THE 19th IEEE INTERNATIONAL SYMPOSIUM ON
MULTIMEDIA

TECHNICAL PROGRAM

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MESSAGE FROM THE GENERAL CO-CHAIRS' FOREWORD

We warmly welcome you to the 19th IEEE International Symposium on Multimedia (ISM2017). Building on the success of its predecessors, ISM2017 continues to be a major international forum for the researchers and practitioners to exchange information regarding latest advances in the state of the art and practice of multimedia computing, as well as to identify emerging research topics and define the future of multimedia computing. Research in multimedia computing is generally concerned with presentation, integration and processing (analysis and synthesis) of one or more media, such as text, image, graphics, audio, video, social data, and data collected from various sensors, etc., using computing techniques. The technical program of ISM2017 consists of invited talks and paper presentations.

ISM2017 covers broad and diverse topics, which include
- Retrieval, Recommendation, and Summarization
- Tracking & Matching
- 360° Video & Image
- Visual Aspects
- Contents & Features
- Video Streaming
- Enhancement & Security
- Mining & Learning
- Demos

The success of such a high quality international conference depends greatly on the involvement of many individuals. First of all, we would like to thank the Conference Organizing Committee and Program Committee members, especially Program Co-Chairs Han C.W. Hsiao, Wolfgang Huerst, Jianquan Liu, and Robert Mertens; Workshop Co-Chairs Pao-Chi Chang, Rodrigo da Silva Ferreira, Mustafa Sert, Shervin Shirmohammadi, Kyoungro Yoon, and Guigang Zhang; Industrial Program Co-Chairs David Gonzalez-Aguirre, Ilija Hadzic, Viswanathan Swaminathan, and Xiaoqing Zhu; Best Paper Award Committee Co-Chairs Homer H. Chen, Gerald Friedland, and Max Muehlhaeuser; Demo Co-Chairs Ramazan Savas Aygun and Balakrishnan Prabhakaran; Panel Co-Chairs Yang Lei and Yago Sánchez de la Fuente; Publicity Co-Chairs Chao Ivan Bajic, Marco Bertini, Håkan Grahn, Rodrigo Laiola Guimaraes, Norio Katayama, Heiko Schuldt, Robert Skupin, and Minseok Song; Finance Chair Rong-Ming Chen; Publication and Registration Co-Chairs Kang-Ming Chang and Wen-Thong Chang; Local Arrangement Chair Anthony Y.H. Liao; and Web Chair Chun-Ming Chang; along with the entire Program Committee. The committee worked tirelessly in a coordinated manner to produce an exciting program with top experts delivering speeches in many critical
fields. We are thankful for their leadership, wisdom, and hard work. In addition, our deepest appreciation goes to our renowned Keynote Speakers and all the panelists for sharing their vision, insights, and experiences. Finally, we wish to thank all the attendees for making ISM 2017 a very successful conference this year.

We hope that you enjoy the stimulating program and have a great time at ISM2017.

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Welcome to the Proceedings of the 19th IEEE International Symposium on Multimedia (ISM 2017) in Taichung, Taiwan. ISM 2017 continues to foster the growth of the multimedia research community. This edition of the conference builds upon the tradition and success of the past ISM series as an international forum for researchers as well as practitioners in academia and industry to present research that not only advances the state of the art and practice of Multimedia but also identifies emerging research topics, and defines the future of the field.

This year, the conference received 139 paper submissions from over 41 countries. Every submission was reviewed by at least three experts from the technical program committee (in fact, more than one hundred papers received 4-6 reviews each). As a result, full paper acceptance was very competitive with an acceptance rate of 23.02% (32 accepted of 139 submissions). The selection of the papers was a challenging and difficult task. The Program Committee members have put in a significant effort in order to provide useful feedback to the authors. In addition to the full papers, the proceedings include high-quality short papers, demo papers, and workshop papers. All these contributions provide novel ideas, new results, and state-of-the-art techniques in the field. We are honored to have several of the world’s leading experts in the field join us as distinguished keynote speakers and plenary speakers. Altogether, we are proud to be able to present you a rich program that contains a variety of top-notch research works.

Following the newly introduced policy from last year, we continue to provide the ISM 2017 Best Paper Award session. For this, we selected the top scored 6 papers as candidates based on their received reviews. The authors of these papers will give their presentations in a specially designated session, which will be attended by the “best paper award committee” judges, who will select the best student paper and the best paper after listening to all presentations. We strongly encourage all attendees to take part in this best paper award session, which will be held on December 12, 2017, to benefit from these top papers.

A new trial for this year is the Poster Session. For this, we additionally allocate time slots for all full and short papers to be presented as posters, which have oral presentations on the same or next day. With this, we aim at providing more opportunities for the authors of accepted contributions to discuss their novel ideas with all attendees. We hope that attendees take advantage of this unique opportunity by part-taking in the poster session to ask questions and to discuss with authors according to your interests.

Many individuals have contributed to the success of this conference. We would like to take this opportunity to thank all authors for their submissions, many of whom traveled great
distances to participate in this event and make valuable contributions. We are indebted to
the program committee members and their external sub-reviewers who have put in hard
work and long hours to review each paper in a timely and professional manner. Without
their help and advice, this program would not be possible. Last but not least, we would also
like to express our deepest thanks to the General Co-Chairs and the whole Organizing
Committee for their strong support. ISM 2017 would not have happened without you.

Enjoy the program!

Sincerely,

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KEYNOTE SPEECH I

Cinematic Virtual Reality: Immersive Video for Head-Mounted Displays

Bernd Girod, Stanford University, USA

ABSTRACT The 2014 acquisition of a fledging head-mounted display company for over $2B has reignited the excitement in virtual reality, not just for rendered 3d computer graphics but primarily for immersive “cinematic” video captured by means of special camera rigs. In this talk, we will review the principles of representing immersive video for head-mounted displays and the challenges that arise for efficient coding and delivery. How many pixels are needed to cover the full field of view? How can we provide binocular stereo in all directions? How can we accommodate head motion parallax? How can we provide defocus cues to overcome the conflict between vergence and accommodation? And what are best video representations for compact storage and transmission that support all of the above? We show that significant technology challenges remain for cinematic virtual reality to live up to its high expectations, some of them familiar and some new.

BIOSKETCH Bernd Girod is the Robert L. and Audrey S. Hancock Professor of Electrical Engineering at Stanford University, California. He also serves as Director of the Stanford Center for Image Systems Engineering (SCIEN), the Max Planck Center for Visual Computing and Communication, and as Founding Director Emeritus and now Chair of the Advisory Board of the David and Helen Gurley Brown Institute for Media Innovation, a bicoastal institute between Stanford and Columbia University in New York City. He has also served as a Senior Associate Dean of the Stanford School of Engineering from 2012 to 2016.

He received his M. S. degree in Electrical Engineering from Georgia Institute of Technology, in 1980 and his Doctoral degree from University of Hannover, Germany, in 1987. He joined Massachusetts Institute of Technology, Cambridge, MA, USA, and was an Assistant Professor at the MIT Media Laboratory until 1990. From 1990 to 1993, he was Professor of Computer Graphics and Technical Director of the Academy of Media Arts in Cologne, Germany, jointly appointed with the Computer Science Section of Cologne University. From 1993 until 1999, he held the Chair of Electrical Engineering / Telecommunications at University of Erlangen-Nuremberg, Germany, and was the Head of the Telecommunications Institute I and director of the Telecommunications Laboratory. He served as Chair of the Electrical Engineering Department from 1995 to 1997.

Professor Girod’s research over the course of more than three decades has spanned a broad range of topics including image and video coding, networked media systems, and image-
based retrieval. He has authored or co-authored one major text-book (printed in 3 languages), five monographs, and over 600 book chapters, journal articles and conference papers, and is a named inventor of over 25 US patents. He has been a member of the IEEE Image and Multidimensional Signal Processing Technical Committee from 1989 to 1997 and has served on the Editorial Boards for several journals in his field, among them as founding Associate Editor for the IEEE Transactions on Image Processing and Area Editor for Speech, Image, Video & Signal Processing of the IEEE Transactions on Communications. He has served on numerous conference committees, e.g., as Tutorial Chair of ICASSP-97 in Munich and again for ICIP-2000 in Vancouver, as General Chair of the 1998 IEEE Image and Multidimensional Signal Processing Workshop in Alpbach, Austria, as General Chair of the Visual Communication and Image Processing Conference (VCIP) in San Jose, CA, in 2001, and General Chair of Vision, Modeling, and Visualization (VMV) at Stanford, CA, in 2004, and General Co-Chair of ICIP-2008 in San Diego, of VCIP 2010 in China, and of the Packet Video Workshop 2013 in San Jose.

For over 25 years, Professor Girod has worked with start-up ventures as founder, investor, director, or advisor. Most notably, he has been a co-founder and Chief Scientist of Vivo Software, Inc., Waltham, MA (1993-98); after Vivo’s acquisition, 1998-2002, Chief Scientist of RealNetworks, Inc. (Nasdaq: RNWK). He has served on the Board of Directors for 8×8, Inc., Santa Clara, CA, (Nasdaq: EGHT) 1996-2004, and for GeoVantage, Inc., Swampscott, MA, 2000-2005. In 2007, he co-founded Dyyno, Inc. Palo Alto, CA. From 2004 to 2007, he also served as Chairman of the Steering Committee of the new Deutsche Telekom Laboratories at the Technical University of Berlin. He has been an angel investor for 20 years, served on numerous advisory boards, and currently advises HearstLab, a corporate incubator for women-led startup companies in New York City.

Professor Girod was elected Fellow of the IEEE in 1998 ‘for his contributions to the theory and practice of video communications’ and a Fellow of EURASIP in 2008. He has been named ‘Distinguished Lecturer’ for the year 2002 by the IEEE Signal Processing Society. He received the the EURASIP Signal Processing Best Paper Award in 2002, the IEEE Multimedia Communication Best Paper Award in 2007, the EURASIP Image Communication Best Paper Award in 2008, the EURASIP Signal Processing Most Cited Paper Award in 2008, as well as the EURASIP Technical Achievement Award in 2004 and the Technical Achievement Award of the IEEE Signal Processing Society in 2011. The German National Academy of Sciences (Leopoldina) inducted him as a member 2007. He was elected to the National Academy of Engineering in 2015 for “For contributions to video compression, streaming, and multimedia systems.”
KEYNOTE SPEECH II
Deep and Broad Learning on Neurological Disorder

Philip S. Yu, University of Illinois at Chicago, USA

ABSTRACT Neurological disorder has affected a third of the population in the US and put an enormous strain to the health care system. Mining from neuro-imaging data is becoming increasingly popular in the field of healthcare and bioinformatics, due to its potential to discover clinically meaningful structure patterns that could facilitate the understanding and diagnosis of neurological and neuropsychiatric disorders. Modern imaging techniques have allowed us to model the human brain as a network or graph. A brain connectivity network can be constructed from neuro-imaging data, where the nodes of the network correspond to a set of brain regions and links represent the functional or structural connectivity between these regions. The linkage structure in brain networks can encode valuable information about the organizational properties of the human brain as a whole. Most recent research concentrates on applying subgraph mining techniques to discover connected subgraph patterns in the brain network. However, the underlying brain network structure is complicated. As a shallow linear model, subgraph mining cannot capture the highly non-linear structures, resulting in sub-optimal patterns. In this talk, we focus on how to learn representations that can capture the highly non-linearity of brain networks and preserve the underlying structures. In addition to brain image data, we will also consider how to exploit behavior data for neurological disorder detection.

BIOSKETCH Philip S. Yu’s main research interests include big data, data mining (especially on graph/network mining), social network, privacy preserving data publishing, data stream, database systems, and Internet applications and technologies. He is a Distinguished Professor in the Department of Computer Science at UIC and also holds the Wexler Chair in Information and Technology. Before joining UIC, he was with IBM Thomas J. Watson Research Center, where he was manager of the Software Tools and Techniques department. Dr. Yu has published more than 970 papers in refereed journals and conferences with more than 74,500 citations and an H-index of 127. He holds or has applied for more than 300 US patents.

Dr. Yu is a Fellow of the ACM and the IEEE. He is the recipient of ACM SIGKDD 2016 Innovation Award for his influential research and scientific contributions on mining, fusion and anonymization of big data, the IEEE Computer Society’s 2013 Technical Achievement Award for “pioneering and fundamentally innovative contributions to scalable indexing,
querying, searching, mining and anonymization of big data”, and the Research Contributions Award from IEEE Intl. Conference on Data Mining (ICDM) in 2003 for his pioneering contributions to the field of data mining. He also received an IEEE Region 1 Award for “promoting and perpetuating numerous new electrical engineering concepts” in 1999. He had received several UIC honors, including Research of the Year at 2013 and UI Faculty Scholar at 2014. He also received many IBM honors including 2 IBM Outstanding Innovation Awards, an Outstanding Technical Achievement Award, 2 Research Division Awards and the 94th plateau of Invention Achievement Awards. He was an IBM Master Inventor.

Dr. Yu is the Editor-in-Chief of ACM Transactions on Knowledge Discovery from Data. He is on the steering committee of ACM Conference on Information and Knowledge Management and was a steering committee member of the IEEE Conference on Data Mining and the IEEE Conference on Data Engineering. He was the Editor-in-Chief of IEEE Transactions on Knowledge and Data Engineering (2001-2004). He had also served as an associate editor of ACM Transactions on the Internet Technology (2000-2010) and Knowledge and Information Systems (1998-2004). In addition to serving as program committee member on various conferences, he was the program chair or co-chairs of the 2009 IEEE Intl. Conf. on Service-Oriented Computing and Applications, the IEEE Workshop of Scalable Stream Processing Systems (SSPS’07), the IEEE Workshop on Mining Evolving and Streaming Data (2006), the 2006 joint conferences of the 8th IEEE Conference on E-Commerce Technology (CEC’ 06) and the 3rd IEEE Conference on Enterprise Computing, E-Commerce and E-Services (EEE’ 06), the 11th IEEE Intl. Conference on Data Engineering, the 6th Pacific Area Conference on Knowledge Discovery and Data Mining, the 9th ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery, the 2nd IEEE Intl. Workshop on Research Issues on Data Engineering: Transaction and Query Processing, the PAKDD Workshop on Knowledge Discovery from Advanced Databases, and the 2nd IEEE Intl. Workshop on Advanced Issues of E-Commerce and Web-based Information Systems. He served as the general chair or co-chairs of the 2016 IEEE Intl. Conference on BIGDATA, the 2014 IEEE Intl. Conference on Data Science and Advanced Analytics, the 2012 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, the 2012 Pacific-Asia Conference on Knowledge Discovery and Data Mining, the 2009 IEEE Intl. Conf. on Data Mining, the 2009 IEEE Intl. Conf. on Data Engineering, the 2006 ACM Conference on Information and Knowledge Management, the 1998 IEEE Intl. Conference on Data Engineering, and the 2nd IEEE Intl. Conference on Data Mining.

Dr. Yu received the B.S. Degree in E.E. from National Taiwan University, the M.S. and Ph.D. degrees in E.E. from Stanford University, and M.B.A. degree from New York University.
ABSTRACT  A picture is worth a thousand words. Visual representation is one of the dominant forms of social media. The emotions that viewers feel when observing a visual content is often referred to as the content’s visual sentiment. Analysis of visual sentiment has become increasingly important due to the huge volume of online visual data generated by users of social media. Automatic assessment of visual sentiment has many applications, such as monitoring the mood of the population in social media platforms (e.g., Twitter, Facebook), facilitating advertising, and understanding user behavior. However, in contrast to the extensive research on predicting textual sentiment, relatively less work has been done on sentiment analysis of visual content. In contrast to textual sentiment, visual sentiment is more subjective and implicit. There exists significant semantic gap between high-level visual perception and low-level computational attributes.

In this talk, we argue that these challenges can be addressed by combining the findings from the psychology and cognitive science domain. We will show that a deeper understanding of human perception helps create better computational models. To support that thesis, we will first briefly overview our human-centric research framework, which focuses on applying the paradigms and methodologies from experimental psychology to computer science: First, we collect visual data with human perception through online or lab-controlled psychophysics studies. Then we use inferential statistics to analyze the psychophysics data and model human perception empirically. We then design computational models based on the empirical findings.

We will present three works on visual sentiment in our lab, guided by this research framework. In our first work, we aim to understand human visual perception in a holistic way. We first fuse various partially overlapping datasets with human emotion. We build an empirical model of human visual perception, which suggests that six different types of visual perception (i.e., familiarity, aesthetics, dynamics, oddness, naturalness, spaciousness) significantly contribute to human’s positive sentiment (i.e., liking) of a visual scene.

In our second work, we investigate the relation between human attention and visual sentiment. We build a unique emotional eye fixation dataset with object and scene-level human annotations, and exploit comprehensively how human attention is affected by emotional properties of images. Further, we train a deep convolutional neural network for
human attention prediction on our dataset. Results demonstrate that efficient encoding of image sentiment information helps boost its performance.

Our third work explores how human attention influences visual sentiment. We experimentally disentangle effects of focal information and contextual information on human emotional reactions, then we incorporate related insights into computational models. On two benchmark datasets, the proposed computational models demonstrate superior performance compared to the state-of-the-art methods on visual sentiment prediction.

We will end with future research direction on visual sentiment analysis. Our studies highlight the importance of understanding human cognition for interpreting the latent sentiments behind visual scenes.

**BIOSKETCH** Mohan Kankanhalli is Provost’s Chair Professor of Computer Science at the National University of Singapore (NUS). He is also the Dean of NUS School of Computing. Before becoming the Dean in July 2016, he was the NUS Vice Provost (Graduate Education) during 2014-2016 and Associate Provost during 2011-2013. Mohan obtained his BTech from IIT Kharagpur and MS & PhD from the Rensselaer Polytechnic Institute.

His current research interests are in Multimedia Computing, Information Security & Privacy, Image/Video Processing and Social Media Analysis. He directs the SeSaMe (Sensor-enhanced Social Media) Centre which does fundamental exploration of social cyber-physical systems which has applications in social sensing, sensor analytics and smart systems. He is on the editorial boards of several journals including the ACM Transactions on Multimedia, Springer Multimedia Systems Journal, Pattern Recognition Journal and Springer Multimedia Tools & Applications Journal. He is a Fellow of IEEE.
KEYNOTE SPEECH IV

Concealing Network Delays in Fast Multi-Player Online Games

Benjamin W. Wah, The Chinese University of Hong Kong, China

ABSTRACT Just-noticeable difference (JND) refers to the smallest detectable difference between a starting and a secondary level of a given sensory stimulus. It was first pioneered by Ernst Weber, a 19th century experimental psychologist. Weber’s Law simply states that the size of JND is a constant proportion of the original stimulus value. Although the concept is known for over one and a half centuries, it has recently received more attention in the multimedia community. With the quality degradations incurred by losses and delays in transferring multimedia signals over the Internet, researchers have found that existing quantitative metrics cannot model perceptual degradations experienced by users. In this presentation, we examine the limitations of current results on JND and the reasons why they are inadequate for improving the perceptual quality of real-time multiplayer online games. Features that contribute to the complications include the presence of multiple and possibly dependent stimuli that may be related to perceptual quality in a linear or nonlinear fashion and whose effects may be additive or non-additive. We present a new approach for minimizing the effects of multiple changes on user perception. In contrast to previous work that finds the combined effect using some functions of individual changes (such as the maximum or the square root of the changes), we argue that the perception of a change is based on awareness (or the probability of perceiving a change when compared to the reference), not on the magnitude of the change. By using the property that players are generally more sensitive to the most prominent artifact (with the highest awareness), the perceptual effect of multiple changes is, therefore, governed by the maximum of the corresponding awareness, and the optimal solution is formulated as the minimax of the corresponding awareness. The new formulation allows designers to decompose the evaluation of a multi-dimensional awareness function into the evaluation of individual awareness, each corresponding to one control assignment. The resulting complexity of evaluating the perceptual quality due to multiple controls becomes polynomial instead of exponential. We demonstrate the effectiveness of the approach using a popular open-source online shooting game BZFlag. The understanding of the properties of JND with multidimensional stimuli will help reduce the number of subjective tests needed in designing better QoE-based control and optimization in multimedia algorithms.

BIOSKETCH Benjamin W. Wah is currently the Provost and Wei Lun Professor of Computer Science and Engineering of the Chinese University of Hong Kong. Before then, he served as
the Director of the Advanced Digital Sciences Center in Singapore, as well as the Franklin W.
Woeltge Endowed Professor of Electrical and Computer Engineering and Professor of the
Coordinated Science Laboratory of the University of Illinois, Urbana-Champaign, USA. He
received his Ph.D. degree in computer science from the University of California, Berkeley, CA,
in 1979. He had served on the faculty of Purdue University. He has received a number of
awards for his research contributions, which include the IEEE CS Technical Achievement
Award (1998), the IEEE Millennium Medal (2000), the Society for Design and Process Science
Raymond T. Yeh Lifetime Achievement Award (2003), the IEEE-CS W. Wallace-McDowell
Award (2006), the Pan Wen-Yuan Outstanding Research Award (2006), the IEEE-CS Richard E.
Merwin Award (2007), the IEEE-CS Technical Committee on Distributed Processing
Outstanding Achievement Award (2007), the IEEE-CS Tsutomu Kanai Award (2009), and the
Distinguished Alumni Award in Computer Science of the University of California, Berkeley
(2011). Wah's current research interests are in the areas of nonlinear search and
optimization, multimedia signal processing, and computer networks.

Wah cofounded the IEEE Transactions on Knowledge and Data Engineering in 1988 and
served as its Editor-in-Chief between 1993 and 1996, and is the Honorary Editor-in-Chief of
Knowledge and Information Systems. He currently serves on the editorial boards of
Information Sciences, International Journal on Artificial Intelligence Tools, Journal of VLSI
Signal Processing, and World Wide Web. He has served the IEEE Computer Society in various
capacities, including Vice President for Publications (1998 and 1999) and President (2001).
He is a Fellow of the AAAS, ACM, and IEEE.
## PROGRAM AT A GLANCE (DECEMBER 11, MONDAY)

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<th>Round Room I, 10F</th>
<th>VIP Room, 10F</th>
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<td>Registration</td>
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<td>08:30 - 09:00</td>
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<td>09:00 - 09:50</td>
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<tr>
<td>10:10 - 12:10</td>
<td>Session 1</td>
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<td>12:10 - 13:00</td>
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<td>13:00 - 14:15</td>
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<td>14:15 - 15:35</td>
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<td>Poster Set-up</td>
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<td>15:55 - 17:55</td>
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<td>18:55 - 19:15</td>
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<tr>
<td>19:15 - 21:30</td>
<td>Reception (The Grand Ballroom II, 13F)</td>
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### Keynote Speech I

**Cinematic Virtual Reality: Immersive Video for Head-Mounted Displays**  
*Bernd Girod, Stanford University, USA*

### Session 1

**Diverse Topics**

### Session 2

**360° Video & Image**

### Session 3

**Learning**

### Parallel Session 7-A

**Retrieval, Recommendation, and Summarization**

### Parallel Session 7-B

**Tracking & Matching**

### Demo Session I

**Video Related**
### PROGRAM AT A GLANCE (DECEMBER 12, TUESDAY)

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<td>19:00 - 21:30</td>
<td>Banquet &amp; Best Paper Awards (The Grand Ballroom II, 13F)</td>
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- **Keynote Speech II**  
  Deep and Broad Learning on Neurological Disorder  
  *Philip S. Yu, University of Illinois at Chicago, USA*

- **Keynote Speech III**  
  Perception of Visual Sentiment: From Experimental Psychology to Computational Modeling  
  *Mohan Kankanhalli, National University of Singapore, Singapore*

- **Session 4**  
  Visual Aspects

- **Session 5**  
  Best Paper Selection

- **Session 6**  
  Retrieval & Mining

- **Demo Session II**  
  Interaction, Tracking, Network Related
PROGRAM AT A GLANCE (DECEMBER 13, WEDNESDAY)

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<td>08:30 - 09:20</td>
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<td>Parallel Session 8-A</td>
<td>Parallel Session 8-B</td>
<td>Parallel Session 8-C</td>
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<td>10:55 - 12:35</td>
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<td>Workshop: MAM</td>
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<td>15:50 - 17:50</td>
<td>Workshop: IMAD II</td>
<td>Workshop: MSA II</td>
<td>Workshop: MTEL</td>
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Keynote Speech IV  Concealing Network Delays in Fast Multi-Player Online Games

*Benjamin W. Wah, The Chinese University of Hong Kong, China*

Parallel Session 7-C  Mining & Learning
Parallel Session 8-A  Contents & Features
Parallel Session 8-B  Video Streaming
Parallel Session 8-C  Enhancement & Security
Workshop EMASC  Emerging Multimedia Applications and Services for Smart Cities (EMASC 2017)
Workshop IMAD  Intelligent Multimedia Applications and Design for Quality Living (IMAD 2017)
Workshop MAM  Mining and Applications on Multimedia (MAM 2017)
Workshop MSA  Multimedia Search and Applications (MSA 2017)
Workshop MTEL  Multimedia Technologies for E-Learning (MTEL 2017)
## TECHNICAL PROGRAM (DECEMBER 11, MONDAY)

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<th>Location</th>
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<td>VIP Room, 10F</td>
<td>Demo Session I: Video Related</td>
<td>Ramazan Savas Aygun, University of Alabama in Huntsville, USA</td>
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<tr>
<td>08:30 - 09:00</td>
<td>Round Room II, 10F</td>
<td>Opening Ceremony</td>
<td>Jeffrey J.P. Tsai, Asia University, Taiwan</td>
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<tr>
<td>09:00 - 09:50</td>
<td>Round Room II, 10F</td>
<td>Keynote Speech I</td>
<td>Bernd Girod, Stanford University, USA</td>
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<td>Cinematic Virtual Reality: Immersive Video for Head-Mounted Displays</td>
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<td>Session Chair</td>
<td>Jeremy J.P. Tsai, Asia University, Taiwan</td>
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<td>09:50 - 10:10</td>
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<td>Coffee Break</td>
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<tr>
<td>10:10 - 12:10</td>
<td>Round Room II, 10F</td>
<td>Session 1: Diverse Topics</td>
<td>Frode Sandnes, Oslo and Akershus University College of Applied Sciences, Norway</td>
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<td>12:10 - 13:00</td>
<td>Olympus Room II, 11F</td>
<td>Lunch</td>
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<tr>
<td>13:00 - 14:15</td>
<td>Round Room II, 10F</td>
<td>Session 7-A: Retrieval, Recommendation, and Summarization</td>
<td>Yi Yu, National Institute of Informatics, Japan</td>
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<tr>
<td></td>
<td>Round Room I, 10F</td>
<td>Session 7-B: Tracking &amp; Matching</td>
<td>Jarno Vanne, Tampere University of Technology, Finland</td>
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<td>14:15 - 15:35</td>
<td>Round Room II, 10F</td>
<td>Session 2: 360° Video &amp; Image</td>
<td>Shervin Shirmohammadi, University of Ottawa, Canada</td>
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<td>15:35 - 15:55</td>
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<td>15:55 - 17:55</td>
<td>Round Room II, 10F</td>
<td>Session 3: Learning</td>
<td>Wei-Ta Chu, National Chung Cheng University, Taiwan</td>
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<td>17:55 - 18:55</td>
<td>Round Room I, 10F</td>
<td>Poster Session I</td>
<td>Han C.W. Hsiao, Asia University, Taiwan</td>
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<tr>
<td>18:55 - 19:15</td>
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<tr>
<td>19:15 - 21:30</td>
<td>Grand Ballroom II, 13F</td>
<td>Reception</td>
<td>Wolfgang Huerst, Universiteit Utrecht, The Netherlands</td>
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<td>Session Co-Chairs</td>
<td>Jianquan Liu, NEC, Japan</td>
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### Session 1: Diverse Topics (20 min/paper)

**Session Chair:** Frode Sandnes, Oslo and Akershus University College of Applied Sciences, Norway

- **Boundary-Preserving Depth Upsampling without Texture Copying artifacts and Holes (6)**
  - Jiji Cai, Liang Chang, Hongbin Wang, Cheolkon Jung, Joongkyu Kim

- **Multi-generation-robust Coding with JPEG XS (13)**
  - Thomas Richter, Joachim Keinert, Antonin Descampe, Gael Rowroy, Alexandre Willeme

- **Occlusion Robust Light Field Depth Estimation Using Segmentation Guided Bilateral Filtering (39)**
  - Qiuxia Hou, Cheolkon Jung
Price-Based Fair Bandwidth Allocation for Networked Multimedia (86)
Hamed Hamzeh, Mahdi Hemmati, Shervin Shirmohammadi

Performance Evaluation of Walking Imagery Training Based on Virtual Environment in Brain-computer Interfaces (111)
Xiaolu Liu, Shuang Liang, Wenlong Hang, Baiying Lei, Qiong Wang, Jing Qin, Kup-Sze Choi

Image based localization based on feature scale consistency in BOF vector (142)
Mahdi Salarian

Session 2: 360° Video & Image (20 min/paper)
Session Chair: Shervin Shirmohammadi, University of Ottawa, Canada

A New Adaptation Approach for Viewport-adaptive 360-degree Video Streaming (62)
Duc V. Nguyen, Huyen T. T. Tran, Anh T. Pham, Truong Cong Thang

Estimation of optimal encoding ladders for tiled 360-degree VR video in adaptive streaming systems (81)
Cagri Ozcinar, Ana De Abreu, Sebastian Knorr, Aljosa Smolic

Perceptual Analysis of Perspective Projection for Viewport Rendering in 360° Images (121)
Falah Jabar, Joao Ascenso, Paula Queluz

A Cloud-Based Multi-Threaded Implementation of View Synthesis System (122)
Parvaneh Pouladzadeh, Razib Iqbal, Shervin Shirmohammadi, Omid Fatemi

Session 3: Learning (20 min/paper)
Session Chair: Wei-Ta Chu, National Chung Cheng University, Taiwan

Convolutional DLSTM for Crowd Scene Understanding (14)
Naifan Zhuang, Jun Ye, Kien A. Hua

Recurrent Visual Relationship Recognition with Triplet Unit (29)
Kento Masui, Akiyoshi Ochiai, Shintaro Yoshizawa, Hideki Nakayama

A Pre-Saliency Map Based Blind Image Quality Assessment via Convolutional Neural Networks (33)
Zhengxue Cheng, Masaru Takeuchi, Jiro Katto

Human Action Classification Using Temporal Slicing for Deep Convolutional Neural Networks (93)
Nathan Henderson, Ramazan Aygun

Rate-Accuracy Optimization of Deep Convolutional Neural Network Models (127)
Alessandro Filini, Joao Ascenso, Riccardo Leonardi

Automatic Classification of Microstructures in Thermal Barrier Coating Images (132)
Wei-Bang Chen, Yongjin Lu, James Li, Ben Zimmerman

Session 7-A: Retrieval, Recommendation, and Summarization (15 min/paper)
Session Chair: Yi Yu, National Institute of Informatics, Japan

Enhancing Effectiveness of Descriptors for Searching and Recognition in Motion Capture Data (18)
Jan Sedmidubsky, Petr Elias, Pavel Zezula
Blog Article Summarization with Image-Text Alignment Techniques (19)
Wei-Ta Chu, Ming-Chih Kao

Minimum-Risk Structured Learning of Video Summarization (61)
Fairouz Hussein, Massimo Picardi

Feature Selection for FM-based Context-Aware Recommendation Systems (124)
Xueyu Mao, Saayan Mitra, Viswanathan Swaminathan

Personalized Video Recommendations for Shared Accounts (137)
Shuo Yang, Somdeb Sarkhel, Saayan Mitra, Viswanathan Swaminathan

Session 7-B: Tracking & Matching (15 min/paper)
Session Chair: Jarno Vanne, Tampere University of Technology, Finland

Moment-Based Correspondence Matching Robust to Image Variation (35)
Inyong Yun, Seokhoon Boo, Joongkyu Kim, Cheolkon Jung

Very Small Moving Objects detection in Videos by Means of Fuzzy Logic and Reliability Coefficients: application to migrating birds counting (49)
Henri Nicolas, Valentina Guerin Detourville

A Gaze Tracking Based, Multi Modal Human Computer Interaction Concept for Efficient Input (89)
Leon Stapper, Sebastian Pospiech, Florian Bussmann, Arthur Graf, Marius Mamsch, Robert Mertens

Robust and Fast Object Tracking for Challenging 360-degree Videos (118)
Ahmad Delforouzi, Marcin Grzegorzek

Temporal Matching Kernel with Embedded Stability-Sensitive Filter (133)
Fan Yang, Sébastien Poullot, Shin’ichi Satoh

Demo Session I: Video Related
Session Chair: Ramazan Savas Aygun, University of Alabama in Huntsville, USA

HEVC/H.265 4K30p Intra Encoder (15)
Arttu Ylä-Outinen, Ari Lemmetti, Marko Viitanen, Jarno Vanne, Timo D. Hämäläinen: Kvazaar

Endometriosis Annotation in Endoscopic Videos (21)
Andreas Leibetseder, Bernd Münzer, Klaus Schoeffmann, Jörg Keckstein

EndoXplore: A Web-based Video Explorer for Endoscopic Videos (68)
Bernd Muenzer, Klaus Schoeffmann, Laszlo Boeszoermenyi

The One Man Show (140)
Sai Samarth R Phaye, Love Mehta, Mukesh Saini

Poster Session I (Papers of Sessions 1, 2, 3, 7-A, 7-B, 7-C have to present as a poster as well.)
Session Chair: Han C.W. Hsiao, Asia University, Taiwan

A Color Prediction System for Interactive Drawing Based Image Retrieval on Mobile Devices (59)
A Gaze Tracking Based, Multi Modal Human Computer Interaction Concept for Efficient Input (49)
A New Adaptation Approach for Viewport-adaptive 360-degree Video Streaming (62)
A New Multimedia Documents Clustering Approach based on Feature Patterns Similarity (112)
A Pre-Saliency Map Based Blind Image Quality Assessment via Convolutional Neural Networks (33)
Adaptive Sparse Learning for Neurodegenerative Disease Classification (85)
Automatic Classification of Microstructures in Thermal Barrier Coating Images (132)
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Very Small Moving Objects detection in Videos by Means of Fuzzy Logic and Reliability Coefficients: application to migrating birds counting (49)
**TECHNICAL PROGRAM (DECEMBER 12, TUESDAY)**

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<td>Mohan Kankanhalli, National University of Singapore, Singapore</td>
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<td>Dick C.A. Bulterman, Vrije Universiteit Amsterdam, The Netherlands</td>
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<td>10:30 - 12:10</td>
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<td>Viswanathan Swaminathan, Adobe Systems Inc., USA</td>
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<td>Wolfgang Huerst, Universiteit Utrecht, The Netherlands</td>
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<td>15:10 - 15:30</td>
<td>Round Room II, 10F</td>
<td>Coffee Break</td>
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<td>15:30 - 17:10</td>
<td>Round Room II, 10F</td>
<td>Session 6: Retrieval &amp; Mining</td>
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<td>Chi-Ren Shyu, University of Missouri-Columbia, USA</td>
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<td>Ling Guan, Ryerson University, Canada</td>
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<td>17:10 - 18:10</td>
<td>Round Room I, 10F</td>
<td>Poster Session II</td>
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<td>Robert Mertens, HSW University of Applied Sciences, Hamelin, Germany</td>
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<tr>
<td>18:10 - 19:00</td>
<td>Round Room II, 10F</td>
<td>Banquet &amp; Best Paper Awards</td>
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<td>Jeffrey J.P. Tsai, Asia University, Taiwan</td>
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**Session 4: Visual Aspects (20 min/paper)**

**Session Chair:** Viswanathan Swaminathan, Adobe Systems Inc., USA

- **Sustained Attention Function Evaluation during Cooking based on Egocentric Vision** (82)
  Sho Ooi, Mutsuo Sano, Hajime Tabuchi, Fumie Saito, Satoshi Umeda

- **Detecting Good Surface for Improvisatory Visual Projection** (84)
  Hoang Le, Thong Doan, Carl Marshall, Selvakumar Panneer, Feng Liu

- **Coherent Visual Description of Textual Instructions** (101)
  Shashank Mujumdar, Nitin Gupta, Abhinav Jain, Sameep Mehta

- **QoE studies on Interactive 3D Tele-Immersion** (125)
  Kevin Desai, Suraj Raghu raman, Rong Jin, Balakrishnan Prabhakaran
Spatio-Temporal Compositing of Video Elements for Immersive eLearning Classrooms (129)
Uma Gopalakrishnan, Venkat Rangan, Ramkumar N, Balaji Hariharan

Session 5: Best Paper Selection (20 min/paper)
Session Chair: Wolfgang Huerst, Universiteit Utrecht, The Netherlands

Deep Attribute Driven Image Similarity Learning using Limited Data (41)
Nitin Gupta, Ankush Gupta, Vikas Joshi, L. Venkata Subramaniam, Sameep Mehta

A Real-Time Annotation of Motion Data Streams (46)
Petr Elias, Jan Sedmidubsky, Pavel Zezula

Heterogeneous Features Fusion with Collaborative Representation Learning for 3D Action Recognition (75)
Chengwu Liang, Enqing Chen, Lin Qi, Ling Guan

Towards Efficient 3D Pose Retrieval and Reconstruction from 2D Landmarks (96)
Hashim Yasin

Kara1k: a karaoke dataset for cover song identification and singing voice analysis (113)
Yann Bayle, Ladislav Maršík, Martin Rusek, Matthias Robine, Pierre Hanna, Kateřina Slaninová, Jan Martinovič, Jaroslav Pokorný

Computational and perceptual determinants of film mood in different types of scenes (115)
Jussi Tarvainen, Jorma Laaksonen, Tapio Takala

Session 6: Retrieval & Mining (20 min/paper)
Session Co-Chairs: Chi-Ren Shyu, University of Missouri-Columbia, USA
Ling Guan, Ryerson University, Canada

Summarization of news videos considering the consistency of auditory and visual contents (9)
Ichiro Ide, Ye Zhang, Ryunosuke Tanishige, Keisuke Doman, Yasutomo Kawamishi, Daisuke Deguchi, Hiroshi Murase

An Iterative Feature-Pair Updating Framework for Rigid Template Matching with Outliers (20)
Yang Yang, Qian Kou, Shaoyi Du, Shuang Luo, Yuehu Liu, Bangyu Wu

Mining Culture-Specific Music Listening Behavior from Social Media Data (44)
Martin Pichl, Eva Zangerle, Günther Specht, Markus Schidl

Static vs. Dynamic Content Descriptors for Video Retrieval in Laparoscopy (103)
Bernd Muenzer, Manfred J. Primus, Sabrina Kletz, Stefan Petscharnig, Klaus Schoeffmann

In-Memory Distributed Indexing for Large-Scale Media Data Retrieval (135)
Yinmiao Ma, Danlu Liu, Grant Scott, Jeffrey Uhlmann, Chi-Ren Shyu

Demo Session II: Interaction, Tracking, Network Related
Session Chair: Ramazan Savas Aygun, University of Alabama in Huntsville, USA

A Multi Modal Interaction Paradigm Combining Gaze Tracking and Keyboard (47)
Luisa Brinkschulte, Robert Mertens, Leon Stapper, Sebastian Pospiech, Lars Knipping
A Web Application for Subsequence Matching in 3D Human Motion Data (67)
Jan Sedmidubsky, Pavel Zezula

A History-Based TCP Throughput Prediction Incorporating Communication Quality Features by Support Vector Regression for Mobile Network (102)
Bo Wei, Wataru Kawakami, Kenji Kanai, Jiro Katto

Vision-based Automatic Identification Tracking of Steel Products for Intelligent Steel Manufacturing (116)
Chao-Yung Hsu, Li-Wei Kang, Teng-Yi You, Wei-Chen Jhong

Poster Session II (Papers of Sessions 4, 5, 6, 8-A, 8-B, 8-C have to present as a poster as well.)
Session Chair: Robert Mertens, HSW University of Applied Sciences, Hamelin, Germany

A Bitrate-Conservative Fast-Adjusting Rate Controller for Video Conferencing (114)
A Cloud-Based Multi-Threaded Implementation of View Synthesis System (122)
A Real-Time Annotation of Motion Data Streams (46)
Adaptive Quantization-Based HDR Video Coding with HEVC Main 10 Profile (72)
An Iterative Feature-Pair Updating Framework for Rigid Template Matching with Outliers (20)
Analyzing and Enhancing an Image Authentication Scheme (83)
Automatic selection of Web contents towards automatic authoring of a video biography (10)
Balancing Transcoding against Quality-of-Experience to Limit Energy Consumption in Video-on-Demand Systems (105)
Coherent Visual Description of Textual Instructions (101)
Computational and perceptual determinants of film mood in different types of scenes (115)
DAMPAT: Dynamic Adaptation of Multimedia Presentations in Application Mobility (50)
Deep Attribute Driven Image Similarity Learning using Limited Data (41)
Detecting Good Surface for Improvisatory Visual Projection (84)
Drawing Abrasive Hologram Animations with Auto-Generated Scratch Patterns (58)
Heterogeneous Features Fusion with Collaborative Representation Learning for 3D Action Recognition (75)
Indicators of Country Similarity in Terms of Music Taste, Cultural, and Socio-economic Factors (17)
In-Memory Distributed Indexing for Large-Scale Media Data Retrieval (135)
Kara1k: a karaoke dataset for cover song identification and singing voice analysis (113)
Mining Culture-Specific Music Listening Behavior from Social Media Data (44)
QoE studies on Interactive 3D Tele-Immersion (125)
Rate-Accuracy Optimization of Deep Convolutional Neural Network Models (127)
Readability Enhancement of Low Light Videos Based on Discrete Wavelet Transform (11)
SDN-enabled Game-Aware Network Management for Residential Gateways (43)
Secure Secret Sharing in the Cloud (90)
Spatio-Temporal Compositing of Video Elements for Immersive eLearning Classrooms (129)
Static vs. Dynamic Content Descriptors for Video Retrieval in Laparoscopy (103)
Streaming Multimedia via Overlay Networks using Wi-Fi Peer-to-Peer Connections (40)
Summarization of news videos considering the consistency of auditory and visual contents (9)
Survey of Visual Feature Extraction Algorithms in a Mars-like Environment (76)
Sustained Attention Function Evaluation during Cooking based on Egocentric Vision (82)
The Impact of Feng Shui on House Price: A Data Perspective (25)
Towards Efficient 3D Pose Retrieval and Reconstruction from 2D Landmarks (96)
# TECHNICAL PROGRAM (DECEMBER 13, WEDNESDAY)

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<tr>
<th>Time</th>
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<tr>
<td>07:30 - 17:00</td>
<td>Hallway</td>
<td>Registration</td>
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| 08:30 - 09:20 | Round Room II, 10F | Keynote Speech IV  
Concealing Network Delays in Fast Multi-Player Online Games  
*Benjamin W. Wah, The Chinese University of Hong Kong, China*  
Session Chair  
*Phillip C.-Y. Sheu, University of California at Irvine, USA* |
| 09:20 - 09:40 |                | Coffee Break                               |
| 09:40 - 10:55 | Round Room II, 10F | Session 8-A: Contents & Features  
Session Chair  
*Jan Sedmidubsky, Masaryk University, Czech Republic* |
| Round Room I, 10F | Session 8-B: Video Streaming  
Session Chair  
*Truong Cong Thang, University of Aizu, Japan* |
| VIP Room, 10F | Session 8-C: Enhancement & Security  
Session Chair  
*Robert Mertens, HSW University of Applied Sciences, Hamelin, Germany* |
| 10:55 - 12:35 | Round Room II, 10F | Workshop: EMASC  
Session Co-Chairs  
*Anwar Hossain, King Saud University, KSA*  
*Abdulmotaleb El Saddik, University of Ottawa, Canada* |
| Round Room I, 10F | Workshop: MAM  
Session Co-Chairs  
*Yi-Cheng Chen, National Central University, Taiwan*  
*Chih-Hua Tai, National Taipei University, Taiwan* |
| VIP Room, 10F | Session 7-C: Mining & Learning  
Session Chair  
*Ichiro Ide, Nagoya University, Japan* |
| 12:35 - 13:30 | Olympus Room II, 11F | Lunch                                     |
| 13:30 - 15:30 | Round Room II, 10F | Workshop: IMAD I  
Session Chair  
*Kup-Sze Choi, Hong Kong Polytechnic University, Hong Kong, China* |
| Round Room I, 10F | Workshop: MSA I  
Session Chair  
*Guigang Zhang, Chinese Academy of Sciences, China* |
| VIP Room, 10F | Workshop: MLCSA  
Session Co-Chairs  
*Yongqing Sun, NTT Communications, Japan*  
*Xian-Hua Han, Yamaguchi University, Japan* |
| 15:30 - 15:50 |                | Coffee Break                               |
| 15:50 - 17:50 | Round Room II, 10F | Workshop: IMAD II  
Session Chair  
*Raymond Pang, Caritas Institute of Higher Education, Hong Kong, China* |
| Round Room I, 10F | Workshop: MSA II  
Session Chair  
*Guigang Zhang, Chinese Academy of Sciences, China* |
| VIP Room, 10F | Workshop: MTEL  
Session Co-Chairs  
*Markus Ketterl, .msg Systems, Germany*  
*Florian Schimanke, Hochschule Weserbergland, Germany* |
Session 7-C: Mining & Learning (15 min/paper)
Session Chair: Ichiro Ide, Nagoya University, Japan

A Color Prediction System for Interactive Drawing Based Image Retrieval on Mobile Devices (59)
Zhan Xu, Guoping Qiu

Fine-Grained Venue Discovery by Deep Correlation Learning (74)
Yi Yu, Suhua Tang, Kiyoharu Aizawa, Akiko Aizawa: VenueNet

Adaptive Sparse Learning for Neurodegenerative Disease Classification (85)
Haijun Lei, Yujia Zhao, Yuting Wen, Baiying Lei

A New Multimedia Documents Clustering Approach based on Feature Patterns Similarity (112)
Pushpalatha K, Ananthanarayana V S

User Segment Identification based on Similarity in Content Consumption (136)
Somdeb Sarkhel, Wreetabrata Kar, Viswanathan Swaminathan

Session 8-A: Contents & Features (15 min/paper)
Session Chair: Jan Sedmidubsky, Masaryk University, Czech Republic

Automatic selection of Web contents towards automatic authoring of a video biography (10)
Ichiro Ide, Yasutomo Kawanishi, Kyoka Kunishiro, Frank Nack, Daisuke Deguchi, Hiroshi Murase

Indicators of Country Similarity in Terms of Music Taste, Cultural, and Socio-economic Factors (17)
Markus Schedl, Florian Lemmerich, Bruce Ferwerda, Marcin Skowron, Peter Knees

DAMPAT: Dynamic Adaptation of Multimedia Presentations in Application Mobility (50)
Francisco Javier Velazquez-Garcia, Frank Eliassen

Drawing Abrasive Hologram Animations with Auto-Generated Scratch Patterns (58)
Frode Eika Sandnes, Evelyn Eika

Survey of Visual Feature Extraction Algorithms in a Mars-like Environment (76)
Martin Oelsch, Dominik Van Opdenbosch, Eckehard Steinbach

Session 8-B: Video Streaming (15 min/paper)
Session Chair: Truong Cong Thang, University of Aizu, Japan

Streaming Multimedia via Overlay Networks using Wi-Fi Peer-to-Peer Connections (40)
Justas Poderys, Jose Soler

SDN-enabled Game-Aware Network Management for Residential Gateways (43)
Maryam Amiri, Hussein Al Osman, Shervin Shirmohammadi

Balancing Transcoding against Quality-of-Experience to Limit Energy Consumption in Video-on-Demand Systems (105)
Jungwoo Lee, Hwangje Han, Minseok Song

A Bitrate-Conservative Fast-Adjusting Rate Controller for Video Conferencing (114)
Abbas Javadtalab, Mona Omidyeganeh, Shervin Shirmohammadi, Mojtaba Hosseini
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Session Chair: Robert Mertens, HSW University of Applied Sciences, Hamelin, Germany

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Tingting Sun, Cheolkon Jung, Peng Ke, Hyoseob Song, Jungmee Hwang

The Impact of Feng Shui on House Price: A Data Perspective (25)
Tsuo-Chen Wu, Mei-Chen Yeh

Adaptive Quantization-Based HDR Video Coding with HEVC Main 10 Profile (72)
Qingtao Fu, Cheolkon Jung, Ge Yang

Analyzing and Enhancing an Image Authentication Scheme (83)
Seyed Amir Hossein Tabatabaei, Ahmad Delforouzi, Marcin Grzegorzek

Secure Secret Sharing in the Cloud (90)
Ching-Chun Chang, Chang-Tsun Li

Workshop: EMASC (20 min/paper)
Session Co-Chairs: Anwar Hossain, King Saud University, KSA
Abdulmotaleb El Saddik, University of Ottawa, Canada

Detection and Visualization of Arabic Emotions on Social Emotion Map (EMASC-01)
Mohammed F. Alhamid, Saad Alsahl, Majdi Rawashdeh, Mubarak Alrashoud

A Crowd-Sourced Adaptive Safe Navigation for Smart Cities (EMASC-02)
Neeraj Goel, Rajat Sharma, N. Nikhil, S. D. Mahanoor, Mukesh Saini

The Solar system as a 3D Metaphor to visualize User Interactions in a Social Network (EMASC-03)
Wanjun Pei, Benjamin Guthier, Abdulmotaleb El Saddik

Privacy Analysis of Smart City Healthcare Services (EMASC-04)
M. Anwar Hossain, Amjad A. Alghanim, Sk Md Mizanur Rahman

Impact of Distributed Caching on Video Streaming Quality in Information Centric Networks (EMASC-05)
Lingchao Kong, Jingyi Zhu, Rui Dai, Mohammad Nazmus Sadat

Workshop: IMAD I (20 min/paper)
Session Chair: Kup-Sze Choi, Hong Kong Polytechnic University, Hong Kong, China

MAESTRO: Constructing a reference framework for self-monitoring devices dedicated to seniors (IMAD-02)
Moussa Ouedrago, Wassila Aggoune-Mtalaa, Djamel Khadraoui

Shall IoT User Interfaces Start Recommending Physical Things as well? (IMAD-04)
Mukesh Saini, Ali Danesh, Abdulmotaleb Saddik

Smart Homes and Quality of Life for the Elderly: A Systematic Review (IMAD-06)
Debajyoti Pal, Tiul Triyason, Suree Funilkul

Real-Time System for Human Activity Analysis (IMAD-07)
Randy Tan, Naimul Khan, Ling Guan
Does Spending More Time on Social Media Makes Users Engage in Politics? (IMAD-09)
Ho-Yin Yue, Wai-Man Pang, Chi-Yin Tam, Clive Wai-Ngok Fan

Where2Buy: A Location-based Shopping App with Products-wise Searching (IMAD-12)
Kin Chi Chan, Tak Leung Cheung, Sin Hong Lai, Kin Chung Kwan, Hoyin Yue, Wai-Man Pang

Workshop: IMAD II (20 min/paper)
Session Chair: Raymond Wai-Man Pang, Caritas Institute of Higher Education, Hong Kong, China
A Memory Friendly Multi-Modal for Emotion Analysis for Smart Toy (IMAD-11)
Geoffrey Poon, Ki-Mei Li, Wai-Man Pang

Towards Realistic Rendering of 3D Fetal Ultrasound via Photon Mapping (IMAD-13)
Jing Qin, Jinta Zheng, Kup-Sze Choi

Enhancing the Performance of Brain-Computer Interface with Haptics (IMAD-14)
Kup-Sze Choi, Shuang Liang

QoS and QoE Evaluations of 2K and 4K DASH Contents Distributions (IMAD-16)
Tatsuya Nagashima, Kenji Kanai, Jiro Katto

Hand Gesture Recognition based on Wavelet Invariant Moments (IMAD-17)
Xi Liu, Chen Li, Lihua Tian

Cross-Modal Transfer Learning for HEp-2 Cell Classification Based on Deep Residual Network (IMAD-18)
Haijun Lei, Tao Han, Weifeng Huang, Jong Yih Kuo, Zhen Yu, Xinzi He, Baiying Lei

Workshop: MAM (20 min/paper)
Session Co-Chairs: Yi-Cheng Chen, National Central University, Taiwan
Chih-Hua Tai, National Taipei University, Taiwan

Data Mining Techniques vs. Policy Development: Evaluating advanced Applied Technological Policies and Emerging Communication Technology (MAM-03)
Sheng-Chih Chen, Yi-Cheng Chen, Wei-Lin Chen

Study of Touch Identify for Mobile Device Security (MAM-08)
Chung-Hua Chu, Hsiao-Ting Shih, Chih-Hua Tai

Large-scale Analysis of Group-specific Music Genre Taste from Collaborative Tags (MAM-11)
Markus Schedl, Bruce Ferwerda

Using Stacked Denoising Autoencoder for the Student Dropout Prediction (MAM-12)
Jong Yih Kuo, Chia Wei Pan, Baiying Lei

Workshop: MLCSA (20 min/paper)
Session Co-Chairs: Yongqing Sun, NTT Communications, Japan
Xian-Hua Han, Yamaguchi University, Japan

A Video Shot Boundary Detection Approach based on CNN Feature (MLCSA-01)
Rui Liang, Qingxin Zhu, Honglei Wei
Deep Image Retrieval Applied on Kotenseki Ancient Japanese Literature (MLCSA-02)
Chairath Sirirattanapol, Yuusuke Matsui, Shin'Ichi Satoh, Kuninori Matsuda, Kazuaki Yamamoto

Hyper-spectral Image Super-resolution Using Non-negative Spectral Representation with Data-guided Sparsity (MLCSA-03)
Xian-Hua Han, Jian Wang, Boxin Shi, Yinqiang Zheng, Yen-Wei Chen

Tensor sparse representation of temporal features for content-based retrieval of focal liver lesions using multi-phase medical images (MLCSA-05)
Jian Wang, Xian-Hua Han, Yingying Xu, Lanfen Lin, Hongjie Hu, Chongwu Jin, Yen-Wei Chen

Influence of Video Quality on Multi-View Activity Recognition (MLCSA-08)
Jun-Ho Choi, Manri Cheon, Jong-Seok Lee

Context-aware Image Generation by using Generative Adversarial Networks (MLCSA-09)
Kenki Nakamura, Qiang Ma

Workshop: MSA I (20 min/paper)
Session Chair: Guigang Zhang, Chinese Academy of Sciences, China

A New Governance Architecture for Government Information Resources based on Big Data Ecological Environment in China (MSA-01)
Xue Sixin, Yan Yayuan, Yang ji Jiang, wangyue

Distributed Representation for Neighborhood-based Collaborative Filtering (MSA-02)
Yi Yang, Guigang Zhang, Jian Wang, Weixing Huang

A Real-Time Chinese Calligraphy Creation System (MSA-03)
Yanzhou Gong, Ziqiang Ni, Weixing Huang, Jian Wang, Guigang Zhang

A Robust Hand Cursor Interaction Method using Kinect (MSA-04)
Zhiwen Lei, Xiaoxiao Yang, Yanzhou Gong, Weixing Huang, Jian Wang, Guigang Zhang

Workshop: MSA II (20 min/paper)
Session Chair: Guigang Zhang, Chinese Academy of Sciences, China

Open Software for HEVC Video Calls (MSA-05)
Joni Räsänen, Marko Viitanen, Jarno Vanne, Timo D. Hämäläinen: Kvazzup

LBP-SVD based copy move forgery detection algorithm (MSA-06)
Yuan Wang, Lihua Tian, Chen Li

Key frame extraction based on entropy difference and perceptual hash (MSA-07)
Mi Zhang, Lihua Tian, Chen Li

Fast Binary Descriptor Search for Keypoint Matching by Norm Ordering (MSA-08)
Masahiko Sugimura, Takayuki Baba, Ryuta Tanaka
Automated Assessment of Students’ Conceptual Understanding: Supporting Students and Teachers Using Data from an Interactive Textbook (MTEL-01)
Toby Dragon, Carrie Lindeman

Keyword based Indexing of a Multimedia File (MTEL-02)
Aman Chaudhary, Akshatha K, Kiran Kodlekere, Surya Prasad J

A Unit Testing Framework for Context Variant Code in a Mobile Learning App (MTEL-03)
Florian Schimanke, Robert Mertens, Leonard Hill

A Fast Video Shot Boundary Detection Employing OTSU’s Method and Dual Pauta Criterion (MTEL-04)
Zhe Yang, Lihua Tian, Chen Li

Enabling Near Real-Time Collaboration in a Distributed Multimedia Editing Environment (MTEL-05)
Johannes Klein, Jean Botev, Steffen Rothkugel

Classification of Reading Patterns Based on Gaze Information (MTEL-06)
Wen-Hung Liao, Chin-Wen Chang, Yi-Chieh Wu
FLOOR MAPS OF CONFERENCE ROOMS (10F)
FLOOR MAPS OF CONFERENCE ROOMS (11F)