The 21st International Conference on Information Integration and Web-based Applications & Services (iiWAS2019)

The 17th International Conference on Advances in Mobile Computing & Multimedia (MoMM2019)

December 2-4, 2019
Munich, Germany
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Welcome to the 21st International Conference on Information Integration and Web-based Applications & Services (iiWAS2019) and the 17th International Conference on Advances in Mobile Computing & Multimedia (MoMM2019).

Until today Munich, Germany was best known for its world-renowned Oktoberfest celebration of fine food, music and fermented hops. But from today forward, Munich welcomes you to iiWAS/MoMM 2019, the premier international forum for like-minded academics and innovators, meeting to share digital discoveries, new methodologies, and ground-breaking applications of our core technologies. In a manner of speaking, it’s our own personal DecemberFest.

As iiWAS/MoMM has done for over 20 years, this exciting exchange of ideas will be delivered by an impressive array of international participants and additional distinguished speakers focused on providing you three distinct levels of experiences: A Learning Experience featuring a very strong program of over 100 thought-provoking presentations and keynote speeches in over 25 sessions. A Networking Experience, offering you valuable opportunities to form lasting friendships and productive collaborations with like-minded academic leaders from around the globe, as you’ll find among this year’s participants coming from 36 countries and over 150 prestigious research and academic institutions. A Motivational Experience, exposing the young, upcoming colleagues among us to exciting new innovations in our fields as a springboard to motivate their own research and discoveries.

We also have a very enjoyable Social program this year, which features a welcome reception at LMU Lichthof and a gala dinner at Augustiner Keller München where you will enjoy a traditional Bavarian Dinner. The Lagerkeller is reserved for iiWAS/MoMM 2019 Conference Dinner exclusively and you will have the opportunity to taste Bavarian beer as well as hearty local food.

As the conference organizers, we would like to express our sincere thanks to all members of the program committees for carefully reviewing all paper submissions and for putting together this interesting program. We are convinced that you will be inspired by the presentations and talks constituting this year’s programme and hope that this will also lead to subsequent cooperation.

We are very grateful to our distinguished keynote speakers: Assoc. Prof. Flora Salim from CIDDA, RMIT University, Melbourne, Australia; Prof. Albrecht Schmidt from LMU Munich, Germany and Prof. Dirk Draheim from Tallinn University of Technology, Estonia. We are also very grateful for our panel chair Prof. Alfredo Cuzzocrea from the University of Calabria, Italy.

We tried our best in arranging everything locally for your comfort. These people and many others behind the scenes created this special spirit which makes all of us feel like coming home every year when we meet at iiWAS and MoMM.

So, welcome to Munich for iiWAS/MoMM 2019. And thank you for your participation, we’re confident you will find the conference both fulfilling and rewarding.
General Conference Chair
Gabriele Anderst-Kotsis, Johannes Kepler University Linz, Austria

Program Committee Chairs
(iiWAS2019)
Maria Indrawan-Santiago, Monash University, Australia
Eric Pardede, La Trobe University, Australia

(MoMM2019)
Pari Delir Haghighi, Monash University, Australia

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Hesti Sudjana, @WAS Organization

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Committees

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Marco Antonio Casanova, PUC – Rio, Brazil
Martin Gaedke, Chemnitz University of Technology, Germany
Masayoshi Aritsugi, Kumamoto University, Japan
Mayumi Ueda, Kyoto University, Japan
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Muhammad Younas, Oxford Brookes University, UK
Naoko Kosugi, Tokyo Healthcare University, Japan
Norwati Mustapha, University Putra Malaysia, Malaysia
Raymondus Kosala, BINUS International - BINUS University, Indonesia
Rodica Potolea, Technical University of Cluj-Napoca, Romania
Rodolfo F. Resende, Federal University of Minas Gerais, Brazil
Ronaldo Mello, Federal University of Santa Catarina, Brazil
Sami Habib, Kuwait University, Kuwait
Sherif Sakr, The University of New South Wales, Australia
Sucha Smanchat, King Mongkut’s University of Technology North Bangkok, Thailand
Takahiro Hara, Osaka University, Japan
Takako Hashimoto, Chiba University of Commerce, Japan
Toshiyuki Amagasa, University of Tsukuba, Japan
Valeria De Antonellis, Università degli Studi di Brescia, Italy
Wanita Sherchan, IBM, Australia
Werner Winiwarter, University of Vienna, Austria
Wookey Lee, Inha University, South Korea
Yacine Sam, University François Rabelais – Tours, France
Yousuke Watanabe, Nagoya University, Japan
Zaher Al Aghbari, University of Sharjah, UAE
Committees

Program Committee MoMM2019

Ajith Abraham, MIR Labs, USA
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Tzung-Shi Chen, National University of Tainan, Taiwan
Stamatis Karnouskos, SAP
Agustinus Borgy Waluyo, Monash University, Australia
Andreas Schrader, University of Luebeck, Germany
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Antonio Liotta, Eindhoven University of Technology, Netherlands
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Carlos Calafate, Universitat Politècnica de València, Spain
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Hong Va Leong, Hong Kong Polytechnic University, China
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Whai-En Chen, National Ilan University, Taiwan
Wolfgang Schreiner, Johannes Kepler University Linz, Austria
You-Chiun Wang, National Sun Yat-Sen University, Taiwan
Young-Koo Lee, Kyung Hee University, South Korea
Yusuke Gotoh, Okayama University, Japan
General Information

Conference Venue
iiWAS2019, MoMM2019 and SHOW are endorsed by the International Organization for Information Integration and Web-based Applications & Services (@WAS) and supported by Institute for Telecooperation JKU Linz and Ludwig Maximilian University München, will be held at Holiday Inn Munich - City Center, that located not far from Munich Old Town.

Hotel Address:
Hochstrasse 3, Munich 81669, Germany
https://www.hi-hotel-muenchen.de/en/

Registration Desk
The Registration Desk is located at the Foyer Ballsaal (Ballroom)
All conference participants shall present themselves at the registration Desk for conference check in and collect the participant’s packages.
Opening hours:
Sun, 1 Dec; 17.00 – 19.00  
Mon, 2 Dec; 08.00 – 16.00  
Tue, 3 Dec; 08.30 – 16.00

Coffee Break & Lunches
Coffee Break will be served at Forum 9-11, Ground floor
Morning Coffee Break between 10.30 – 11.00 and Afternoon Coffee Break at 15.30 – 16.00
Lunch will be served at the Restaurant, Ground floor, start at around 12.30 – 13.30.
Please always wear/bring your ID badge throughout the conference programs, coffee breaks and lunches.

Smoking Policy
Holiday Inn Munich - City Center is a smoking free place. Smoking only permitted in the restricted area and outside the building.

Mobile Phone Courtesy
iiWAS2019 & MoMM2019 requests that all mobile phones and other equipment with audible alarms be turned off in all sessions as a courtesy to the presenters and to the other attendees.

Presentation Equipments
The conference organizer will provide a standard presentation equipment i.e. Projector and flipchart. All presenters are recommended to bring your personal laptop for presentation including any adaptors required for your laptop, otherwise please inform the organizer earlier before your presentation schedule.

WLAN Access
For hotel guests, free WiFi is available in the entire hotel premises. For those who are not staying in Holiday Inn Munich - City Center, please contact registration desk for WiFi connection & availability in the main meeting room.

Electricity Supply
Electricity in Germany is supplied at 220V. Please make sure to bring your own travel adapter if needed. We cannot guarantee the availability of the appropriate adaptor or transformer.
Journal Special Issues

International Journal of Web Information Systems (IJWIS)

Journal of Data Intelligence (JDI)

International Journal of Pervasive Computing and Communications (IJPCC)

Journal Personal and Ubiquitous Computing (JPUC)
Abstract
Context is the most influential signal in analysing human behaviours. Effective and efficient techniques for analysing contexts inherent in the spatio-temporal sensor data from the urban environment are paramount. It is important to observe and learn the context from which the data is generated in, particularly when dealing with heterogenous high-dimensional data from individuals and groups of users, generated either from personal devices or sensors embedded in buildings, cities, and urban areas.

One main challenge in modelling user activities in urban areas is to discover meaningful correlations among the numerous sensor channels and other types of data from multiple domains. Data-driven models need to also reflect on the personalised behaviours of different users. On the other side of the coin, often data is generated by many companies without any information of individuals. However the analysis still needs to reflect different activity profiles.

I will present our generic temporal segmentation techniques that we have used for multiple applications. A new concept of cyber, physical, social contexts will be introduced, and how they translate in various domain applications of our research for analysing occupant behaviours, and for personalised intelligent assistants. Finally, the data-driven models can be used as input for recommender systems for individuals and/or groups, and for optimising the routes and/or itineraries in multiple applications, from visitors in a shopping mall, to travelling parking inspectors and police officers.

Biography
Flora Salim is an Associate Professor at the Computer Science and IT (CSIT) discipline, School of Science, RMIT University, Melbourne, Australia, and a Deputy Director of the RMIT Centre for Information Discovery and Data Analytics (CIDDA). She leads the Context Recognition and Urban Intelligence group in CIDDA. A/Prof. Flora’s research interests include context-aware situational intelligence and spatio-temporal analysis, specifically in human mobility tracking, context and behaviour modelling, time-series prediction, and cross-domain data fusion and learning. She obtained her PhD from Monash University in 2009.

She has received numerous awards for her work, including the Humboldt-Bayer Research Fellowship by Alexander von Humboldt Foundation and the Bayer Science & Education Foundation in 2019, Humboldt Fellowship for experienced researcher, Victoria Fellow 2018 (awarded by the Victorian government), the RMIT Vice-Chancellor’s Award for Research Excellence – Early Career Researcher 2016; the RMIT Award for Research Impact - Technology 2018; Victorian iAwards (2014), Australian Research Council (ARC) Postdoctoral Research Industry Fellow (2012-2015); IBM Smarter Planet Industry Skills Innovation Award (2010); and a Google Anita Borg Scholar (2008).

Prior to her faculty appointment in CSIT, she was a postdoc in the Spatial Information Architecture Lab, part of the RMIT School of Architecture and Design, working on multiple design modelling and optimisation problems in architecture, engineering, and construction projects. Prior to her PhD, she was a Senior Software Engineer in mediaproxy, developing realtime signal and content monitoring solutions for TV & broadcasting companies.

She is an Associate Editor of the PACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) and an Area Editor of Pervasive and Mobile Computing.
Abstract
Is artificial intelligence (AI) taking over the world? Are humans losing out to AI in the work place? We are at a point in history, where it seems feasible that we create technologies that could become smarter than humans. This raises the fundamental question of what roles humans play in a future world. I argue that by using these advances in technologies and in particular in sensing and AI we can amplify human perception and cognition to levels that we could never before in history even imagine.

We are at the beginning of this fundamental transformation: the use of digital tools to amplify the mind. Many products, ranging from mobile access to search engines, to wearable devices for lifelogging and augmented reality application give us first indications of this transition.

In our research, we create novel digital technologies that systematically explore how to enhance human cognition and perception. Our experimental approach is to: first, understand the users in their context as well as the potential for enhancement. Second, we create innovative interventions that provide functionality that amplifies human capabilities. And third, we empirically evaluate and quantify the enhancement that is gained by these developments.

It is exciting to see how ultimately these new ubiquitous computing technologies have the potential for overcoming fundamental limitations in human perception and cognition and lead the way for creating cognitive and perceptual super powers. If we succeed to create technologies that seamlessly amplify human cognition and perception, humans augmented with these technologies will outsmart artificial intelligence.

Biography
Albrecht Schmidt is a professor for User Centered Ubiquitous Media in the Computer Science Department at the Ludwig-Maximilians Universität München (LMU Munich). He studied computer science in Ulm, Germany and Manchester, UK and receive in 2003 a PhD from the Lancaster University in the UK. For the last 15 years Albrecht has been dedicated to creating usable interactive systems and he coined the term “implicit interaction”.

The focus of his current work is on novel user interfaces to enhance and amplify human cognition. He is working on interaction techniques and interactive applications in the context of mobile and ubiquitous computing.

He is co-founder of the ACM conference on Tangible and Embedded Interaction (TEI), initiated the ACM conference on Automotive User Interfaces and co-chaired the ACM SIGCHI program in 2014. He is on the editorial board of ACM ToCHI and edits a forum on interaction technologies in the ACM Interactions magazine.

In 2016 Albrecht Schmidt received a ERC Consolidator Grant to work on the Project “AMPLIFY: Amplifying Human Perception Through Interactive Digital Technologies”.

Keynote Speakers

Albrecht Schmidt
LMU Munich, Germany

Making Humans Smarter Than Artificial Intelligence: Digital Technologies to Amplify Human Perception and Cognition
Keynote Speakers

Dirk Draheim
Tallinn University of Technology, Estonia

Collective Intelligence Systems from an Organizational Perspective

Abstract
In this talk, we consider Collective Intelligence (CI) systems from an organizational perspective. CI systems offer a solution to problems that need cognitive skills, problem-solving capabilities, knowledge, know-how or experience at large scale. They help to facilitate and streamline large-scale problem-solving endeavours. The organizational perspective on CI systems offers us two strands of discussion. On the one hand, it can be about understanding the potential of CI systems for today’s organizations. On the other hand, CI systems can be considered as organizations themselves and can be investigated as such.

We start by reviewing the state-of-the-art of CI frameworks. What are the essential building blocks of a CI system? Who uses them? For what, how and why? We come up with a generalized framework that serves us as a basis for further investigations.

From a governance perspective, today’s organizations are recursive-feedback control systems, usually expressed in the form of process-oriented management. A deeper look reveals a plethora of different styles of organizational culture. Still, viable organizations have in common certain essential sub systems, which are policy making, external and internal steering, the primary activities and an informational backbone. How can we exploit CI systems to support these organizational building blocks? Can CI systems be made an integral part of organizations to make them more stable towards distortions; more adaptive towards an ever-changing environment; more agile towards the organization’s innovative potential? Answers to such questions would free CI systems from being niche players in certain large-scale problem-solving initiatives. Reflecting back from the potential of CI systems in today’s organizations, we ask: what can be learned with respect to the design and implementation of future CI systems; and: how to break the silos, i.e., how to integrate them with latest computing resources such as big data and the data science toolkit?

I will present our generic temporal segmentation techniques that we have used for multiple applications. A new concept of cyber, physical, social contexts will be introduced, and how they translate in various domain applications of our research for analysing occupant behaviours, and for personalised intelligent assistants. Finally, the data-driven models can be used as input for recommender systems for individuals and/or groups, and for optimising the routes and/or itineraries in multiple applications, from visitors in a shopping mall, to travelling parking inspectors and police officers.

Biography
Dirk Draheim is full professor of information systems and head of the Information System Group at Tallinn University of Technology. Dirk holds a Diploma in computer science from Technische Universität Berlin, a PhD from Freie Universität Berlin and a habilitation from the University of Mannheim. Until 2006, he worked as a Researcher at Freie Universität Berlin. From 2006-2008, he was area manager for database systems at the Software Competence Center Hagenberg, Austria. From 2008-2016 he was head of the data center of the University of Innsbruck and, in parallel, Adjunct Reader at the Faculty of Information Systems of the University of Mannheim. Dirk is co-author of the Springer book “Form-Oriented Analysis” and author of the Springer books “Business Process Technology”, “Semantics of the Probabilistic Typed Lambda Calculus” and “Generalized Jeffrey Conditionalization”. His research interest is the design and implementation of large-scale information systems.
### Program Structure and Room allocation

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<th>Date</th>
<th>Time</th>
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<th>ROOMS</th>
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<tr>
<td>Mon 2.12.2019</td>
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<td>FORUM 13/14</td>
<td>FORUM 15</td>
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<tr>
<td>09:30</td>
<td>Welcome &amp; Conference Opening</td>
<td>iIWAS S.1A Classification Techniques &amp; Applications, iiIWAS S.1B Encryption and Security, iiIWAS S.1C Machine Learning</td>
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<tr>
<td>09:45</td>
<td>Keynote Talk 1</td>
<td>iIWAS S.1D Social Network Analysis, iiIWAS S1E Social Network Analysis 2, iiIWAS S.1F Text/Graph Analysis and Mining</td>
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<td>11:00</td>
<td>Keynote Talk 2</td>
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<td>13:00</td>
<td>MoMMM S.1A Context-aware Computing</td>
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<td>15:30</td>
<td>MoMMM S.1B Mobile Sensing and Services</td>
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<td>Tue 3.12.2019</td>
<td>09:00</td>
<td>Keynote Talk 3</td>
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<td>09:45</td>
<td>Panel</td>
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<td>11:00</td>
<td>MoMMM S.2A Wearables and Motion Sensing</td>
<td>iIWAS S.2A Machine Learning 3, iiIWAS S.2B Social Network Analysis 3, iiIWAS S.2C Trust and Privacy</td>
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<td>13:30</td>
<td>MoMMM S.2B Mobile Biometrics and Security</td>
<td>iIWAS S.2E Semantic Web and Linked Data, iiIWAS S.2A Database Systems, iiIWAS S.2F Smart Environments and IoT</td>
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<td>16:00</td>
<td>MoMMM S.2C Intelligent Agents</td>
<td>iIWAS S.2G Data and Data Mining, iiIWAS S.2H Semantic Web &amp; Linked Data 2, iiIWAS S.2i HCI and Crowdfunding</td>
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<td>11:00</td>
<td>MoMMM S.3B Augmented Reality and Gamification</td>
<td>iIWAS S.3D IS Applications, iiIWAS S.3E Machine Learning 2, S.3F SHOW</td>
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<td>13:30</td>
<td>MoMMM S.3C IoT Systems</td>
<td>iIWAS S.3G Social Network Analysis 3, S.3H SHOW, S.3I SHOW</td>
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<td>16:00</td>
<td>MoMMM S.3D Smart and Efficient Computing</td>
<td>iIWAS S.3J Hardware and Systems, S.3K SHOW, S.3L SHOW</td>
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<td>17:30</td>
<td>Closing</td>
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**Room Allocation:**
- FORUM 12: Welcome & Conference Opening, Keynote Talk 1, Keynote Talk 2
- FORUM 13/14: MoMMM S.1A Context-aware Computing, MoMMM S.1B Mobile Sensing and Services
- FORUM 15: MoMMM S.1A Context-aware Computing, MoMMM S.1B Mobile Sensing and Services
- FORUM 16: MoMMM S.1A Context-aware Computing, MoMMM S.1B Mobile Sensing and Services
All lecture rooms are located on the ground floor Holiday Inn Munich City Center.
**Conference Program & Schedule**

**Sunday, 1st December 2019**

**TIME**

17.00-19.00 **Registration**
Foyer Hallsaal (Ballroom), Ground Floor. Holiday Inn Munich – City Center

**Monday, 2nd December 2019**

**TIME**

08.00 **Registration**

09.30 **Welcome and Conference Opening**

09.45 **Keynote Talk I**
*Context and Behaviour Modelling of User and Urban Activities*
Flora Salim, CIDDA - RMIT University, Melbourne, Australia

10.30 **Coffee Break @Forum 9-11, Ground Floor**

11.00 **Keynote Talk II**
*Making Humans Smarter Than Artificial Intelligence: Digital Technologies to Amplify Human Perception and Cognition*
Albrecht Schmidt, LMU Munich, Germany

11.45 **Group Photo Session**
Foyer Ballsaal

12.00 **Lunch @Restaurant Ground Floor**

13.00 **Papers Presentations**
Forum room 13/14

**Session iiWAS – IA**
**Classification Techniques and Applications**
Session Chair: Alexander Stenzer

**Tourism application with CNN-Based Classification specialized for cultural information**
Takuma Hirotsu, Masaharu Hirota, Tetsuya Araki, Masaki Endo, Hiroshi Ishikawa
*Japan*

**Fake News Classification Based on Subjective Language**
Caio Libanio Melo Jeronimo, Leandro Balby Marinho, Claudio E. C. Campelo, Adriano Veloso, Allan Sales da Costa Melo
*Brazil*

**Building Classifier Models for on-off Javanese Character Recognition**
Lucia D. Krisnawati, Aditya W. Mahastama
*Indonesia*

**Movie Genres Classification using Collaborative Filtering**
Raji Ghawi, Jürgen Pfeffer
*Germany*
Session iiWAS – IB
Encryption and Security
Session Chair: Chiemi Watanabe

Secure Naïve Bayes Classification Protocol over Encrypted Data Using Fully Homomorphic Encryption
Yoshiko Yasumura, Yu Ishimaki, Hayato Yamana
Japan

Outsourced Private Set Union on Multi-Attribute Datasets for Search Protocol using Fully Homomorphic Encryption
Rumi Shakya, Yoshiko Yasumura, Suzuki Takuya, Yu Ishimaki, Hayato Yamana
Japan

A Privacy-Preserving Query System using Fully Homomorphic Encryption with Real-World Implementation for Medicine-Side Effect Search
Yusheng Jiang, Tamotsu Noguchi, Nobuyuki Kanno, Yoshiko Yasumura, Takuya Suzuki, Yu Ishimaki, Hayato Yamana
Japan

Ontology-Based Model for Automotive Security Verification and Validation
Abdelkader Magdy Shaaban, Christoph Schmittner, Thomas Gruber, Abd El Baith Mohamed, Gerald Quirchmayr, Erich Schikuta
Austria

Session iiWAS – IC
Machine Learning
Session Chair: Akiyo Nadamoto

A Hybrid Machine Learning Approach for Improving Mortality Risk Prediction on Imbalanced Data
Araek Tashkandi, Lena Wies
Germany

Analyzing and Predicting the Popularity of Online Contents
Minh-Tri Nguyen, Takuma Nakajima, Masato Yoshimi, Nam Thoai
Viet Nam, Japan

Flexible Community Search Algorithm on Attributed Graphs
Shohei Matsugu, Hiroaki Shiokawa, Hiroyuki Kitagawa
Japan

Fast RankClus Algorithm via Dynamic Rank Score Tracking on Bi-type Information Networks
Kotaro Yamazaki, Shohei Matsugu, Hiroaki Shiokawa, Hiroyuki Kitagawa
Japan
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<tr>
<th>Time</th>
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<tr>
<td>13.00</td>
<td>Papers Presentations</td>
<td>Forum 12</td>
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<td><strong>Session MoMM – IA</strong></td>
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<td><strong>Context-aware Computing</strong></td>
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<td><strong>Session Chair</strong>: Piotr Wawryka</td>
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<td><strong>Using Personalisation to improve User Experience in Public Display Systems with Mobile Interaction</strong></td>
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<td><strong>Rui Neves Madeira, Pedro Santos, Nuno Correia</strong></td>
<td>Portugal</td>
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<td><strong>Context-Aware Smart Energy Recommender (CASER)</strong></td>
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<td><strong>Paras Sitoula, Dwi Rahayu, Pari Delir Haghghi, Sarah Goodwin, Chris Ling</strong></td>
<td>Australia</td>
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<td><strong>DCAT: A Deep Context-Aware Trust Prediction Approach for Online Social Networks</strong></td>
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<td><strong>Seyed Mohssen Ghafari, Aditya Joshi, Amin Beheshti, Cecile Paris, Shahpar Yakhchi, Mehmet Orgun</strong></td>
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<td><strong>Towards Context-aware Social Behavioral analytics</strong></td>
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<td><strong>Amin Beheshti, Vahid Moraveji Hashemi, Shahpar Yakhchi</strong></td>
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<td>Coffee Break @Forum 9 -11, Ground Floor</td>
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<td><strong>Session Chair</strong>: Masaharu Hirota</td>
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<td><strong>Towards Linked Data for Wikidata Revisions and Twitter Trending Hashtags</strong></td>
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<td><strong>Paula Dooley, Bojan Božić</strong></td>
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<td><strong>Enabling Social Information Exchange via Dynamically Robust Annotations</strong></td>
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<td><strong>Vishwajeet Pattanaik, Shweta Suran, Dirk Draheim</strong></td>
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<td><strong>Blockchain as Middleware for Exchange of Resources: The Cross-Company Loyalty Rewarding System Use Case</strong></td>
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<td><strong>Kushal Soni, Olga De Troyer</strong></td>
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<td><strong>A Simulation Model Demonstrating the Impact of Social Aspects on Social Internet of Things</strong></td>
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<td><strong>Kashif Zia, Arshad Muhammad, Sanad Al Maskari, Dinesh Saini, Umar Farooq</strong></td>
<td>Oman, Pakistan</td>
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Theoretical approach to discover mutual friendships from social graph networks
Carson Leung, Fan Jiang, Sehaj Pal Singh, Alfredo Cuzzocrea
Canada, Italy

Analysis of High-value Reviews based on Sentiment
Rinji Suzuki, Kazuhiro Akiyama, Tadahiko Kumamoto, Akiyo Nadamoto
Japan

Session iiWAS – IF
Text/Graph Analysis and Mining
Session Chair: Lucia Dwi Krisnawati

Optimal Selection of Training Courses for Unemployed People based on Stable Marriage Model
Jorge Martinez-Gil, Bernhard Freudenthaler
Austria

A Method to Estimate Entity Performance from Mentions to Related Entities in Texts on the Web
Vanderson Sampaio, Renato Fileto, Douglas Mace
Brazil

Pro-Eating Disorders and Pro-Recovery Communities on Reddit: Text and Network Comparative Analyses
Yousra Fettach, Lamia Benhiba
Morocco

Named entity recognition using point prediction and active learning
Koga Kobayashi, Kei Wakabayashi
Japan

Session MoMM – IB
Mobile Sensing and Services
Session Chair: Yusuke Gotoh

Active Safety for Individual and Connected Vehicles using Mobile Phone Only
Mateusz Paciorek, Piotr Wawryka, Adrian Klusek, Przemysław Kalawski, Michał Kosowski, Andrzej Piechowicz, Julia Plewa, Marek Powroźniak, Michał Śledź, Aleksander Byrski, Marcin Kurdziel, Wojciech Turek
Poland

A Hierarchical Classifier for Detecting Metro-Journey Activities in Data Sampled at Low Frequency
Ankita Dewan, Venkata M. V. Gunturi, Vinayak Naik, Kartik Vishwakarma and Shrehal Bohra
India
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<td><strong>Keynote Talk III</strong></td>
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<td>Collective Intelligence Systems from an Organizational Perspective</td>
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<td><strong>Dirk Draheim</strong>, Tallinn University of Technology, Estonia</td>
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<td><strong>Panel</strong></td>
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<td>Big Data Management and Analytics in Intelligent Smart Environments: State-of-the-Art Analysis and Future Research Directions</td>
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<td><strong>Alfredo Cuzzocrea</strong>, ICAR-CNR and University of Calabria, Italy</td>
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<td>Machine Learning 3</td>
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<td><strong>Session Chair : Chinmaya Kumar Dehury</strong></td>
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<td><strong>Film Genre Prediction Based on Film Content and Screenplay Structure</strong></td>
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<td><strong>Yusuke Nakano, Hiroaki Ohshima, Yusuke Yamamoto</strong></td>
<td><strong>Japan</strong></td>
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### Papers Presentations

**Personality Estimation using Demographic Data in a Personality-based Recommender System: A Proposal**  
Iman Paryudi, Ahmad Ashari, A Min Tjoa  
*Indonesia, Austria*

**Fatten Features and Drop Wastes: Finding Repeaters Reviews by Feature Generation and Feature Selection**  
Naoki Muramoto, Hiromi Shiraga, Kilho Shin, Hiroaki Ohshima  
*Japan*

**Effects of Mining Parameters on the Performance of the Sequence Pattern Variants Analyzing Method Applied to Electronic Medical Record Systems**  
Hieu Hanh Le, Tasuhiro Yamada, Yuichi Honda, Masaaki Kayahara, Muneo Kushima, Kenji Araki, Haruo Yokota  
*Japan*

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**Session iiWAS – IIB**  
**Social Network Analysis 3**  
*Session Chair: Ngurah Agus Sanjaya ER*

**Events Insights Extraction from Twitter Using LDA and Day-Hashtag Pooling**  
Muhammad Haseeb Ur Rehman Khan, Kei Wakabayashi, Satoshi Fukuyama  
*Japan*

**Modelling Emotion Dynamics on Twitter via Hidden Markov Mode**  
Debashis Naskar, Miguel Rebollo, Eva Onaindia, Subhashis Das  
*Spain, Italy*

**A Crawling Method with No Parameters for Geo-Social Data based on Road Maps**  
Sou Ijima, Masaharu Hirota, Shohei Yokoyama  
*Japan*

**Detection of Behavioral Facilitation information in Disaster Situation**  
Yoshiki Yoneda, Yu Suzuki, Akiyo Nadamoto  
*Japan*

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**Session iiWAS – IIC**  
**Trust and Privacy**  
*Session Chair: Dirk Draheim*

**Extending Linked USDL by Trust Assertion**  
Wolfgang Bauer, Natalia Kryvinska, Jürgen Dorn, Owen Sacco  
*Slovakia, Austria, Malta*

**URL-based Phishing Detection using the Entropy of Non-Alphanumeric Characters**  
Eint Sandi Aung, Hayato Yamana  
*Japan*
11.00 Papers Presentations

**Exploiting Blockchain and Smart Contracts for Data Exploration as a Service**
Ada Bagozi, Devis Bianchini, Valeria De Antonellis, Massimiliano Garda, Michele Melchiori
*Italy*

**A Privacy-Preserving Similarity Search Scheme over Encrypted Word Embeddings**
Daisuke Aritomo, Chiemi Watanabe, Masaki Matsubara, Atsuyuki Morishima
*Japan*

Session MoMM – IIA
**Wearables and Motion Sensing**
Session Chair: Daniel Hintze

**Tennis Stroke Classification: Comparing Wrist and Racket as IMU Sensor Position**
Christopher Ebner, Rainhard Dieter Findling
*Austria*

**Haptic Feedback Method using Deformation of Clothing**
Kentaro Ueda, Tsutomu Terada, Masahiko Tsukamoto
*Japan*

**Activity Recognition and Stress Detection via Wristband**
Chun Yiu Wong, Jun Wang, Yujun Fu, Hong Va Leong, Grace Ngai
*Hong Kong*

**An Auditory Feedback System to Improve the Foot Pressure Balance for Runners**
Ayumi Ohnishi, Isao Nishiyama, Tsutomu Terada, Masahiko Tsukamoto
*Japan*

12.30 Lunch @ the Restaurant Ground Floor

13.30 Papers Presentations

Session iiWAS – IID
**Semantic Web and Linked Data**
Jakub Klimek

**PLDSD: Personalized Linked Data Semantic Distance for LOD-Based Recommender Systems**
Gabriela da Silva, Frederico Durão, Miriam Capretz
*Brazil, Canada*

**Knowledge Graph of University Campus Issues and Application of Completion Methods**
Yuto Tsukagoshi, Takahiro Kawamura, Yuichi Sei, Yasuyuki Tahara, Akihiko Ohsuga
*Japan*
Uniform Access to Multiform Data Lakes using Semantic Technologies
Mohamed Nadjib Mami, Damien Graux, Simon Scerri, Sören Auer, Jens Lehmann, Hajira Jabeen
Germany

Towards Knowledge Graph Construction using Semantic Data Mining
Dina Sharafeldeen, Alsayed Algargawy, Birgitta König-Ries
Germany

On efficiently storing huge property graphs in relational database management systems
Matthias Schmid
Germany

A Hybrid Partitioning Strategy for NewSQL Databases: The VoltDB Case
Geomar Schreiner, Denio Duarte, Guilherme Dal Bianco, Ronaldo Mello
Brazil

NewSQL Through the Looking Glass
Geomar Schreiner, Ronan Knob, Denio Duarte, Patricia Vilain, Ronaldo Mello
Brazil

Structural Transition Analysis of Dynamic Network Based on Roles of Adding Edges
Kazufumi Inafuku, Takayasu Fushimi, Tetsuji Satoh
Japan

Weighted Load Balancing in Distributed Hash Tables
Robin Lösch, Jan Schmidt, Nils Gentschen Felde
Germany

Open Routed Energy Distribution Network based on a Concept of Energy Routers in Smart Grid
Alexander Dudko, Tatiana Endrujukaitė, Leon L. Roose
Japan, Latvia, USA

Microbiological Water Quality Test Results Extraction from Mobile Photographs
Jifang Xing, Ruixi Zhang, Remmy Zen, Ngurah Agus Sanjaya Er, Laure Sioné, Ismail Khalil, Stéphane Bressan
Singapore, Indonesia, UK, Austria
Building Extraction from Google Earth Images
Jifang Xing, Ruixi Zhang, Remmy Zen, Dewa Made Sri Arsa, Ismail Khalil, Stéphane Bressan
Singapore, Indonesia, Austria

Session MoMM – IIB
Mobile Biometrics and Security
Session Chair: Ayumi Ohnishi

Hide my Gaze with EOG! Towards Closed-Eye Gaze Gesture Passwords that Resist Observation-Attacks with Electrooculography in Smart Glasses
Rainhard Dieter Findling, Tahmid Quddus, Stephan Sigg
Finland

CORMORANT: On Implementing Risk-Aware Multi-Modal Biometric Cross-Device Authentication for Android
Daniel Hintze, Matthias Füller, Sebastian Scholz, Rainhard Dieter Findling, Muhammad Muaaz, Philipp Kapfer, Wilhelm Nüßer, Rene Mayrhofer
Austria, Finland, Germany

Security solution methods in the Vehicular Ad-Hoc Networks
Krzysztof Stępień, Aneta Poniszewska-Maranda
Poland

Free-Form Gaze Passwords from Cameras Embedded in Smart Glasses
Eira Friström, Elias Lius, Niki Ulmanen, Paavo Hietala, Pauliina Kärkkäinen, Tommi Mäkinen, Stephan Sigg, Rainhard Dieter Findling
Finland

Improving Findability of Open Data Beyond Data Catalogs
Tomáš Skopal, Jakub Klímek, Martin Nečaský
Czech Republic

An Application of Distributed Data Mining to Identify Data Quality Problems
Eshref Januzaj, Visar Januzaj, Peter Mandl
Germany

ToT for CSV: accessing open data CSV files through SQL
Yasushi Doi, Motomichi Toyama
Japan

Generation of Test Cases for Testing SuperSQL
Amulya Bathini, Kento Goto, Motomichi Toyama
Japan
Session iiWAS – IIH
Semantic Web & Linked Data 2
Session Chair: Kei Wakabayashi

Query Relaxation using Spreading-Activation and SKOS-Ontologies
Alexander Stenzer
Germany

Reverse-Transliteration of Hebrew script for Entity Disambiguation
Aaron Christianson, Maral Dadvar, Kai Eckert
Germany

Social Media Copyright Management using Semantic Web and Blockchain
Roberto Garcia, Rosa Gil
Spain

Session iiWAS – II I
HCI and Crowdfunding
Session Chair: Yujun Fu

Gamifying Human Behavior in Urban Crowdsourcing for a Sustainable Smart City
Risa Kimura, Tatsuo Nakajima
Japan

Query Recommendation to Draw a Laugh from Web Searcher
Hiroo Umeda, Yusuke Yamamoto
Japan

What Independent Game Developers Expect from Recommender Systems
Marta Kholodylo, Christine Strauss
Austria

The Impact of Updates in Social Crowd Projects: Insights from a German Equity Crowdfunding Platform
Regina Cernicka, Andreas Mladenow, Christine Strauss
Austria

Session MoMM – IIC
Intelligent Agents
Session Chair: Tsutomu Terada

Blockchain e-voting system with the use of intelligent agent approach
Michał Pawlak, Aneta Poniszewska-Maranda
Poland

A Reinforcement Learning and Synthetic Data Approach to Mobile Notification Management
Rowan Sutton, Kieran Fraser, Owen Conlan
Ireland
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<tr>
<td>16.00</td>
<td><strong>Papers Presentations</strong></td>
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<td><strong>Be in/Be out model for intelligent transport in SmartCity approach</strong></td>
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<td>Bartosz Wieczorek, Aneta Poniszewska-Maranda</td>
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<td>18.30-22.30</td>
<td><strong>Conference Gala Dinner &amp; Best Paper Awards</strong></td>
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<td>a traditional Bavarian Dinner at Augustiner Keller München, Arnulfstr. 52, 80335 München</td>
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<td><strong>Web Services and Applications</strong></td>
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<td><strong>Building a Web-Based Federated Toolchain: Lessons Learned from a Four-Year Industrial Project</strong></td>
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<td>Damir Nešić, Jad El-Khoury, Jonas Westman, Mattias Nyberg</td>
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<td><strong>Personalized Service Delivery using Reinforcement Learning in Fog and Cloud Environment</strong></td>
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<td>Chinmaya Kumar Dehury, Satish Narayana Srirama</td>
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<td><strong>A Web Service Architecture for Social Micro-Learning</strong></td>
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<td>Bernhard Göschlberger, Gabriele Anderst-Kotsis</td>
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<td><strong>Computing Ranges for Temporal Parameters of Composed Web Services</strong></td>
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<td>Marco Franceschetti, Johann Eder</td>
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<td><strong>Information Retrieval and Management</strong></td>
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<td><strong>Improving Precision in IR Considering Dynamic Environments</strong></td>
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<td>Claudio Gutiérrez-Soto, Arturo Curiel</td>
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<td><strong>Target-Topic Aware Doc2Vec for Short Sentence Retrieval from User Generated Content</strong></td>
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<td>Kosuke Kurihara, Yoshiyuki Shoji, Sumio Fujita, Martin J.Dürst</td>
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SIMPATICO 3D Mobile for Diagnostic Procedures
Ester Zumpano, Pasquale Iaquinta, Francesco Dattola, Luciano Caroprese, Giuseppe Tradigo, Pierangelo Veltri, Eugenio Vocaturo
Italy

Session iIWAS – IIIC
Knowledge Representation
Session Chair: Ismail Khalil

Generating Anthropomorphism of Subject and Verb by Transformation Matrix
Katsurou Takahashi, Kilho Shin, Hiroaki Ohshima
Japan

Fully Informed Vulnerable Road Users - Simpler, Maybe Better
Bruno Fernandes,Henrique Vicente,Jorge Ribeiro, António Capita, Cesar Analide, Jose Neves
Portugal

HyDRS-WoT: Community-oriented Hybrid Disaster Response System using Web of Things
Youna Jung, Aaron Causey
USA

Session MoMM – IIIA
Multimedia and Computer Vision
Session Chair: Shahpar Yakhchi

Large-Scale Semantic Concept Detection Based on Visual Contents
Mohamed Hamroun, Sonia Lajmi, Henri Nicolas, Ikram Amous
Tunisia, France

Automatic Vehicle Identification Through Visual Features
Imran Shafiq Ahmad, Boubakeur Boufama
Canada

An Approach for CCTV Contents Filtering Based on Contextual Enrichment via Spatial and Temporal Metadata
Franck Jeveme Panta, André Péninou, Florence Sedes
France

Coffee Break @Forum 9 -11, Ground Floor
Session iiWAS – IID
IS Applications
Session Chair: Yusuke Yamamoto

Prototyping and Preliminary Evaluation of Mind Monitoring Service for Elderly People at Home
Chisaki Miura, Haruhiwa Maeda, Masahide Nakamura, Kiyoshi Yasuda
Japan

A Museum Information System for Sustaining and Analyzing National Cultural Expressions
Bea Therese Santas, Jacob Tolentino, Danielle Nicole Aquino, Riel Malibiran,
Christine Diane Ramos, Charibeth Cheng, Courtney Ngo
Philippines

A Context-Aware Adaptive Tourist Recommendation System
Lukito Edi Nugroho, Rico Yudha Saputra, Vivin Mahat Putri, Yohandes Efindo
Indonesia

Session iiWAS – IIIE
Machine Learning 2
Session Chair: Ester Zumpano

Accent neutralization for speech recognition of non-native speakers
Kacper Radzikowski, Mateusz Forc, Le Wang, Osamu Yoshie, Robert Nowak
Japan, Poland

Mining Stock Price Changes for Profitable Trade Using Candlestick Chart Patterns
Yoshihisa Udagawa
Japan

Estimation Method of L2 Learners’ Second Language Ability by using Features in Conversation
Xinnan Chen, Muhammad Haseeb Ur Rehman Khan, Wakabayashi Kei
Japan

Session SHOW – IIIF
Session Chair: Gabriele Anderst-Kotsis

Building Blocks of Negotiating Agents for Healthcare Data
Svetlana Boudko, Wolfgang Leister
Norway

Towards a social learning environment
Hajar Zankadi, Imane Hilal, Najima Daoudi, Abdellah Idrissi
Morocco

Data Source Selection in Big Data Context
Hicham Moad Safhi, Bouchra Frikh, Brahim Ouhbi
Morocco
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<td>An Interaction Design Model for Information Visualization in Immersive Augmented Reality platform</td>
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<td>Shafaq Irshad, Dayang Awang, Suzaih Sulaiman</td>
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<td><strong>Evaluation of Effect on Walking Behavior by Seeing Augmented Reality Objects</strong></td>
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<td>Yamato Sakuragi, Naoya Isoyama, Tsutomu Terada, Masahiko Tsukamoto</td>
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<td>An Analysis of Influence of Emoticons on Affective Impressions Feeling from Tweets</td>
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<td>Koji Nakahira, Tadahiko Kumamoto</td>
<td>Japan</td>
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<td><strong>Method for Computing Emotions of Tweets with an Emoticon</strong></td>
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<td>Chengzhi Jiang, Tadahiko Kumamoto</td>
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<td>A Study on Characterizing the Ecosystem of Monetizing Video Spams on YouTube</td>
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<td>Ashutosh Tripathi, Kusum Kumari Bharti, Mohona Ghosh</td>
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<td>Session Chair: Gabriele Anderst-Kotsis</td>
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<td><strong>Named Entity Recognition for Biomedical Patent Text using Bi-LSTM Variants</strong></td>
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<td>Farag Saad</td>
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<td><strong>Robust and Scalable Pipeline for the Real-time Processing and Analysis of Massive 3D Spatial Streams</strong></td>
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<td>Salman Ahmed Shaikh, Jun Lee, Akiyoshi Matono, Kyoung-Sook Kim</td>
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<td><strong>Security Issues in Mobile Healthcare Applications</strong></td>
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<td>Youna Jung</td>
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<td><strong>BM25-AH: Enhanced BM25 Algorithm for Domain-Specific Search Engine</strong></td>
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<td>Youna Jung</td>
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13.30 Papers Presentations

Session SHOW– III I
Session Chair: Dirk Draheim

**Study of machine learning methods for customer churn prediction in telecommunication company**
Anna Śniegula, Aneta Poniszewska-Marańda

*Poland*

**Facilitation of Domain-Specific Data Models Design using Semantic Web Technologies for Manufacturing**
Vaclav Jirkovsky, Ondrej Sebek

*Czech Republic*

Session MoMM – IIIC
IoT Systems
Session Chair: Imran Ahmad

**Gateways to Heaven: Observations and Predictions on the Software Architecture of IoT Gateways**
Antero Taivalsaari, Tommi Mikkonen

*Finland*

**Mitigating Messaging and Processing Load in IoT Environments Managed by Blockchain**
Johannes Mittendorfer, Karin Anna Hummel

*Austria*

**A Holistic Approach for Heating and Ventilation Control in EEBs**
Abdelhak Kharbouch, Mohamed Bakhouya, Anas El Maakoul, Driss El Ouadghiri

*Morocco*

15.30 Lunch @ the Restaurant Ground Floor

16.00 Papers Presentations

Session iWAS – IIIJ
Hardware and Systems
Session Chair: Alfreddo Cuzzocrea

**Development of IoT Monitoring Device and Prediction of Daily Life Behavior**
Rabin Maharjan, Koichi Shiraishi, Takehiro Yamamoto, Yusuke Yamamoto, Hiroaki Ohshima

*Japan*

**A Design of an Anti-Phishing Training System Collaborated with Multiple Organization**
Masayuki Higashino

*Japan*
Session SHOW – IIIK  
Session Chair: Ismail Khalil

A Secure Used Car Trading System based on Blockchain Technology  
Cho Cho Htet, May Htet  
Myanmar

Predicting the Category of Fire Department Operations  
Kevin Pirklbauer, Rainhard Dieter Findling  
Finland, Austria

Rule-Based Inquiry Service to Elderly at Home for Efficient Mind Sensing  
Haruhisa Maeda, Sachio Saiki, Masahide Nakamura, Kiyoshi Yasuda  
Japan

Content Based Fake News Detection Using N-Gram Models  
Hnin Ei Wynne, Zar Zar Wint  
Myanmar

Session SHOW – IIIL  
Session Chair: Dirk Draheim

Conversational AI for Corporate e-Learning  
Bernhard Göschlberger, Christoph Brandstetter  
Austria

Combining a Gamified Civic Engagement Platform with a Digital Game in a Loosely Way to Increase Retention  
Renny Lindberg, Jan Maushagen, Olga De Troyer  
Belgium

Your body signals expose your fall  
Eugene Yujun Fu, CheukYin Wong, Katie TY Lau, Hong Va Leong, Grace Ngai  
Hong Kong

Session MoMM – IIID  
Session Chair: Pari Delir Haghighi

An Adaptive Recursive Method of ESS for Peak Shaving in Zero Energy Community  
Hong-Soon Nam  
South Korea

VComputeLib: Enabling Cross-Platform GPGPU on Mobile and Embedded GPUs  
Nadjib Mammeri, Ben Juurlink  
Germany

Fun with AEDs: Examining the Effects of a Gamified Mobile Crowdsourcing Application  
Anran Hao, Chei Sian Lee, Chee Wah Wesley Tan  
Singapore

17.30  
Forum Room 12, Ground Floor  
Closing
Social Events

**Welcome Reception**
Welcome Reception will be held on the first day evening at the LMU Lichthof, - the main Building of LMU, Geschwister-Scholl-Platz 1. 80539 München, hosted by @WAS organization and Ludwig-Maximilians-University (LMU) Munich. There will be drinks and light finger-food to serve while guests enjoy a harmonious work of art between the aesthetics and architecture as well as the historical significance of the atrium with the impressive light installations.

To get to the LMU Lichthof from Holiday Inn Munich City Center, you take one of the S-bahn (train) lines 1, 2, 4, 6, 7, or 8 from “Rosenheimer Platz” and stop at “Marienplatz” station. From there you can:
- change to subway line U3 and exit at station “Universität” or
- walk from Marienplatz station to LMU main building, it takes about 17 minutes walking.

**Conference Gala Dinner**
On the 2nd day evening, A Gala Dinner with a traditional Bavarian menu will be held at at Augustiner Keller München, Arnulfstr. 52, 80335 München. The Lagerkeller is reserved for iiWAS/MoMM 2019 Conference Dinner exclusively and participants will have the opportunity to taste Bavarian beer as well as hearty local food.

To get to Augustiner Keller München from Holiday Inn Munich City Center: Take one of S-bahn (train) lines 1, 2, 3, 4, 6, 7, or 8 from “Rosenheimer Platz” to stop at “Hackerbrücke” station, from there the venue is 5 minutes walking distance.
The International organization on Information Integration and Web-based Applications & Services (@WAS) was founded in 2003 given the success of the iiWAS series of workshops (1999, 2000) and conferences (2001-on) and the prospect of continuing the organization of these events in the forthcoming years which have encouraged some to propose the creation of a non-profit International Organization for Information Integration and Web-based Applications & Services (@WAS).

In 2003, @WAS launched another series of conferences called International Conferences on Advances in Mobile Computing and Multimedia (MoMM) held in Jakarta in conjunction with iiWAS2003 conference and was officially opened by the Minister of Communication and Information Technology of the Republic of Indonesia at that time.

MoMM aims to provide a discussion forum for the exchange of ideas and information by researchers, students, and professionals on the issues and challenges brought by the emerging wireless technologies for mobile and multimedia applications and services.

### Conference History iiWAS

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<th>Dates</th>
<th>No. of Participants</th>
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