Mouhacine Benosman<sup>2</sup>,*

*Anthony Vetro<sup>2</sup>*

<sup>1</sup>*Northeastern University*

<sup>2</sup>*Mitsubishi Electric Research Laboratories*

**Cost-Sensitive Sparse Linear Regression for Crowd Counting with Imbalanced Training Data**

*XiaoLin Huang, Yuexian Zou, Yi Wang*

*Peking University*

**Reliably Detecting Humans in Crowded and Dynamic Environments Using RGB-D Camera**

*Luchao Tian, Guyue Zhang, Mingchen Li, Jun Liu, Yan Qiu Chen*

*Fudan University*

**16:00-17:20**

**Oral Session Thu-PM-3: Multimedia Networking and Communication**

Chair: Sanjeev Mehrotra (Microsoft, USA)

Room: Cascade II

**Improve HEVC Load-balancing for Network Streaming using Adaptive Tile Boundary**

*Chia-Hsin Chan, Yu-Xiong Su, Wen-Jiin Tsai*

*National Chiao Tung University*

**A General PID-based Rate Adaptation Approach for TCP-based Live Streaming over Mobile Networks**

*Jiexi Wang<sup>1</sup>, Shengbin Meng<sup>1</sup>, Jun Sun<sup>1,2</sup>, Zongming Guo<sup>1,2</sup>*

*<sup>1</sup>Peking University*

*<sup>2</sup>Cooperative Medianet Innovation Center*

**POM: Power Efficient Multi-view Video Streaming over Multi-antenna Wireless System**

*Zhe Chen<sup>1,2</sup>, Xu Zhang<sup>1,2</sup>, Yuedong Xu<sup>1</sup>, Xin Wang<sup>1,2</sup>*

*<sup>1</sup>Fudan University*

*<sup>2</sup>Ministry of Education*

**Attribute-Based Multi-Dimension Scalable Access Control for Social Media Sharing**

*Changsha Ma, Zhisheng Yan, Chang Wen Chen*

*State University of New York at Buffalo*

# Poster Sessions

**Tuesday, July 12, 2016**

**15:20-17:20**

## **Poster Session Tue-PO-1: Image/Video Content Analysis I**

Chair: Weidong Cai (University of Sydney, Sydney, Australia)

Room: Grand I & II

### **(Tue-01) Efficient Structure-preserving Superpixel Segmentation Based on Minimum Spanning Tree**

*Yu Bai, Xuejin Chen*

*University of Science and Technology of China*

### **(Tue-02) Unsupervised Visual Domain Adaptation via Dictionary Evolution**

*Songsong Wu<sup>1</sup>, Xiao-Yuan Jing<sup>2</sup>, Dong Yue<sup>1</sup>, Jian Zhang<sup>3</sup>, Jian Yang<sup>4</sup>, Jingyu Yang<sup>4</sup>*

<sup>1</sup>*Nanjing University of Posts and Telecommunications*

<sup>2</sup>*Wuhan University*

<sup>3</sup>*University of Technology Sydney*

<sup>4</sup>*Nanjing University of Science and Technology*

### **(Tue-03) Multi-label Active Learning for Image Classification with Asymmetrical Conditional Dependence**

*Jian Wu<sup>1</sup>, Shiquan Zhao<sup>1</sup>, Victor S. Sheng<sup>2</sup>, PengPeng Zhao<sup>1</sup>, Zhiming Cui<sup>1</sup>*

<sup>1</sup>*Soochow University*

<sup>2</sup>*University of Central Arkansas*

### **(Tue-04) A Bayesian Hierarchical Appearance Model for Robust Object Tracking**

*Raed Almomani, Ming Dong, Dongxiao Zhu*

*Wayne State University*

### **(Tue-05) Geometry-aware Metric Learning for Similar Face Recognition**

*Nanhai Zhang, Jiajie Han, Jiani Hu, Weihong Deng*

*Beijing University of Posts and Telecommunications*

### **(Tue-06) Memory-based Object Detection in Surveillance Scenes**

*Xudong Li, Mao Ye, Dan Liu, Feng Zhang, Song Tang*

*University of Electronic Science and Technology of China*

**(Tue-07) Learning to Rank Saliency : a Novel Salient Object Detection Method  
in RGBD Images**

*Zun Li, Congyan Lang, Songhe Feng, Tao Wang, Liqian Liang, Zhu Teng  
Beijing Jiaotong University*

**(Tue-08) Video Saliency Prediction with Optimized Optical Flow and Gravity  
Center Bias**

*Zhe Wu<sup>1</sup>, Li Su<sup>1,2</sup>, Qingming Huang<sup>1,2</sup>, Bo Wu<sup>3</sup>, Jian Li<sup>4</sup>, Guorong Li<sup>1,2</sup>*

*<sup>1</sup>University of Chinese Academy of Sciences*

*<sup>2</sup>Institute of Computing Technology*

*<sup>3</sup>Capital Medical University*

*<sup>4</sup>Beijing University of Posts and Telecommunications*

**(Tue-09) \*Salient Object Detection for RGB-D Image via Saliency Evolution**

*Jingfan Guo, Tongwei Ren, Jia Bei*

*Nanjing University*

*\*This paper also appears in Oral Session Tue-AM-1: Image/Video Content Analysis.*

**15:20-17:20**

**Poster Session Tue-PO-2: Acoustic/Multimodal Content Analysis**

Chair: Winston Hsu (National Taiwan University, Taipei, Taiwan)

Room: Grand I & II

**(Tue-10) Reducing Manual Labeling in Singing Voice Detection: An Active  
Learning Approach**

*Wei Li, Xiangyi Feng, Min Xue*

*Fudan University*

**(Tue-11) Weakly Supervised Scalable Audio Content Analysis**

*Anurag Kumar, Bhiksha Raj*

*Carnegie Mellon University*

**(Tue-12) Guitar Solos as Networks**

*Stefano Ferretti*

*University of Bologna*

**(Tue-13) Egocentric Activity Recognition by Leveraging Multiple Mid-level  
Representations**

*Peng-Ju Hsieh, Yen-Liang Lin, Yu-Hsiu Chen, Winston Hsu*

*National Taiwan University*

**(Tue-14) Discovering Latent Affective Dynamics among Individuals in Online Mental Health-related Communities**

*Bo Dao, Thin Nguyen, Svetha Venkatesh, Dinh Phung  
Deakin University*

**(Tue-15) Learning a Pose Lexicon for Semantic Action Recognition**

*Lijuan Zhou, Wanqing Li, Philip Ogunbona  
University of Wollongong*

**(Tue-16) Chinese Sign Language Recognition with Adaptive HMM**

*Jihai Zhang, Wengang Zhou, Chao Xie, Junfu Pu, Houqiang Li  
University of Science and Technology of China*

**(Tue-17) \*Multimodal Multi-Channel On-Line Speaker Diarization Using Sensor Fusion through SVM**

*Vicente Peruffo Minotto<sup>1</sup>, Claudio Jung<sup>1</sup>, Bowon Lee<sup>2</sup>  
<sup>1</sup> Federal University of Rio Grande do Sul  
<sup>2</sup> Inha University*

\*This paper originally published in IEEE T-MM, presented for first time at ICME 2016.

**15:20-17:20**

**Poster Session Tue-PO-3: 3D & Depth Processing**

Chair: Jian Zhang (University of Technology, Sydney, Australia)  
Room: Grand I & II

**(Tue-18) Depth Augmented Stereo Panorama for Cinematic Virtual Reality with Head-Motion Parallax**

*Jayant Thatte, Jean-Baptiste Boin, Haricharan Lakshman, Bernd Girod  
Stanford University*

**(Tue-19) 3D Video Super-Resolution using Fully Convolutional Neural Networks**

*Yanchun Xie<sup>1</sup>, Jimin Xiao<sup>1</sup>, Tammam Tillo<sup>1</sup>, Yunchao Wei<sup>2</sup>, Yao Zhao<sup>2</sup>  
<sup>1</sup>Xi'an Jiaotong - Liverpool University  
<sup>2</sup>Beijing Jiaotong University*

**(Tue-20) Explicit Modeling on Depth-Color Inconsistency for Color-Guided Depth Up-Sampling**

*Yifan Zuo<sup>1,2</sup>, Qiang Wu<sup>2</sup>, Jian Zhang<sup>2</sup>, Ping An<sup>1</sup>  
<sup>1</sup>Shanghai University  
<sup>2</sup>University of Technology Sydney*

**(Tue-21) Iterative Color-Depth MST Cost Aggregation for Stereo Matching**

*Peng Yao, Hua Zhang, Yanbing Xue, Mian Zhou, Guangping Xu, Zan Gao*

*Tianjin University of Technology*

**(Tue-22) Depth Super-resolution from RGB-D Pairs With Spatial and Transform Regularization**

*Jingyu Yang, Zhongyu Jiang, Huanjing Yue, Chunping Hou*

*Tianjin University*

**(Tue-23) Depth-aware Layered Edge for Object Proposal**

*Jing Liu<sup>1</sup>, Tongwei Ren<sup>1</sup>, Bing-kun Bao<sup>1,2</sup>, Jia Bei<sup>1</sup>*

*<sup>1</sup>Nanjing University*

*<sup>2</sup>Chinese Academy of Sciences*

**(Tue-24) \*Content-Adaptive Focus Configuration for Near-Eye Multi-Focal Displays**

*Wanmin Wu<sup>1</sup>, Patrick Llull<sup>2</sup>, Ivana Tosic<sup>1</sup>, Noah Bedard<sup>1</sup>, Kathrin Berkner<sup>1</sup>, Nikhil Balram<sup>1</sup>*

*<sup>1</sup>Ricoh Innovations Corporation*

*<sup>2</sup>Duke University*

*\*This paper also appears in Oral Session Tue-MD-2: Special Session on Free Navigation & Immersive 3D.*

**(Tue-25) \*Spatio-temporally Consistent Color and Structure Optimization for Multiview Video Color Correction**

*Shao-Ping Lu, Beerend Ceulemans, Adrian Munteanu, Peter Schelkens  
Vrije Universiteit Brussel*

*\*This paper originally published in IEEE T-MM, presented for first time at ICME 2016.*

**15:20-17:20**

**Poster Session Tue-PO-4: Quality Assessment**

Chair: Lu Yu (Zhejiang University, China)

Room: Grand I & II

**(Tue-26) A Reduced-Reference Video Quality Classification Based on Natural Video Statistics and K-means Clustering**

*Haiqing Du, Jingtao Xu, Yong Liu  
Beijing University of Posts and Telecommunications*

**(Tue-27) BLeSS: Bil-Inspired Low-Level Spatiochromatic Similarity Assisted Image Quality Assessment**

*Dogancan Temel, Ghassan AlRegib*

*Georgia Institute of Technology*

**(Tue-28) Visual Attention Analysis on Stereoscopic Images for Subjective Discomfort Evaluation**

*Sewooong Ahn, Junghwan Kim, Haksub Kim, Sanghoon Lee*

*Yonsei University*

**(Tue-29) Distortion Recognition for Image Quality Assessment with Convolutional Neural Network**

*Hanli Wang, Lingxuan Zuo, Jie Fu*

*Tongji University*

**(Tue-30) Binocular Rivalry Detection in Natural Image Pairs**

*Yapeng Xue, Wenhao Hong, Yu Cao, Lu Yu*

*Zhejiang University*

**Wednesday, July 13, 2016**

**14:40-16:40**

**Poster Session Wed-PO-1: Image/Video Content Analysis II**

Chair: Zijung Fang (Shanghai University of Engineering Science, China)

Room: Grand I & II

**(Wed-01) Occlusion Pattern-Based Dictionary for Robust Face Recognition**

*Cho-Ying Wu, Jian-Jiun Ding*

*National Taiwan University*

**(Wed-02) Nonlinear Metric Learning for Visual Tracking**

*Junlin Hu<sup>1</sup>, Jiwen Lu<sup>2</sup>, Yap-Peng Tan<sup>1</sup>*

<sup>1</sup>*Nanyang Technological University*

<sup>2</sup>*Tsinghua University*

**(Wed-03) Collaborative Multi-View Metric Learning for Visual Classification**

*Junlin Hu<sup>1</sup>, Jiwen Lu<sup>2</sup>, Junsong Yuan<sup>1</sup>, Yap-Peng Tan<sup>1</sup>*

<sup>1</sup>*Nanyang Technological University*

<sup>2</sup>*Tsinghua University*

**(Wed-04) Boosted Local Classifiers for Visual Tracking**

*Weijian Ruan<sup>1</sup>, Jun Chen<sup>1</sup>, Jinqiao Wang<sup>2</sup>, Bo Luo<sup>1</sup>, Wenjun Huang<sup>1</sup>, Ruimin Hu<sup>1</sup>*

<sup>1</sup>*Wuhan University*

<sup>2</sup>*National Lab of Automation*

**(Wed-05) High-order Directional Features and Sparse Representation based Classification for In-air Handwritten Chinese Character Recognition**

*Xiwen Qu, Weiqiang Wang, Ke Lu, Zhangjian Ji*

*University of Chinese Academy*

**(Wed-06) Superpixel Segmentation Algorithm based on Differential Evolution**

*Yue-Jiao Gong<sup>1</sup>, Yicong Zhou<sup>1</sup>, Xinglin Zhang<sup>2</sup>*

*<sup>1</sup>University of Macau*

*<sup>2</sup>South China University of Technology*

**(Wed-07) Weakly Supervised Image Parsing by Discriminatively Semantic Graph Propagation**

*Xiaocheng Xu, Jun Ma*

*Shandong University*

**(Wed-08) IBC127: Video Dataset for Fine-grained Bird Classification**

*Tomoaki Saito, Asako Kanezaki, Tatsuya Harada*

*The University of Tokyo*

**(Wed-09) A Novel Trigonometric Energy Functional for Image Segmentation in The Presence of Intensity In-Homogeneity**

*Sajid Hussain<sup>1</sup>, Qi Chun<sup>1</sup>, Muhammad Rizwan Asif<sup>1</sup>, Muhammad Sohrab Khan<sup>2</sup>,*

*Zhaoqiang Zhang<sup>1</sup>, Muhammad Sadiq Fareed<sup>1</sup>, Zhe Zhang<sup>1</sup>*

*<sup>1</sup>Xi'an Jiaotong University*

*<sup>2</sup>Institute of Research and Technology Kashrote*

**(Wed-10) \*Structure-Regularized Compressive Tracking**

*Qing Guo, Wei Feng, Ce Zhou, Bin Wu*

*Tianjin University*

*\*This paper also appears in Oral Session Tue-MD-3: Object Tracking.*

**(Wed-11) \*Simultaneous Estimation of Gaze Direction and Visual Focus of Attention for Multi-Person and Robot Interaction**

*Benoit Massé, Sileye Ba, Radu Horaud*

*Institut National de Recherche en Informatique et en Automatique*

*\*This paper also appears in Oral Session Tue-PM-2: Multimodal Interaction.*

**(Wed-12) \*Video Object Segmentation Aggregation**

*Tianfei Zhou<sup>1</sup>, Yao Lu, Huijun Di, Jian Zhang<sup>2</sup>*

*<sup>1</sup>Beijing Institute of Technology*

*<sup>2</sup>University of Technology Sydney*

*\*This paper also appears in Oral Session Wed-MD-1: Object Detection and Segmentation.*

**(Wed-13) \*Real-Time Piano Music Transcription Based on Computer Vision**

*Mohammad Akbari<sup>1</sup>, Howard Cheng<sup>2</sup>*

<sup>1</sup>*Simon Fraser University*

<sup>2</sup>*University of Lethbridge*

*\*This paper originally published in IEEE T-MM, presented for first time at ICME 2016.*

**14:40-16:40**

**Poster Session Wed-PO-2: Multimedia Understanding**

Chair: Feng Wu (University of Science and Technology, China)

Room: Grand I & II

**(Wed-14) A Semi-Automatic Brain Tumor Segmentation Algorithm**

*Xiaoli Zhang, Xiongfei Li, Hongpeng Li, Yuncong Feng*

*Jilin University*

**(Wed-15) BCA: Bi-symmetric Component Analysis for Temporal Symmetry in Human Actions**

*Chenyang Zhang, Yingli Tian*

*The City University of New York*

**(Wed-16) A Pair Hidden Markov Support Vector Machine for Alignment of Human Actions**

*Zhen Wang, Massimo Piccardi*

*University of Technology Sydney*

**(Wed-17) Recognize Human Activities from Multi-Part Missing Videos**

*Kaiping Xu, Guolong Wang*

*Tsinghua University*

**(Wed-18) Recognizing Human Actions from Low-resolution Videos by Region-based Mixture Models**

*Ying Zhao<sup>1</sup>, Huijun Di, Jian Zhang<sup>2</sup>, Yao Lu, Feng Lv*

<sup>1</sup>*Beijing Institute of Technology*

<sup>2</sup>*University of Technology Sydney*

**(Wed-19) Describing Images by Feeding LSTM with Structural Words**

*Shubo Ma, Yahong Han*

*Tianjing University*

**(Wed-20) Driver Confusion Status Detection Using Recurrent Neural Networks**

*Chiori HORI<sup>1</sup>, Shinji Watanabe<sup>1</sup>, Takaaki HORI<sup>1</sup>, John Hershey<sup>1</sup>, Yusuke Koji<sup>2</sup>, Yoichi Fujii<sup>2</sup>, Bret Harsham<sup>1</sup>, Yuki Furumoto<sup>2</sup>*

<sup>1</sup>*Mitsubishi Electric Research Laboratories*

<sup>2</sup>*Mitsubishi Electric Corporation*

**(Wed-21) Solar Irradiance Now-Casting with Ramp-Down Event Prediction via Enhanced Cloud Detection and Tracking**

*Hsu Yung Cheng<sup>1</sup>, Chih-chang Yu<sup>2</sup>*

<sup>1</sup>*National Central University*

<sup>2</sup>*Institute for Information Industry*

**(Wed-22) \*A Novel Obstacle Detection Method based on Distortion of Laser Pattern**

*Zichao Guo, Hong Liu, Yueliang Qian, Xiangdong Wang*

*Institute of Computing Technology, Chinese Academy of Science*

\*This paper also appears in Oral Session Wed-AM-2: Object Detection and Segmentation.

**(Wed-23) \*Human Action Recognition-based Video Summarization for RGB-D Personal Sports Video**

*Antonio Tejero de Pablos, Yuta Nakashima, Tomokazu Sato, Naokazu Yokoya*

*Nara Institute of Science and Technology*

\*This paper also appears in Oral Session Thu-AM-2: Multimedia Systems and Applications.

**(Wed-24) \*Superpixel-Based Hand Gesture Recognition with Kinect Depth Camera**

*Chong Wang<sup>1</sup>, Zhong Liu<sup>2</sup>, Shing-Chow Chan<sup>2</sup>*

<sup>1</sup>*Ningbo University*

<sup>2</sup>*The University of Hong Kong*

\*This paper originally published in IEEE T-MM, presented for first time at ICME 2016.

**14:40-16:40**

**Poster Session Wed-PO-3: Mobile & Social Media**

Chair: Zhenzhong Chen (Wuhan University, China)

Room: Grand I & II

**(Wed-25) Using Business-Aware Latent Topics for Image Captioning in Social Media**

*Yan-Ying Chen, Francine Chen, Matthew Cooper, Dhiraj Joshi*

*FX Palo Alto Laboratory*

**(Wed-26) Heterogeneity-Entropy based Unsupervised Feature Learning for Personality Prediction with Cross-Media Data**

*Haishu Xianyu, Mingxing Xu, Zhiyong Wu, Lianhong Cai*

*Tsinghua University*

**(Wed-27) Client-Side Cache Management for Scalable and Interactive Video Streaming**

*Kamal Nayfeh, Nabil Sarhan*

*Wayne State University*

**(Wed-28) Multimedia Transmission over Device-to-Device Wireless Links**

*Chuang Ye, Mustafa Gursoy, Senem Velipasalar*

*Syracuse University*

**(Wed-29) Factors Affecting User Preference for Mobile Video Quality**

*Andreea Molnar*

*University of Portsmouth*

**(Wed-30) \*Study on the Field Test Result of Mobile MMT Trial Service over LTE Network at Open Dense Area, Subway and High Speed Train**

*Hyunmin Jang, Jongmin Lee, Hyeonmin Choi, Sungmin Cho*

*SK Telecom*

\*This paper is an Industry Track submission.

**Thursday, July 14, 2016**

**14:20-16:20**

**Poster Session Thu-PO-1: Image/Video Content Analysis III**

Chair: Enrico Magli (Politecnico di Torino, Italy)

Room: Grand I & II

**(Thu-01) Learning Deep Classifiers with Deep Features**

*Jie Lei<sup>1</sup>, Xinhui Song<sup>1</sup>, Li Sun<sup>1</sup>, Mingli Song<sup>1</sup>, Na Li<sup>2</sup>, Chun Chen<sup>1</sup>*

<sup>1</sup>*Zhejiang University*

<sup>2</sup>*Zhejiang International Studies University*

**(Thu-02) Discovering Affective Regions in Deep Convolutional Neural Networks for Visual Sentiment Prediction**

*Ming Sun, Jufeng Yang, Kai Wang, Hui Shen*

*Nankai University*

**(Thu-03) Learning Deep Representation from Coarse to Fine for Face Alignment**

*Zhiwen Shao, Shouhong Ding, Yiru Zhao, Qinchuan Zhang, Lizhuang Ma  
Shanghai Jiao Tong University*

**(Thu-04) Learning Kinematic Model of Targets in Videos from Fixed Cameras**

*Xi En Cheng<sup>12</sup>, Shuo Hong Wang<sup>2</sup>, Yan Qiu Chen<sup>2</sup>*

*<sup>1</sup>Jingdezhen Ceramic Institute*

*<sup>2</sup>Fudan University*

**(Thu-05) Kernelized Learning in Deep Scattering Convolution Networks**

*Yuehan Xiong, Can Xu, Hongkai Xiong  
Shanghai Jiao Tong University*

**(Thu-06) Recurrent Convolutional Neural Network for Video Classification**

*Zhenqi Xu, Jiani Hu, Weihong Deng  
Beijing University of Posts and Telecommunications*

**(Thu-07) Weakly-supervised Deep Self-Learning for Face Recognition**

*Binghui Chen, Weihong Deng  
Beijing University of Posts and Telecommunications*

**(Thu-08) \*Local-and Holistic-Structure Preserving Image Super Resolution via Deep Joint Component Learning**

*Yukai Shi<sup>1</sup>, Keze Wang<sup>1</sup>, Li Xu<sup>2</sup>, Liang Lin<sup>1</sup>*

*<sup>1</sup>Sun Yat-set University*

*<sup>2</sup>Sense Time Group Limited*

*\*This paper also appears in Oral Session Wed-AM-1: Visual Signal Processing.*

**14:20-16:20**

**Poster Session Thu-PO-2: Multimedia Search and Retrieval**

Chair: Winston Hsu (National Taiwan University, Taiwan)

Room: Grand I & II

**(Thu-09) Robust Feature Encoding for Age-invariant Face Recognition**

*Xiaonan Hou, Shouhong Ding, Lizhuang Ma  
Shanghai Jiaotong University*

**(Thu-10) Deep Learning Based Supervised Hashing for Efficient Image Retrieval**

*Viet Anh Nguyen<sup>1</sup>, Minh N. Do<sup>2</sup>*

*<sup>1</sup>Advanced Digital Sciences Center*

*<sup>2</sup>University of Illinois at Urbana-Champaign*

**(Thu-11) Automatic Suggestion of Presentation Image for Storytelling**

*Yu Liu<sup>1</sup>, Tao Mei<sup>2</sup>, Chang Wen Chen<sup>1</sup>*

*<sup>1</sup>State University of New York at Buffalo*

*<sup>2</sup>Microsoft*

**(Thu-12) Improving the Similarity Estimation via Score Distribution**

*Lixin Liao<sup>1</sup>, Shikui Wei<sup>1</sup>, Yao Zhao<sup>1</sup>, Guanghua Gu<sup>2</sup>*

*<sup>1</sup>Beijing Jiaotong University*

*<sup>2</sup>Yanshan University*

**(Thu-13) Region Similarity Arrangement for Image Retrieval**

*Jingya Tang<sup>1</sup>, Dongming Zhang<sup>1</sup>, Yongdong Zhang<sup>1</sup>, Qi Tian<sup>2</sup>*

*<sup>1</sup>Chinese Academy of Sciences*

*<sup>2</sup>University of Texas at San Antonio*

**(Thu-14) Online Self-Organizing Hashing**

*Junxuan Chen, Yaoyi Li, Hongtao Lu, Junxuan Chen*

*Shanghai Jiao Tong University*

**(Thu-15) Compact and Robust Video Fingerprinting Using Sparse Represented Features**

*Bo Wu<sup>1</sup>, Sridhar (Sri) Krishnan<sup>2</sup>, Nan Zhang<sup>1</sup>, Li Su<sup>3</sup>*

*<sup>1</sup>Capital Medical University*

*<sup>2</sup>Ryerson University*

*<sup>3</sup>University of CAS*

**(Thu-16) \*Face Recognition and Retrieval Using Cross-Age Reference**

**Coding with Cross-Age Celebrity Dataset**

*Bor-Chun Chen<sup>1</sup>, Chu-Song Chen<sup>2</sup>, Winston Hsu<sup>3</sup>*

*<sup>1</sup>University of Maryland*

*<sup>2</sup>Academia Sinica*

*<sup>3</sup>National Taiwan University*

*\*This paper originally published in IEEE T-MM, presented for first time at ICME 2016.*

**14:20-16:20**

**Poster Session Thu-PO-3: Multimedia Systems and Applications**

Chair: Shao-Yi Chien (National Taiwan University, Taiwan)

Room: Grand I & II

**(Thu-17) Adaptive Background for Real-Time Visual Tracking**

*He Li, Daiqin Yang, Zhenzhong Chen*

*Wuhan University*

**(Thu-18) User-Oriented Stereo Video Refocusing by Computational Cinematographic Model**

*Wenjing Geng, Dapeng Du, Tongwei Ren, Gangshan Wu  
Nanjing University*

**(Thu-19) Example-based Video Color Transfer**

*Chun-Han Yao, Chia-Yang Chang, Shao-Yi Chien  
National Taiwan University*

**(Thu-20) Automatic Image Dataset Construction with Multiple Textual Metadata**

*Yazhou Yao<sup>1,2</sup>, Jian Zhang<sup>1</sup>, Fumin Shen<sup>3</sup>, Xiansheng Hua<sup>4</sup>, Jingsong Xu<sup>1</sup>, Zhenmin Tang<sup>2</sup>*

*<sup>1</sup>University of Technology Sydney*

*<sup>2</sup>Nanjing University of Science and Technology*

*<sup>3</sup>University of Electronic Science and Technology of China*

*<sup>4</sup>Alibaba Group*

**(Thu-21) Speed-adaptive Street View Image Generation Using Driving Video Recorder**

*Hua-Tsung Chen, Devi Eddy, Ray-Lin Chen, Chien-Li Chou  
National Chiao Tung University*

**(Thu-22) Bayesian Relevance Feedback Based Chinese Calligraphy Character Synthesis**

*Xueying Du, Jiangqin Wu, Yang Xia  
Zhejiang University*

**(Thu-23) \*Shape-optimizing Hybrid Warping for Image Stirching**

*Qingpeng Chai<sup>1</sup>, Shiguang Liu<sup>2</sup>*

*<sup>1</sup>Tianjin University*

*<sup>2</sup>Tianjin Key Laboratory of Cognitive Computing and Application*

*\*This paper also appears in Oral Session Wed-AM-1: Visual Signal Processing.*

**14:20-16:20**

**Poster Session Thu-PO-4: Multimedia Coding**

Chair: Anil Fernando (University of Surrey, UK)

Room: Grand I & II

**(Thu-24) An Improved Sparse Reconstruction Algorithm for Speech Compressive Sensing Using Structured Priors**

*Xiaobo Jiang, Rendong Ying, Fei Wen, Sumxin Jiang, Peilin Liu*

*Shanghai Jiao Tong University*

**(Thu-25) Joint Rate Allocation with Both Look-ahead and Feedback Model for High Efficiency Video Coding**

*Hongfei Fan, Lin Ding, Xiaodong Xie, Huizhu Jia, Wen Gao*

*Peking University*

**(Thu-26) SATD-based Joint Decision Algorithm for Parallelized Intra Prediction Encoder in H.265/HEVC**

*Yao-Jen Chang<sup>1</sup>, Pei-Hsuan Tsai<sup>2</sup>, Chun-Lung Lin<sup>1</sup>*

*<sup>1</sup>Industrial Technology Research Institute*

*<sup>2</sup>National Cheng Kung University*

**(Thu-27) Decoder Energy-Aware Intra-Coded HEVC Bit Stream Generation**

*Thanuja Mallikarachchi, Dumidu Talagala, Hemantha Kodikara Arachchi, Anil Fernando*

*University of Surrey*

**(Thu-28) Quality Assessment of Image Patches Distorted by Image Compression Using Crowdsourcing**

*Sebastian Bosse<sup>1</sup>, Mischa Siekmann<sup>1</sup>, Jennifer Rasch<sup>1</sup>, Thomas Wiegand<sup>2</sup>, Wojciech Samek<sup>1</sup>*

*<sup>1</sup>Fraunhofer Heinrich Hertz Institute*

*<sup>2</sup>Technical University of Berlin*

**(Thu-29) Multi-view Distributed Coding and Selection of Local Binary Features**

*Nuno Monteiro, Catarina Brites, Fernando Pereira, Joao Ascenso*

*Instituto Superior Técnico – Instituto de Telecomunicações*

**(Thu-30) Codec Independent Region of Interest Video Coding using a Joint Pre- and Postprocessing Framework**

*Holger Meuel, Marco Munderloh, Florian Kluger, Joern Ostermann*

*Leibniz Universitaet Hannover*

**(Thu-31) Subjective-Quality-Optimized Complexity Control for HEVC Decoding**

*Ren Yang, Mai Xu, Lai Jiang, Zulin Wang*

*Beihang University*

**(Thu-32) \*Lossless Depth Map Coding Using Binary Tree Based Decomposition and Context-Based Arithmetic Coding**

*Shampa Shahriyar<sup>1</sup>, Manzur Murshed<sup>2</sup>, Mortuza Ali<sup>3</sup>, Manoranjan Paul<sup>2</sup>*

*<sup>1</sup>Monash University*

*<sup>2</sup>Federation University Australia*

*<sup>3</sup>Charles Sturt University*

*\*This paper also appears in Oral Session Wed-PM-1: Visual Coding.*

# Workshops

**Monday, July 11, 2016**

## **3rd International Workshop on Mobile Multimedia Computing (MMC)**

Organizers: Wen-Huang Cheng, Kai-Lung Hua, Klaus Schoeffmann, Wolfgang Huerst  
Room: Cascade I-A

**09:00-10:15**

### **Oral Session: Mobile Vision**

#### **A Dynamic and Complexity Aware Cloud Scheduling Algorithm for Video Transcoding**

*Ching-Cheng Huang<sup>1</sup>, Jiann-Jone Chen<sup>1</sup>, Yao-Hong Tsai<sup>2</sup>*

<sup>1</sup> *National Taiwan University of Science and Technology*

<sup>2</sup> *Hsuan Chuang University*

#### **Frame-Level Quality and Memory Traffic Allocation for Lossy Embedded Compression in Video Codec Systems**

*Li Guo, Dajiang Zhou, Shinji Kimura, Satoshi Goto*

*Waseda University*

#### **On Aggregation of Local Binary Descriptors**

*Syed Husain, Miroslaw Bober*

*University of Surrey*

#### **Hash Length Prediction for Video Hashing**

*Jiande Sun<sup>1</sup>, Wulin Wang<sup>2</sup>, Jing Li<sup>1,3</sup>, Huaxiang Zhang<sup>1</sup>*

<sup>1</sup> *Shandong Normal University*

<sup>2</sup> *Shandong University*

<sup>3</sup> *Shandong Management University*

**10:45-12:00**

### **Oral Session: Mobile Vision Applications**

#### **A Noise Reduction Method for IMU and Its Application on Handwriting Trajectory reconstruction**

*Tse-Yu Pan, Chih-Hsuan Kuo, Min-Chun Hu*

*National Cheng Kung University*

#### **Design of Image Barcodes for Future Mobile Advertising**

*Kuan-Yu Chi<sup>1</sup>, Kai-Lung Hua, Tsung-Ren Huang, Yung-Yao Chen<sup>2</sup>*

<sup>1</sup> *National Taipei University of Technology*

<sup>2</sup> *National Taiwan University of Science and Technology*

## **QR Code Steganography with Secret Payload Enhancement**

*Pei-Yu Lin<sup>1</sup>, Yi-Hui Chen<sup>2</sup>*

<sup>1</sup>*Yuan Ze University*

<sup>2</sup>*Asia University*

## **Wearable Social Camera: Egocentric Video Summarization for Social Interaction**

*Jenan Yang<sup>1,4</sup>, Chia-Han Lee<sup>2</sup>, Shao-Wen Yang<sup>3</sup>, V. Srinivasa Somayazulu<sup>3</sup>, Yen-Kuang Chen<sup>3</sup>, Shao-Yi Chien<sup>1,4</sup>*

<sup>1</sup>*National Taiwan University*

<sup>2</sup>*Academia Sinica, Taiwan*

<sup>3</sup>*Intel Corporation*

<sup>4</sup>*Intel-NTU Connected Context Computing Center*

**14:00-15:15**

### **Oral Session: Mobile AR & Mobile HCI / QoE**

#### **Augmented Reality via Temporal Psycho-Visual Modulation**

*Xiaoyong Lu<sup>1</sup>, Bin You<sup>1</sup>, Pei-Yu Lin<sup>2</sup>*

<sup>1</sup>*Nanchang University*

<sup>2</sup>*Yuan Ze University*

#### **Towards a Shared Large-Area Mixed Reality System**

*Naimul Mefraz Khan<sup>1</sup>, Xiaoming Nan<sup>1</sup>, Nan Dong<sup>1</sup>, Yifeng He<sup>1</sup>, Matthew Kyan<sup>2</sup>, Jennifer James<sup>3</sup>, Ling Guan<sup>1</sup>, Charles Davis<sup>3</sup>*

<sup>1</sup>*Ryerson University*

<sup>2</sup>*York University*

<sup>3</sup>*Ryerson University*

#### **Predicting Touch Operations by Using Hover Information in Smartphones for Data Prefetching**

*Takeo Onishi, Takahiro Shiroshima*

*NEC Corporation*

#### **Scalable Mobile Quality Assessment for User-Generated Video**

*Stefan Wilk, Timo Bähr, Wolfgang Effelsberg*

*Technische Universität Darmstadt*

**15:45-17:00**

**Oral Session: Navigation & Localization**

**On Hearing Your Position Through Light for Mobile Robot Indoor Navigation**

*Shand Ma<sup>1</sup>, Qiong Liu<sup>2</sup>, Phillip Sheu<sup>1</sup>*

<sup>1</sup>*University of California, Irvine*

<sup>2</sup>*FX Palo Alto Laboratory, Inc.*

**Depth-Aware Indoor Staircase Detection and Recognition for The Visually Impaired**

*Rai Munoz, Xuejian Rong, Yingli Tian*

*The City College of New York*

**A Robust Audio Identification for Enhancing Audio-Based Indoor Localization**

*Hye-seung Cho, Sang-Sun Ko, Hyoung-Gook Kim*

*Kwangwoon University*

**16:45-17:00**

**Closing & Best Paper Award (MMC 2016 organizers)**

## **7th IEEE International Workshop on Hot Topics in 3D (Hot3D)**

Organizers: Aydin Alatan, Atanas Gotchev, Touradj Ebrahimi

Room: Cascade I-B

**09:00-09:50**

**Plenary Talk: Fernando Pereira (Instituto Superior Técnico and Instituto de Telecomunicações, Portugal), JPEG PLENO: Going Deep the Plenoptic Way**

**09:50-10:15**

**Oral Session: Position papers**

**Light field reconstruction from sparse set of rectified camera views**

*Suren Vagharshakyan, Robert Bregovic, Atanas Gotchev*

*Tampere University of Technology*

**10:45-12:05**

**Oral Session: 3D scene representations and related processing**

**A Hybrid Metric for Camera Pose Estimation in RGB-D Reconstruction**

*Fei Guo, Yifeng He, Ling Guan*

*Ryerson University*

**Hole-Filling for Single-View Plus-Depth Based Rendering with Temporal Texture Synthesis**

*D M Motiur Rahaman, Manoranjan Paul*

*Charles Sturt University*

**Computer Generated Hologram from Multiview-Plus-Depth Data**

**Considering Specular Reflections**

*Antonin Gilles<sup>1</sup>, Patrick Gioia<sup>1,2</sup>, Rémi Cozot<sup>1,3</sup>, Luce Morin<sup>1,4</sup>*

<sup>1</sup>*IRT b-com*

<sup>2</sup>*Orange Labs*

<sup>3</sup>*University of Rennes*

<sup>4</sup>*INSA Rennes*

**Light Field Imaging Coding: Performance Assessment Methodology and Standards Benchmarking**

*Gustavo Alves<sup>1</sup>, Fernando Pereira<sup>2</sup>, Eduardo A.B. da Silva<sup>1</sup>*

<sup>1</sup>*Universidade Federal do Rio de Janeiro*

<sup>2</sup>*Instituto de Telecomunicações*

**14:00-14:50**

**Plenary Talk: Bernard Kress (Microsoft, USA), Optical technologies enabling next generation AR and VR wearable displays: large FOV, high resolution and small footprint**

**14:50-15:15**

**Oral Session: Position papers**

**A New Content Format for Immersive Experiences**

*Joan Llobera*

*i2cat Foundation*

**15:45-16:45**

**Oral Session: 3D Audio and Video processing for VR applications**

**Visibility Preprocessing Suitable for Virtual Reality Sound Propagation with a Moving Receiver and Multiple Sources**

*Damon Shing-Min Liu, Chang-Ming Tan*

*National Chung Cheng University*

**Reducing Perspective Distortion for Stereoscopic Image Stitching**

*Weiqing YAN, Chunping Hou*

*Tianjin University*

**Bayesian View Synthesis for Video Stitching**

*Jianmei Su, Hong Cheng, Lu Yang, Ao Luo*

*University of Electronic Science and Technology of China*

**16:45-17:10**

**Oral Session: Position Papers**

**Big 3D Information Bang VR vs LF**

*Tibor Balogh*

*Holografika*

**17:10-17:50**

**Panel session: Light Field and Virtual Reality: Convergence and Divergence**

Participants: Fernando Pereira, Instituto Superior Técnico and Instituto de Telecomunicações, Portugal;

Bernard Kress, Microsoft, USA

Tibor Balogh, Holografika, Hungary

Joan Llobera, i2cat Foundation, Spain

Moderated by Atanas Gotchev, Tampere University of Technology

**International Workshop on Multimedia Services and Technologies for E-health  
(MUST-EH)**

Organizers: M. Shamim Hossain, Susan Malaika, Stefan Goebel

Room: Cascade I-C

**9:00-9:40**

**Plenary talk and introduction: Susan Malaika (Senior Technical Staff, IBM US)**  
**E-health and Block chain**

**9:40-10:30**

**Chat Robot Coupling Machine Responses and Social Media Comments for Continuous Conversation**

*Hidekazu Minami<sup>1</sup>, Hiromichi Kawanami<sup>1</sup>, Masayuki Kanbara<sup>1</sup>, Hironori Hagita<sup>1,2</sup>*

<sup>1</sup>*NAIST*

<sup>2</sup>*ART Institute International*

**A Synchronized Multimedia in-Home Therapy Framework in Big Data Environment**

*Md. Abdur Rahman<sup>1</sup>, Abdulhameed Alelaiwi<sup>2</sup>*

<sup>1</sup>*Ummul Qura University*

<sup>2</sup>*King Saud university*

**10:45-12:00**

**Collective Intelligence of Temporal Statistics for Segmentation Sustained Infant Feeding Behaviors in Videos**

*Xinpeng L. Liao<sup>1</sup>, Chengcui Zhang<sup>1</sup>, Wei-Bang Chen<sup>2</sup>, Paula Chandler-Laney<sup>1</sup>*

<sup>1</sup>*University of Alabama at Birmingham*

<sup>2</sup>*Virginia State University*

**Emotion Recognition from Eeg Brain Signals Based on Particle Swarm Optimization and Genetic Search**

*Raja Majid Mehmood, Hyo Jong Lee*

*Chonbuk National University*

**Perspective of Health Data Interoperability on Cloud-Based Medical Cyber-Physical Systems**

*Mona A. Alhumud<sup>1</sup>, M Anwar Hossain<sup>1</sup>, Mehedi Masud<sup>2</sup>*

<sup>1</sup>*King Saud University*

<sup>2</sup>*Taif University*

## **Workshop on Multimedia in e-Commerce**

Organizers: Xuansong Xie, Pan Pan, Xian-Sheng Hua, Tat-Seng Chua

Room: Cascade I-C

**15:45-16:05**

**Opening Talk: Pan Pan (Alibaba Group)**

**Multimedia in E-Commerce: Visual Search and Recognition**

**16:05-17:00**

**A K-Nearest-Neighbor-Pooling Method for Graph Matching**

*Ruonan Zhang, Wenmin Wang, Ronggang Wang*

*Peking University*

**Coupled Feature Mapping and Correlation Mining for Cross-Media Retrieval**

*Mengdi Fan, Wenmin Wang, Ronggang Wang*

*Peking University*

**Saliency meets Spatial Quantization: A Practical Framework for Large Scale**

**Product Search**

*Shuhan Qi<sup>1</sup>, Kyaw Zawlin<sup>2</sup>, Hanwang Zhang<sup>2</sup>, Xuan Wang<sup>1</sup>, Ke Gao<sup>3</sup>, Lin Yao<sup>4</sup>,*

*Tat-Seng Chua<sup>2</sup>*

<sup>1</sup>*Harbin Institute of Technology Shenzhen Graduate School*

<sup>2</sup>*National University of Singapore*

<sup>3</sup>*Institute of Computing Technology, Chinese Academy of Science*

## **Friday, July 15, 2016**

### **Workshop on Multimedia Mobile Cloud for Smart City Applications (MMCloudCity)**

Organizers: M. Anwar Hossain, Shuicheng Yan, and Abdulmotaleb El Saddik

Room: Cascade II

09:00-10:15

#### **Real-time Defog Model based on Visible and Near-infrared Information**

*Jingyun Zhang<sup>1</sup>, Yifan Ding<sup>2</sup>, Yi Yang, Jiasong Sun<sup>1</sup>*

<sup>1</sup>*Tsinghua University*

<sup>2</sup>*Sinica*

#### **Social Tagging Recommendation System for Smart City Environments**

*Mohammed F. AlHamid*

*King Saud University*

#### **Multimedia Mobile Cloud Computing: Application Models for Performance Enhancement**

*Majdi Rawashdeh<sup>1</sup>, Awny Alnusair<sup>3</sup>, Nasser Mustafa<sup>3</sup>, Mahmoud Migdad<sup>1</sup>*

<sup>1</sup>*Princess Sumaya University for Technology*

<sup>2</sup>*Indiana University Kokomo*

<sup>3</sup>*Carleton University*

10:45-12:00

#### **A Framework to Support Massive Crowd: A smart City Perspective**

*Md Abdur Rahman*

*Umm Al-Qura University*

#### **Sound Collection Systems using a Crowdsourcing Approach to Construct Sound Map based on Subjective Evaluation**

*Sunao Hara, Shota Kobayashi, Masanobu Abe*

*Okayama University*

#### **Patient Status Monitoring for Smart Home Healthcare**

*M. Shamim Hossain*

*King Saud University*

## **Workshop on Sparsity and Compressive Sensing in Multimedia (MM-SPARSE)**

Organizers: Enrico Magli, Petros T. Boufounos

Room: Cascade I-A

**8:45-8:55**

**Welcome & Opening Remarks**

**8:55-9:55**

**Plenary Talk: Vivek Goyal (Boston University, USA)**

**First-Photon Imaging and Other Imaging with Few Photons**

**9:55-10:15, 10:40-12:00**

**Oral Session: MM-SPARSE 1**

**Depth Superresolution Using Motion Adaptive Regularization**

*Ulugbek Kamilov, Petros Boufounos*

*Mitsubishi Electric Research Laboratories*

**BM3D-prGAMP: Compressive Phase Retrieval Based on BM3D Denoising**

*Chris Metzler<sup>1</sup>, Arian Maleki<sup>2</sup>, Richard Baraniuk<sup>1</sup>*

<sup>1</sup>*Rice University*

<sup>2</sup>*Columbia University*

**A Sparse Representation Based Post-Processing Method for Improving Image Super-Resolution**

*Jun Yang<sup>12</sup>, Jun Guo<sup>1</sup>, Hongyang Chao<sup>1</sup>*

<sup>1</sup>*Sun Yat-sen University*

<sup>2</sup>*SYSU-CMU Shunde International Joint Research Institute*

**Rain Removal via Shrinkage of Sparse Codes and Learned Rain Dictionary**

*Chang-Hwan Son, Xiao-Ping Zhang*

*Ryerson University*

**Shallow Sparse Autoencoders versus Sparse Coding Algorithms for Image Compression**

*Thierry Dumas, Aline Roumy, Christine Guillemot*

*INRIA*

**2:00-3:00**

**Plenary Talk: Paris Smaragdis (University of Illinois at Urbana-Champaign, USA)**

**When less gets more: Using sparsity to resolve computationally intractable audio problems**

**3:00-3:20, 3:40-5:00**

**Oral Session: MM-SPARSE 2**

**Toothpic: Who Took This Picture?**

*Diego Valsesia, Giulio Coluccia, Tiziano Bianchi, Enrico Magli*

*Politecnico di Torino*

**SparseHash: Embedding Jaccard Coefficient between Supports of Signals**

*Diego Valsesia, Sophie Fosson, Chiara Ravazzi, Tiziano Bianchi, Enrico Magli*

*Politecnico di Torino*

**Atomic Norm Minimization for Modal Analysis**

*Shuang Li, Dehui Yang, Michael Wakin*

*Colorado School of Mines*

**Adaptive Saliency-Based Compressive Sensing Image Reconstruction**

*Ali Akbari<sup>1</sup>, Diana Mandache<sup>1</sup>, Maria Trocan<sup>1</sup>, Bertrand Granado<sup>2</sup>*

<sup>1</sup>*Institut Suprieur d'Electronique de Paris (ISEP)*

<sup>2</sup>*Pierre et Marie Curie University*

**Sparsity and Parallel Acquisition: Optimal Uniform and Nonuniform**

**Recovery Guarantees**

*Il Yong Chun<sup>1</sup>, Chen Li<sup>2</sup>, Ben Adcock<sup>3</sup>*

<sup>1</sup>*Purdue University*

<sup>2</sup>*University of Science and Technology of China*

<sup>3</sup>*Simon Fraser University*

## **22nd International Packet Video Workshop (PV)**

Organizers: Thinh Nguyen, Gene Cheung, Dan Tan, Jacob Chakareski

Room: Cascade I-B

**9:00-10:15**

**Plenary Talk: Phillip A. Chou (Microsoft), Coding for Augmented and Virtual Reality**

**10:45-12:00**

**Oral Session: Immersive Videos and In-Network Processing**

### **Getting Used to or Growing Annoyed: How Perception Thresholds and Acceptance of Frame Freezing Vary Over Time in 3D Video Streaming**

*Peter Kara<sup>1</sup>, Werner Robitz<sup>2</sup>, Maria Martini<sup>1</sup>, Chaminda Hewage<sup>1</sup>, Fatima Felisberti<sup>1</sup>*

<sup>1</sup>*Kingstone University*

<sup>2</sup>*Telekom Innovation Laboratories*

### **Designing Coding Structures with Merge Frames for Interactive Multiview Video Streaming**

*Benedicte Motz<sup>1</sup>, Gene Cheung<sup>2</sup>, Ngai-Man Cheung<sup>3</sup>*

<sup>1</sup>*The Graduate University for Advanced Studies*

<sup>2</sup>*National Institute of Informatics*

<sup>3</sup>*Singapore University of Technology and Design*

### **A Depth Map Rate Control Algorithm for HEVC Multi-view Video Plus Depth**

*Mario Cordina, Carl Debono*

*University of Malta*

### **Efficient Lightweight Video Packet Filtering for Large-Scale Video Data Delivery**

*Xavier Corbillon<sup>1</sup>, Florian Boyrivent<sup>1</sup>, Grégoire Asselin De Williencourt<sup>1</sup>, Gwendal Simon<sup>1</sup>, Géraldine Texier<sup>1</sup>, Jacob Chakareski<sup>2</sup>*

<sup>1</sup>*Telecom Bretagne*

<sup>2</sup>*University of Alabama*

### **EPIQ: A New Active Queue Management Paradigm for Packet Video**

*Hothaifa Al-Qassab, Hayder Radha*

*Michigan State University*

**2:00-3:15**

**Oral Session: Dynamic Adaptive Streaming HTTP (DASH) Videos**

**Low Delay MPEG DASH Streaming over the WebRTC Data Channel**

*Shuai Zhao, Zhu Li, Deep Medhi*

*University of Missouri - Kansas City*

**A Qoe-Driven Approach to Rate Adaptation for Dynamic Adaptive Streaming Over Http**

*Hui Zhang, Xiuhua Jiang*

*Communication University of China*

**ARBITER: Adaptive Rate-Based InTElligent HTTP StREAMing Algorithm**

*Ahmed H. Zahran<sup>1,2</sup>, Cormac J. Sreenan<sup>1</sup>*

*<sup>1</sup>University College Cork*

*<sup>2</sup>Cairo University*

**DASH Sub-Representation with Temporal QoE Driven Layering**

*Shaowei Xie<sup>1</sup>, Yi-Ling Xu<sup>1</sup>, Zhu Li<sup>2</sup>*

*<sup>1</sup>Shanghai Jiaotong University*

*<sup>2</sup>University of Missouri - Kansas City*

**Adaptive Media Playout Assisted Rate Adaptation Scheme for HTTP**

**Adaptive Streaming over LTE System**

*Yuchen Chen, Guizhong Liu*

*Xi'an Jiaotong University*

**3:45-5:00**

**Oral Session: Advanced Videos**

**Tracking with the Support of Couplers and Historical Models**

*Ke He, Ningning Li, Borui Mo, Bo Yang, Aidong Men*

*Beijing University of Posts and Telecommunications*

**Content-aware Adaptive Multiple Description Coding Scheme**

*Ahmed Aldahdooh, Marcus Barkowsky, Patrick Le Callet*

*Universite de Nantes*

**Boosting Decoding Quality Performance in Dash-based Streaming Frameworks**

*Alexandre Gabriel, Joao Ascenso, Fernando Pereira*

*Instituto Superior Técnico*

**History-Based Throughput Prediction with Hidden Markov Model in Mobile Networks**

*Bo Wei, Kenji Kanai, Jiro Katto*

*Waseda University*

## **2nd International workshop on Affective Social Multimedia Computing**

Organizers: Dong-Yan Huang, Lei Xie, Shuicheng Yan, Jie Yang

Room: Cascade I-C

**09:00-09:40**

**Plenary Talk: Deng Li (Microsoft, USA), Deep Learning for AI from Machine Perception to Machine Cognition**

**09:40-10:15**

**Oral Session: Speech and Audio and Video Emotion Recognition**

**Recognizing Stances in Mandarin Social Ideological Debates with Text and Acoustic Features**

*Linchuan Li<sup>1</sup>, Zhiyong Wu<sup>1,2</sup>, Mingxing Xu<sup>1</sup>, Helen Meng<sup>1,2</sup>, Lianhong Cai<sup>1</sup>*

<sup>1</sup>*Tsinghua University*

<sup>2</sup>*Chinese University of Hong Kong*

**Deep Neural Network Derived Bottleneck Features for Accurate Audio Classification**

*Bihong Zhang<sup>1</sup>, Lei Xie<sup>1</sup>, Yougen Yuan<sup>1</sup>, Huaiping Ming<sup>2</sup>, Dongyan Huang<sup>2</sup>, Mingli Song<sup>3</sup>*

<sup>1</sup>*Northwestern Polytechnical University*

<sup>2</sup>*Agency for Science, Technology and Research*

<sup>3</sup>*Zhejiang University*

**Combining Feature Selection and Representation for Speech Emotion Recognition**

*Wenjing Han<sup>1</sup>, Huabin Ruan<sup>2</sup>, Xiaojie Yu<sup>1</sup>, Xuan Zhu<sup>1</sup>*

<sup>1</sup>*Samsung R&D Institute of China*

<sup>2</sup>*Tsinghua University*

**Improved Speech Emotion Recognition using Error Correcting Codes**

*Rupayan Chakraborty, Sunil Kopparapu*

*TCS Innovation Labs - Mumbai*

**10:45-12:00**

**Oral Session: Social Video Summarization and Emotion Recognition**

**Category Driven Deep Recurrent Neural Network for Video Summarization**

*Xinhui Song<sup>1</sup>, Ke Chen<sup>1</sup>, Jie Lei<sup>1</sup>, Li Sun<sup>1</sup>, Zhiyuan Wang<sup>1</sup>, Lei Xie<sup>2</sup>, Mingli Song<sup>1</sup>*

<sup>1</sup>*ZheJiang University*

<sup>2</sup>*Northwestern Polytechnical University*

**Deep Neural Networks with Relativity Learning for Facial Expression  
Recognition**

*Yanan Guo<sup>1</sup>, Dapeng Tao<sup>1</sup>, Jun Yu<sup>2</sup>, Hao Xiong<sup>3</sup>, Yaotang Li<sup>1</sup>, Dacheng Tao<sup>3</sup>*

<sup>1</sup>*Yunnan University*

<sup>2</sup>*Hangzhou Dianzi University*

<sup>3</sup>*University of Technology Sydney*

**How Does Human Interest Modeling Help in Computer Vision:  
Tracking-by-Saliency in Unconstrained Social Videos**

*Peng Zhang<sup>1</sup>, Tao Zhuo<sup>2</sup>, Kangli Chen<sup>1</sup>, Wei Huang<sup>3</sup>*

<sup>1</sup>*Northwestern Polytechnical University*

<sup>2</sup>*National University of Singapore*

<sup>3</sup>*Nanchang University*

**Photometric Ambient Occlusion from Sparsely Sampled Illuminations**

*Yuwei Ma, Yafei Shang, Liang Wan, Wei Feng*

*Tianjin University*

**Human Visual Field Based Saliency Prediction Method Using Eye Tracker  
Data for Video Summarization**

*Md Musfequs Salehin, Manoranjan Paul*

*Charles Sturt University*

**The Influence of Image Quality on Scene Consistency Effects: Evidence  
from the Eye Tracking**

*Wei Xin<sup>1</sup>, Yun Zhang<sup>2</sup>, Chen Xing<sup>1</sup>, Mohen Zhang<sup>3</sup>, Danmin Miao<sup>1</sup>*

<sup>1</sup>*The Fourth Military Medical University*

<sup>2</sup>*Xi'an Jiaotong University*

<sup>3</sup>*University of Tsinghua*

**Deep Neural Network and Switching Kalman Filter Based Continuous Affect  
Recognition**

*Ercheng Pei<sup>1</sup>, Xiaohan Xia<sup>1</sup>, Le Yang<sup>1</sup>, Dongmei Jiang<sup>1</sup>, Hichem Sahli<sup>2</sup>*

<sup>1</sup>*Northwestern Polytechnical University*

<sup>2</sup>*Vrije Universiteit Brussel*

**14:00-14:40**

**Plenary Talk: Qian Lin (HP, USA), Affective Computing for Family Memory  
Preservation**

**14:40-15:15**

**Oral Session: Social Behavior and Interaction**

**Automatic Assessment of Communication Skill in Interface-Based Employment Interviews Using Audio-Visual Cues**

*Sowmya Rasipuram, Dinesh Babu Jayagopi*

*International Institute of Information Technology*

**A Novel Online Clustering-Based Object Localization Strategy Using Learnings and Human Interest Priors**

*Wei Huang<sup>1</sup>, Shuru Zeng<sup>2</sup>, Jing Zeng<sup>1</sup>, Peng Zhang<sup>3</sup>, Guang Chen<sup>4</sup>*

<sup>1</sup>*Nanchang University*

<sup>2</sup>*Huazhong Institute of Electro-Optics*

<sup>3</sup>*Northwestern Polytechnical University*

<sup>4</sup>*Xian Communication Institute*

**An Environmental Psychology Approach: Measuring the Individual's Cognitive and Affective Response to Ecological Designed Military Camp**

*Chen Xing<sup>1</sup>, Yun Zhang<sup>2</sup>, Xiuchao Wang<sup>1</sup>, Jinhui Yuan<sup>1</sup>, Danmin Miao<sup>1</sup>*

<sup>1</sup>*The Fourth Military Medical University*

<sup>2</sup>*Xi'an jiaotong University*

**15:45-17:00**

**Poster Session: Affective Social Multimedia Computing**

**(Fri-1) Category Driven Deep Recurrent Neural Network for Video Summarization**

*Xinhui Song<sup>1</sup>, Ke Chen<sup>1</sup>, Jie Lei<sup>1</sup>, Li Sun<sup>1</sup>, Zhiyuan Wang<sup>1</sup>, Lei Xie<sup>2</sup>, Mingli Song<sup>1</sup>*

<sup>1</sup>*ZheJiang University*

<sup>2</sup>*Northwestern Polytechnical University*

**(Fri-2) Automatic Assessment of Communication Skill in Interface-Based Employment Interviews Using Audio-Visual Cues**

*Sowmya Rasipuram, Dinesh Babu Jayagopi*

*International Institute of Information Technology*

**(Fri-3) Deep Neural Networks with Relativity Learning for Facial Expression Recognition**

*Yanan Guo<sup>1</sup>, Dapeng Tao<sup>1</sup>, Jun Yu<sup>2</sup>, Hao Xiong<sup>3</sup>, Yaotang Li<sup>1</sup>, Dacheng Tao<sup>3</sup>*

<sup>1</sup>*Yunnan University*

<sup>2</sup>*Hangzhou Dianzi University*

<sup>3</sup>*University of Tchnology Sydney*

**(Fri-4) A Novel Online Clustering-Based Object Localization Strategy Using Learnings and Human Interest Priors**

*Wei Huang<sup>1</sup>, Shuru Zeng<sup>2</sup>, Jing Zeng<sup>1</sup>, Peng Zhang<sup>3</sup>, Guang Chen<sup>4</sup>*

<sup>1</sup>*Nanchang University*

<sup>2</sup>*Huazhong Institute of Electro-Optics*

<sup>3</sup>*Northwestern Polytechnical University*

<sup>4</sup>*Xian Communication Institute*

**(Fri-5) How Does Human Interest Modeling Help in Computer Vision: Tracking-by-Saliency in Unconstrained Social Videos**

*Peng Zhang<sup>1</sup>, Tao Zhuo<sup>2</sup>, Kangli Chen<sup>1</sup>, Wei Huang<sup>3</sup>*

<sup>1</sup>*Northwestern Polytechnical University*

<sup>2</sup>*National University of Singapore*

<sup>3</sup>*Nanchang University*

**(Fri-6) Recognizing Stances in Mandarin Social Ideological Debates with Text and Acoustic Features**

*Linchuan Li<sup>1</sup>, Zhiyong Wu<sup>1,2</sup>, Mingxing Xu<sup>1</sup>, Helen Meng<sup>1,2</sup>, Lianhong Cai<sup>1</sup>*

<sup>1</sup>*Tsinghua University*

<sup>2</sup>*Chinese University of Hong Kong*

**(Fri-7) Photometric Ambient Occlusion from Sparsely Sampled Illuminations**

*Yuwei Ma, Yafei Shang, Liang Wan, Wei Feng*

*Tianjin University*

**(Fri-8) Deep Neural Network Derived Bottleneck Features for Accurate Audio Classification**

*Bihong Zhang<sup>1</sup>, Lei Xie<sup>1</sup>, Yougen Yuan<sup>1</sup>, Huaiping Ming<sup>2</sup>, Dongyan Huang<sup>2</sup>, Mingli Song<sup>3</sup>*

<sup>1</sup>*Northwestern Polytechnical University*

<sup>2</sup>*Agency for Science, Technology and Research*

<sup>3</sup>*Zhejiang University*

**(Fri-9) Combining Feature Selection and Representation for Speech Emotion Recognition**

*Wenjing Han<sup>1</sup>, Huabin Ruan<sup>2</sup>, Xiaojie Yu<sup>1</sup>, Xuan Zhu<sup>1</sup>*

<sup>1</sup>*Samsung Telecom R&D Center*

<sup>2</sup>*Tsinghua University*

**(Fri-10) Human Visual Field Based Saliency Prediction Method Using Eye Tracker Data for Video Summarization**

*Md Musfequs Salehin, Manoranjan Paul*

*Charles Sturt University*

**(Fri-11) Improved Speech Emotion Recognition using Error Correcting Codes**

*Rupayan Chakraborty, Sunil Kopparapu*

*TCS Innovation Labs - Mumbai*

**(Fri-12) An Environmental Psychology Approach: Measuring the Individual's Cognitive and Affective Response to Ecological Designed Military Camp**

*Chen Xing<sup>1</sup>, Yun Zhang<sup>2</sup>, Xiuchao Wang<sup>1</sup>, Jinhui Yuan<sup>1</sup>, Danmin Miao<sup>1</sup>*

<sup>1</sup>*The Fourth Military Medical University*

<sup>2</sup>*Xi'an jiaotong University*

**(Fri-13) The influence of image quality on scene consistency effects: evidence from the eye tracking**

*Wei Xin<sup>1</sup>, Yun Zhang<sup>2</sup>, Chen Xing<sup>1</sup>, Mohen Zhang<sup>3</sup>, Danmin Miao<sup>1</sup>*

<sup>1</sup>*The Fourth Military Medical University*

<sup>2</sup>*Xi'an Jiaotong University*

<sup>3</sup>*Tsinghua University*

**(Fri-14) Deep Neural Network And Switching Kalman Filter Based Continuous Affect Recognition**

*Ercheng Pei<sup>1</sup>, Xiaohan Xia<sup>1</sup>, Le Yang<sup>1</sup>, Dongmei Jiang<sup>1</sup>, Hichem Sahli<sup>2</sup>*

<sup>1</sup>*Northwestern Polytechnical University*

<sup>2</sup>*Vrije Universiteit Brussel*

## **1st IEEE International Workshop on Privacy Issues in Multimedia (PIM) 2016**

Organizers: Pradeep K. Atrey, Sen-ching "Samson" Cheung, Frederic Dufaux, Andrea Cavallaro

Room: Vashon

**9:00-9:05**

### **Opening Remarks**

**9:05-9:55**

### **Plenary Talk: Touradj Ebrahimi, EPFL, Switzerland, Trends and Challenges in Visual Privacy**

**9:55-10:15, 10:30-12:10**

### **Oral Session: Immersive Videos and In-Network Processing**

#### **Wearable Privacy Protection with Visual Bubble**

*Shaoqian Wang, Sen-ching Cheung*

*University of Kentucky*

#### **Efficient Reversible Data Hiding Scheme Based on Improved SMVQ Index for Color Image**

*Lingfei Wang, Zhibin Pan, Ruoxin Zhu*

*Xi'an Jiaotong University*

#### **A New Reversible Data Hiding Scheme Based on High-Dimensional Pixel-Intensity-Histogram Modification**

*Siren Cai, Xiaolong Li, Bowen Xue, Zongming Guo*

*Peking University*

#### **Improving Privacy in JPEG Images**

*Jaime Delgado, Silvia Llorente*

*Universitat Politecnica de Catalunya*

#### **Privacy Protecting, Intelligibility Preserving Video Surveillance**

*Natacha Ruchaud, Jean-Luc Dugelay*

*EURECOM*

#### **Encrypted Domain Cloud-Based Speech Noise Reduction with Comb Filter**

*Abukari Mohammed Yakubu<sup>1</sup>, Namunu Maddage<sup>2</sup>, Pradeep K. Atrey<sup>3</sup>*

<sup>1</sup>*University of Winnipeg*

<sup>2</sup>*NextGmultimedia*

<sup>3</sup>*State University of New York*

**12:10-12:15**

### **Closing remarks**

## **International Workshop on Multimedia Artworks Analysis**

Organizers: Wei-Ta Chu, Toshihiko Yamasaki, Takaaki Shiratori

Room: Vashon

**13:30-14:15**

**Plenary Talk: Professor Feng Liu (Portland State University)**

**Computational Stereoscopic Photography for Immersive Visual Experience**

**14:15-15:15**

**Oral Session: Multimedia Artwork Analysis**

**Creating New Museum Experiences for Virtual Reality**

*Wolfgang Huerst, Bibi de Boer, Wouter Florijn, Xhi Jia Tan*

*Utrecht University*

**Creating Celtic Art Using Fractal Image Generation**

*Neil Day*

*Tokyo Brothers K.K.*

**Crowdsourcing Audience Perspectives on Classical Music**

*Cynthia C. S. Liem*

*Delft University of Technology*

**Preliminary Benchmark of Four Saliency Algorithms on Comic Art**

*Khimya Khetarpal, Eakta Jain*

*University of Florida*

## **Workshop on Emerging Multimedia Systems and Application: Multimedia Big Data Processing and Analytics**

Organizers: Zhenzhong Chen, Alexander Loui, Zheng-Jun Zha, Chenwei Deng

Room: Grand Crescent

**09:00-10:15**

### **Oral Session: Multimedia Understanding and Coding**

#### **An Effective Visual Saliency Detection Method Based on Maximum Entropy Random Walk**

*Jingyu Lu, Zhaoming Lu, Shao Hua, Xiangming Wen, Yawen Chen  
Beijing University of Posts and Telecommunications*

#### **A Novel Depth Edge Prioritization Based Coding Technique to Boost-Up HEVC Performance**

*Pallab Kanti Podder<sup>1</sup>, Manoranjan Paul<sup>1</sup>, Manzur Murshed<sup>2</sup>  
<sup>1</sup>Charles Sturt University  
<sup>2</sup>Federation University*

#### **Improving Chroma Intra Prediction for HEVC**

*Tao Zhang<sup>1</sup>, Xiaopeng Fan<sup>1</sup>, Debin Zhao<sup>1</sup>, Wen Gao<sup>2</sup>  
<sup>1</sup>Harbin Institute of Technology  
<sup>2</sup>Peking University*

#### **Visual Attention Modeling for Stereoscopic Video**

*Yuming Fang<sup>1</sup>, Chi Zhang<sup>1</sup>, Jing Li<sup>2</sup>, Matthieu Perreira Da Silva<sup>2</sup>, Patrick Le Callet<sup>2</sup>  
<sup>1</sup>Jiangxi University of Finance and Economics  
<sup>2</sup>University of Nantes*

#### **A Representative-based Framework for Parsing and Summarizing Events in Surveillance Videos**

*Zhen Ju<sup>1</sup>, Weiyao Lin<sup>1</sup>, Michael Ying Yang<sup>2</sup>, Bo Zhang<sup>3</sup>, Chuanfei Luo<sup>4</sup>, Chia-Wen Lin<sup>5</sup>, Tao Mei<sup>6</sup>  
<sup>1</sup>Shanghai Jiao Tong University  
<sup>2</sup>University of Twente  
<sup>3</sup>IBM Research  
<sup>4</sup>Shanghai Research Institute of China Telecom Corporation Limited  
<sup>5</sup>National Tsing-Hua University  
<sup>6</sup>Microsoft Research Asia*

10:30-12:00

**Oral Session: Multimedia Processing and Analytics**

**Action Recognition with Novel High-Level Pose Features**

*Jayi Fan, Zhengjun Zha, Xinmei Tian*

*University of Science and Technology of China*

**Who Ordered This?: Exploiting Implicit User Tag Order Preferences for Personalized Image Tagging**

*Amandianeze O. Nwana, Tsuhan Chen*

*Cornell University*

**Barycentric Coordinates based Soft Assignment for Object Classification**

*Tao Wei<sup>1</sup>, Chang Wen Chen<sup>2</sup>, Changhu Wang<sup>2</sup>*

*<sup>1</sup>University at Buffalo*

*<sup>2</sup>Microsoft Research*

**Improved 3D-Model Texture Mapping with Region-of-Interest Weighting and Iterative Boundary-Texture Updating**

*Yanning Wang<sup>1</sup>, Heming Sha<sup>1</sup>, Weiyao Lin<sup>1</sup>, Hua Yang<sup>1</sup>, Chia-Wen Lin<sup>2</sup>*

*<sup>1</sup>Shanghai Jiao Tong University*

*<sup>2</sup>National Tsing-Hua University*

**Matrix Factorization-Based Clustering of Image Features for Bandwidth-Constrained Information Retrieval**

*Jacob Chakareski<sup>1</sup>, Immanuel Manohar<sup>1</sup>, Shantanu Rane<sup>2</sup>*

*<sup>1</sup>University of Alabama*

*<sup>2</sup>Xerox PARC*

**A Parallel Volume Rendering Method for Massive Data**

*Jun Yao, Jian Xue, Ke Lv, Qinghai Miao*

*University of Chinese Academy of Sciences*

## 8th Workshop on Multimedia for Cooking and Eating Activities (CEA)

Organizers: Kiyoharu Aizawa

Room: Grand Crescent

13:30-13:35

**Opening talk: Atsushi Hashimoto (Kyoto University, Japan)**

13:35-15:05

**Oral Session: Yoko Yamakata (The University of Tokyo, Japan)**

**Generation of Representative Meal Names for Food Recording Data by using  
Web Search Results**

*Masashi Anzawa<sup>1</sup>, Sosuke Amano<sup>1</sup>, Yoko Yamakata<sup>1</sup>, Toshihiko Yamasaki<sup>1</sup>,  
Kiyoharu Aizawa<sup>1</sup>, Makoto Ogawa<sup>2</sup>*

<sup>1</sup>*The University of Tokyo*

<sup>2</sup>*foo.log Inc.*

**Kusk Object Dataset: Recording Access to Objects in Food Preparation**

*Atsushi Hashimoto, Shinsuke Mori, Masaaki Iiyama, Michihiko Minoh  
Kyoto University*

**A Proposal of Virtual Food Texture by Electric Muscle Stimulation**

*Arinobu Niijima, Takefumi Ogawa  
The University of Tokyo*

15:15-16:00

**Poster Session: Atsushi Hashimoto (Kyoto University, Japan)**

**(Fri-15) COGKNIFE: Food Recognition from their Cutting Sounds**

*Takamichi Kojima, Takashi Ijiri, Jeremy White, Hidetomo Kataoka, Akira Hirabayashi  
Ritsumeikan University*

**(Fri-16) Generation of Representative Meal Names for Food Recording Data  
by using Web Search Results**

*Masashi Anzawa<sup>1</sup>, Sosuke Amano<sup>1</sup>, Yoko Yamakata<sup>1</sup>, Toshihiko Yamasaki<sup>1</sup>,  
Kiyoharu Aizawa<sup>1</sup>, Makoto Ogawa<sup>2</sup>*

<sup>1</sup>*The University of Tokyo*

<sup>2</sup>*foo.log Inc.*

**(Fri-17) A Preliminary Study on Visual Estimation of Taste Appreciation**

*Idil Esen Zulfikar<sup>1</sup>, Hamdi Dibeklioglu<sup>2</sup>, Hazim Ekenel<sup>1</sup>*

<sup>1</sup>*Istanbul Technical University*

<sup>2</sup>*Delft University of Technology*

**(Fri-18) Kusk Object Dataset: Recording Access to Objects in Food Preparation**

*Atsushi Hashimoto, Shinsuke Mori, Masaaki Iiyama, Michihiko Minoh*

*Kyoto University*

**(Fri-19) A Proposal of Virtual Food Texture by Electric Muscle Stimulation**

*Arinobu Niijima, Takefumi Ogawa*

*The University of Tokyo*

**(Fri-20) A Method for Extracting Major Workflow composed of Ingredients, Tools, and Actions from Cooking Procedural Text**

*Yoko Yamakata<sup>1</sup>, Shinji Imahori<sup>2</sup>, Hirokuni Maeta<sup>3</sup>, Shinsuke Mori<sup>4</sup>*

<sup>1</sup>*The University of Tokyo*

<sup>2</sup>*Chuo University*

<sup>3</sup>*Cybozu, Inc.*

<sup>4</sup>*Kyoto University*

**16:00-16:10**

**Ceremony for the CEA 2016 Best Paper Award: Kiyoharu Aizawa (The University of Tokyo, Japan)**

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