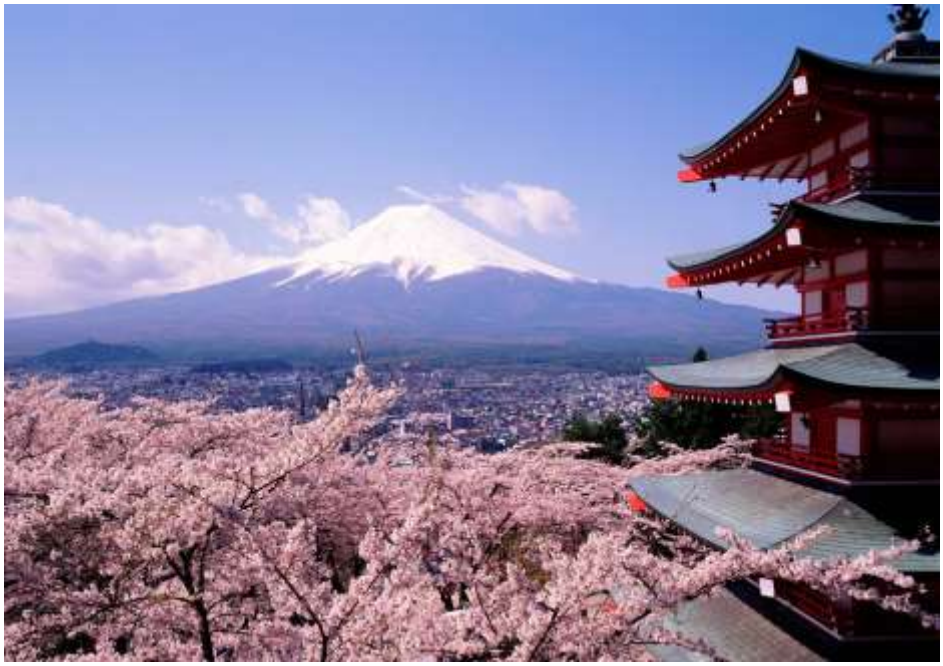
MobiQuitous
Mobile and Ubiquitous Systems

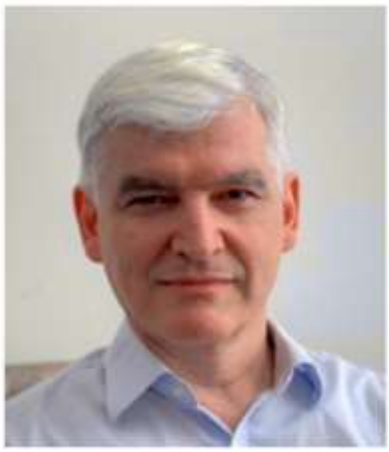
10th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services

December 2–4, 2013 Tokyo, Japan

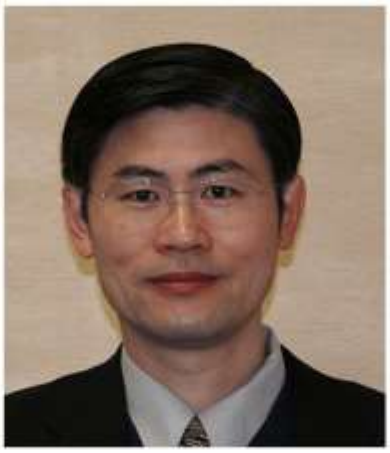


Contents

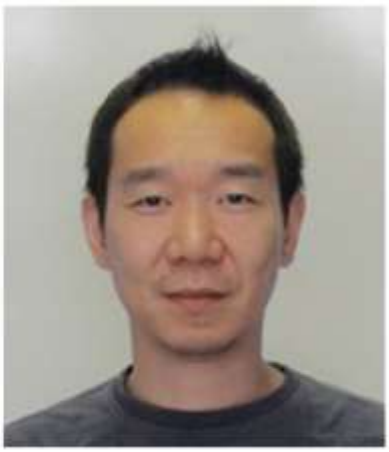
Message from the General Chairs



Ivan Stojmenovic



Zixue Cheng



Song Guo

Welcome to Tokyo, Japan for the 10th Annual International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous 2013).

On behalf of the organizing committee, we are excited to introduce the technical program of MobiQuitous 2013, which will provide a forum for practitioners and researchers from diverse backgrounds to interact and exchange experiences about the design and implementation of mobile and ubiquitous systems.

The technical program is dedicated to exploring innovative directions in the fields of mobile applications, social networks, networking, data management and services, all with a special focus on mobility and ubiquitous computing.

We received 141 technical papers from all around the world. All submissions received high-quality reviews from technical program committee (TPC) members or selected external reviewers. According to the review results, we have accepted 52 regular papers and 14 short papers for inclusion in the technical program of the main conference.

The main technical program will have 2 keynote speeches by Prof. Xuemin (Sherman) Shen from University of Waterloo, Canada and Prof. Nei Kato from Tohoku University, Japan, and 12 technical sessions, including 10 regular-paper sessions and 2 short-paper sessions. Besides the main conference, we have a joint International Workshop on Emerging Wireless Technologies for Future Mobile Networks (WEWFMN 2013).

The technical program is the result of the hard work of many individuals. We would like to thank all the authors for submitting their outstanding work to MobiQuitous 2013. We offer our sincere gratitude to the technical committee members and external reviewers, who worked hard to provide thorough, insightful, and constructive reviews in a timely manner. We are grateful to the Steering Committee and Organizing Committee of MobiQuitous 2013, and especially to the TPC Chairs, Prof. Guojun Wang from Central South University, China, Prof. Kun Yang from University of Essex, UK, Prof. Amiya Nayak from University of Ottawa, Canada, Prof. Francesco De Pellegrini from Create-Net, Trento, Italy, and Prof. Takahiro Hara from Osaka University, Japan for their invaluable support and insightful guidance.

Finally, we are grateful to all of you for participating in MobiQuitous 2013. We sincerely hope you find the conference quite interesting and stimulating, and have a memorable experience at Tokyo, Japan.

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Zixue Cheng, The University of Aizu, Japan

Song Guo, The University of Aizu, Japan

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Ke Xu Tsinghua University, China
Hirozumi Yamaguchi Osaka University, Japan
Zhiwen Yu Northwestern Polytechnical University, China
Haibo Zeng McGill University, Canada
Jianming Zhang Changsha University of Science & Technology, China
Yanmin Zhu Shanghai Jiao Tong University, China
Ali Ismail Awad Al Azhar University, Egypt

Keynotes

Keynote I

Prof. Xuemin (Sherman) Shen
Department of Electrical and Computer Engineering
University of Waterloo, Canada

Title: Vehicular Communications Networks – Design and Applications

Abstract: The pervasive adoption of IEEE 802.11 radios in the past decade has made possible for the easy Internet access from a vehicle, notably drive-thru Internet. However, originally designed for the static indoor applications, the performance of IEEE 802.11 in the outdoor vehicular environment is still unclear especially when a large number of fast-moving users transmitting simultaneously. In this talk, we first introduce the Vehicular Communications Networks (VANET). We then discuss on the throughput performance of fundamental IEEE 802.11 DCF (distributed coordination function) in the in-motion drive-thru Internet scenario. Due to the high mobility and transient connectivity of vehicles, we show that the DCF MAC should be adaptively adjusted according to the vehicle velocities. We then describe the adaptive mechanisms to achieve smooth video delivery to passengers based on the Interrupted and variable download throughput of vehicles.

Biography: Xuemin (Sherman) Shen is a Professor and University Research Chair, Department of Electrical and Computer Engineering, University of Waterloo, Canada. Dr. Shen's research focuses on wireless resource management, wireless network security, wireless body area networks and vehicular ad hoc and sensor networks. He is the Editor-in-Chief of IEEE Network, Peer-to-Peer Networking and Application, and IET Communications. He served as the Technical Program Committee Chair for IEEE VTC'10, the Symposia Chair for IEEE ICC'10, the Tutorial Chair for IEEE ICC'08, the Technical Program Committee Chair for IEEE Globecom'07, the Chair for IEEE Communications Society Technical Committee on Wireless Communications. He also served as a Founding Area Editor for IEEE Transactions on Wireless Communications; Associate Editor for IEEE Transactions on Vehicular Technology; Computer Networks; and ACM/Wireless Networks, etc., and the Guest Editor for IEEE JSAC, IEEE Wireless Communications, and IEEE Communications Magazine. Dr. Shen received the Excellent Graduate Supervision Award in 2006, and the Outstanding Performance Award in 2004, 2007, and 2010 from the University of Waterloo, the Premier's Research Excellence Award (PREA) in 2003 from the Province of Ontario, Canada. Dr. Shen is a registered Professional Engineer of Ontario, Canada, an IEEE Fellow, an Engineering Institute of Canada Fellow, a Canadian Academy of Engineering Fellow, and a Distinguished Lecturer of IEEE Vehicular Technology Society and Communications Society.

Keynote II

Prof. Nei Kato
Graduate School of Information Sciences
Tohoku University, Japan

Title: Relay-by-Smartphone: A New Paradigm Toward Autonomous Communications in Disaster-affected Areas

Abstract: In this talk, a new system focusing on the terminal-to-terminal communication technology, which enables communication without requiring any fixed infrastructure, will be introduced. We refer to the new system as “Relay-by-Smartphone” networks. In these networks, the users are able to transmit messages by relaying them through other mobile terminals such as smartphones, laptops, and tablet PCs. Since the transmission methods of Mobile Ad-hoc Network (MANET) and Delay Tolerant Network (DTN) are inherently different, their performances depend on the communication environments such as users’ mobility and overall terminals density. MANET is suitable for the environment where the terminals are static and are in dense area. On the other hand, DTN is more suitable for the environment where user terminals have high mobility and are mostly isolated. In order to take advantage of these different characteristics of MANET and DTN, and also to avoid waste of network resources, we propose a method which switches a terminal's communication mode between MANET and DTN depending on the environment. In addition, we implement our proposed algorithm in actual smartphones, and demonstrate its effectiveness through experiments. The newly developed system can be effectively used in disaster-affected areas where the fixed communication infrastructures are damaged.

Biography: Prof. Nei Kato received his Bachelor Degree from Polytechnic University, Japan in 1986, M.S. and Ph.D. Degrees in information engineering from Tohoku University, Japan, in 1988 and 1991, respectively. He joined Computer Center of Tohoku University at 1991, and has been a full professor with the Graduate School of Information Sciences since 2003. He became Strategic adviser to the President of Tohoku University since 2013. He has been engaged in research on satellite communications, computer networking, wireless mobile communications, smart grid, image processing, and pattern recognition. He has published more than 300 papers in peer-reviewed journals and conference proceedings. He will serve as elected Member-at-Large(2014-2017) on the Board of Governors, IEEE Communications Society. He currently serves as the Vice Chair of IEEE Ad Hoc & Sensor Networks Technical Committee, the Chair of IEEE ComSoc Sendai Chapter, the steering committee member of WCNC and a voting member of GITC, an editor of IEEE Wireless

Communications(2006-), IEEE Wireless Communications(2006-), IEEE Network Magazine(2012-), IEEE Transactions on Wireless Communications(2008-), IEEE Transactions on Vehicular Technology(2010-), and IEEE Trans. on Parallel and Distributed Systems(TPDS, 2011-). From 2013, he also serves as an Associate Editor-in-Chief of TPDS and IEEE Internet of Things Journal. He has served as the Chair of IEEE Satellite and Space Communications Technical Committee(2010-2012), the Chair of IEICE Satellite Communications Technical Committee(2011-2012), guest-editor of many IEEE transactions/journals/magazines, a symposium co-chair of GLOBECOM'07, ICC'10, ICC'11, ICC'12, Vice Chair of IEEE WCNC'10, WCNC'11, ChinaCom'08, ChinaCom'09, Symposia co-chair of GLOBECOM'12, TPC Vice chair of ICC'14, and workshop co-chair of VTC2010. His awards include Minoru Ishida Foundation Research Encouragement Prize(2003), Distinguished Contributions to Satellite Communications Award from the IEEE Communications Society, Satellite and Space Communications Technical Committee(2005), the FUNAI information Science Award(2007), the TELCOM System Technology Award from Foundation for Electrical Communications Diffusion(2008), the IEICE Network System Research Award(2009), the IEICE Satellite Communications Research Award(2011), the KDDI Foundation Excellent Research Award(2012), IEICE Communications Society Distinguished Service Award(2012), IEEE GLOBECOM/WCNC/VTC Best Paper Awards, and IEICE Communications Society Best Paper Award(2012). Besides his academic activities, he also serves on the expert committee of Telecommunications Council, Ministry of Internal Affairs and Communications, and as the chairperson of ITU-R SG4 and SG7, Japan. Nei Kato is a Distinguished Lecturer of IEEE Communications Society(2012-2014) and the co-PI of A3 Foresight Program(2011-2014) funded by Japan Society for the Promotion of Sciences(JSPS), NSFC of China, and NRF of Korea. He is a fellow of IEEE and IEICE.

MobiQuitous 2013 Program Overview

Monday (2nd, Dec.)		Tuesday (3rd, Dec.)		Wednesday (4th, Dec.)		
	FOYER		FOYER		FOYER	3F
10:30-12:00	Open Ceremony & Keynote 1	**10:30-12:00**	Keynote 2	**10:00-12:00**	Session 7	WEWFMN Workshop
12:00-13:00	Lunch	**12:00-13:00**	Lunch	**12:00-13:00**	Lunch	
13:00-14:30	Session 1	**13:00-14:30**	Session 4	**13:00-14:30**	Session 8	Short-paper Session 1
14:30-14:45	Coffee Break	**14:30-14:45**	Coffee Break	**14:30-14:45**	Coffee Break	
14:45-16:15	Session 2	**14:45-16:15**	Session 5	**14:45-16:15**	Session 9	Short-paper Session 2
16:15-16:30	Coffee Break	**16:15-16:30**	Coffee Break	**16:15-16:30**	Coffee Break	
16:30-18:00	Session 3	**16:30-18:00**	Session 6	**16:30-18:00**	Session 10	
		18:30-21:00	Banquet			

Conference Registration: 10:00 - 18:00 on 2nd, 3rd and 4th, December, 2013

Detailed Main Conference Sessions

Session 1: Sensor and Sensing
(13:00-14:30, Dec. 2, Monday, Room FOYER)
Session Chair: Simon Shamoun, Bar Ilan University, Israel

OPSitu: A Semantic-Web Based Situation Inference Tool Under Opportunistic Sensing Paradigm
Jiangtao wang - Peking university
Yasha Wang - Peking University
Yuanduo He - Peking university

Model-Driven Public Sensing in Sparse Networks
Damian Philipp - University of Stuttgart
Jaroslaw Stachowiak - University of Stuttgart
Frank Duerr - University of Stuttgart
Kurt Rothermel - University of Stuttgart

An Integrated WSN and Mobile Robot System for Agriculture and Environment Applications
Hong Zhou - The University of Southern Queensland
Haixia Qi – The University of Southern Queensland
Thomas Banhazi – The University of Southern Queensland

Tobias Low - The University of Southern Queensland

Sensor Deployment in Bayesian Compressive Sensing Based Environmental Monitoring
Chao Wu - Imperial College London
Di Wu – Imperial College London
Shuilin Yan – Imperial College London
Yike Guo - Imperial College London

A Mobile Agents Control Scheme for Multiple Sinks in Dense Mobile Wireless Sensor Networks
Keisuke Goto - Osaka University, Japan
Yuya Sasaki – Osaka University, Japan
Takahiro Hara - Osaka University, Japan
Shojiro Nishio - Osaka University, Japan

Session 2: Data Analysis
(14:45-16:15, Dec. 2, Monday, Room FOYER)
Session Chair: Prasenjit Dey, IBM Research, India

Highly Distributable Associative Memory Based Computational Framework for Parallel Data Processing in Cloud
Amir Hossein Basirat - Clayton School of IT, Monash University
Asad I. Khan - Clayton School of IT, Monash University
Balasubramaniam Srinivasan - Clayton School of IT, Monash University

MobiPLACE*: A Distributed Framework for Spatio-Temporal Data Streams Processing Utilizing Mobile Clients' Processing Power
Victor Zakhary - Alexandria University
Hicham Elmongui - Alexandria University
Magdy Nagi - Alexandria University

Modelling Energy-Aware Task Allocation in Mobile Workflows
Bo Gao - University of Warwick
Ligang He - University of Warwick

Recognition of Periodic Behavioral Patterns from Streaming Mobility Data
Mitra Baratchi - University of Twente
Nirvana Meratnia - University of Twente
Paul J.M. Havinga - University of Twente

Detection of Real-Time Intentions from Micro-blogs
Nilanjan Banerjee - IBM Research - India, New Delhi
Dipanjan Chakraborty - IBM Research - India, New Delhi
Sumit Mittal - IBM Research - India, New Delhi

Session 3: Localization and Location
(16:30-18:00, Dec. 2, Monday, Room FOYER)
Session Chair: Yuanfang Chen, Institute Mines-Telecom and University Pierre-and-Marie-Curie, France

Fast and Accurate Wi-Fi Localization in Large-Scale Indoor Venues
Seokseong Jeon - ITCE, POSTECH
Young-Joo Suh - ITCE, POSTECH
Chansu Yu - ECE, Cleveland State University
Dongsoo Han - CS, KAIST

Reality Mining: Digging the Impact of Friendship and Location on Crowd Behavior
Yuanfang Chen - Institut Mines-Telecom, Telecom SudParis, France
Antonio Ortiz - Institut Mines-Telecom, Telecom SudParis, France
Noel Crespi - Institut Mines-Telecom, Telecom SudParis, France
Lei Shu - Guangdong University of Petrochemical Technology, China
Lin Lv - School of Software, Dalian University of Technology, China

Robust Overlay Routing in Structured, Location Aware Mobile Peer-to-Peer Systems
Christian Gottron - TU-Darmstadt
Sonja Bergsträßer - TU-Darmstadt
Ralf Steinmetz - TU-Darmstadt

Crossroads: A Framework for Developing Proximity-based Social Interactions
Chieh-Jan Mike Liang - Microsoft Research Asia
Haozhun Jin - Tsinghua University
Yang Yang - Tsinghua University
Li Zhang - University of Science and Technology
Feng Zhao - Microsoft Research Asia

Merging Inhomogeneous Proximity Sensor Systems for Social Network Analysis
Amir Muaremi - Wearable Computing Lab, ETH Zurich
Franz Gravenhorst - Wearable Computing Lab, ETH Zurich
Julia Seiter- Wearable Computing Lab, ETH Zurich
Agon Bexheti - Articial Intelligence Laboratory, EPFL
Bert Arnrich - Computer Engineering Department, Bogazici University,
Gerhard Troester - Wearable Computing Lab, ETH Zurich

Session 4: Development and Measurement
(13:00-14:30, Dec. 3, Tuesday, Room FOYER)
Session Chair: Salil Kanhere, University of New South Wales, Australia

Device Analyzer: Understanding smartphone usage
Daniel Wagner - University of Cambridge

Andrew Rice - University of Cambridge
Alastair Beresford - University of Cambridge

Evaluation of energy profiles for mobile video prefetching in generalized stochastic access channels
Alisa Devlic - Mobile Service Lab, Royal Institute of Technology (KTH), Kista, Sweden
Pietro Lugaro - Mobile Service Lab, Royal Institute of Technology (KTH), Kista, Sweden
Zary Segall - Mobile Service Lab, Royal Institute of Technology (KTH), Kista, Sweden
Konrad Tollmar - Mobile Service Lab, Royal Institute of Technology (KTH), Kista, Sweden

MITATE: Mobile Internet Testbed for Application Traffic Experimentation
Utkarsh Goel - Montana State University
Ajay Miyyapuram - Montana State University
Mike Wittie - Montana State University
Qing Yang - Montana State University

Declarative Programming for Mobile Crowdsourcing: Energy Considerations and Applications
Jurairat Phuttharak - Department of Computer Science & Computer Engineering, La Trobe Univerity, VIC, 3086, Australia
Seng Loke - Department of Computer Science & Computer Engineering, La Trobe Univerity, VIC, 3086, Australia

Types in their Prime: Sub-typing of Data in Resource Constrained Environments
Klaas Thoelen - iMinds-DistriNet, KU Leuven
Davy Preuveneers - iMinds-DistriNet, KU Leuven
Wouter Joosen - iMinds-DistriNet, KU Leuven
Danny Hughes - iMinds-DistriNet, KU Leuven

Session 5: Security and Privacy (I)
(14:45-16:15, Dec. 3, Tuesday, Room FOYER)
Session Chair: Takahiro Hara, Osaka University, Japan

Privacy-aware Trust-based Recruitment in Social Participatory Sensing
Haleh Amintoosi - The University of New South Wales
Salil S. Kanhere - The University of New South Wales

Privacy-Preserving Calibration for Participatory Sensing
Kevin Wiesner - LMU Munich
Florian Dorfmeister - LMU Munich
Claudia Linnhoff-Popien - LMU Munich

Complexity of distance fraud attacks in graph-based distance bounding
Rolando Trujillo-Rasua - University of Luxembourg

Protecting Movement Trajectories through Fragmentation

Marius Wernke - University of Stuttgart (IPVS)
Frank Dürr - University of Stuttgart (IPVS)
Kurt Rothermel - University of Stuttgart (IPVS)

Trust-Based, Privacy-Preserving Context Aggregation and Sharing in Mobile Ubiquitous Computing
Michael Xing - The University of Texas at Austin
Christine Julien - The University of Texas at Austin

Session 6: RFID
(16:30-18:00, Dec. 3, Tuesday, Room FOYER)
Session Chair: Chris Gniady, University of Arizona, USA

A Novel Approach for Addressing Wandering Off Elderly Using Low Cost Passive RFID Tags
Mingyue Zhou - Auto-ID Lab, The School of Computer Science, The University of Adelaide, SA 5005
Damith Ranasinghe - Auto-ID Lab, The School of Computer Science, The University of Adelaide, SA 5005

Focus and Shoot: Efficient Identification over RFID Tags in the Specified Area
Yafeng Yin - State Key Laboratory for Novel Software Technology, Nanjing University, China
Lei Xie - State Key Laboratory for Novel Software Technology, Nanjing University, China
Jie Wu - Department of Computer and Information Sciences, Temple University, USA
Athanasios Vasilakos - University of Western Macedonia, Greece
Sanglu Lu - State Key Laboratory for Novel Software Technology, Nanjing University, China

Middleware - software support in items identification by using the UHF RFID technology
Peter Kolarovszki - Research and education at University of Zilina
Juraj Vaculik - Research and education at University of Zilina

A Wearable RFID System for Real-time Activity Recognition using Radio Patterns
Liang Wang - State Key Laboratory for Novel Software Technology, Nanjing University
Tao Gu - School of Computer Science and Information Technology, Royal Melbourne Institute of Technology
Hongwei Xie - State Key Laboratory for Novel Software Technology, Nanjing University
Xianping Tao - State Key Laboratory for Novel Software Technology, Nanjing University
Jian Lu - State Key Laboratory for Novel Software Technology, Nanjing University
Yu Huang - State Key Laboratory for Novel Software Technology, Nanjing University

Evaluation of Wearable Sensor Tag Data Segmentation Approaches for Real Time Activity Classification in Elderly
Roberto Luis Shinmoto Torres - University of Adelaide
Damith C. Ranasinghe - University of Adelaide
Qinfeng Shi - University of Adelaide

Session 7: Application

(10:00-12:00, Dec. 4, Wednesday, Room FOYER)
Session Chair: Damith Ranasinghe, The University of Adelaide, Australia

MobiSLIC: Content-aware Energy Saving for Educational Videos on Mobile Devices
Qiyam Tung - University of Arizona
Maximiliano Korp - University of Arizona
Alon Efrat - University of Arizona
Chris Gniady - University of Arizona
Kobus Barnard - University of Arizona

An Un-tethered Mobile Shopping Experience
Venkatraman Ramakrishna - IBM India Research Laboratory
Saurabh Srivastava - IBM India Research Laboratory
Jerome White - IBM India Research Laboratory
Nitendra Rajput - IBM India Research Laboratory
Kundan Shrivastava - IBM India Research Laboratory
Sourav Bhattacharya - IBM India Research Laboratory
Yetesh Chaudhary - Indian Institute of Technology, Kharagpur

Gestyboard BackTouch 1.0: Two-Handed Backside Blind-Typing on mobile Touch-Sensitive Surfaces
Tayfur Coskun - Technische Universität München
Christoph Bruns - Technische Universität München
Amal Benzina - Technische Universität München
Manuel Huber - Technische Universität München
Patrick Maier - Technische Universität München
Marcus Tönnis - Technische Universität München
Gudrun Klinker - Technische Universität München

Passive, device-free recognition on your mobile phone: tools, features and a case-study
Stephan Sigg - National Institute of Informatics
Mario Hock - Karlsruhe Institute of Technology
Markus Scholz - Karlsruhe Institute of Technology
Lars Wolf - TU Braunschweig
Yusheng Ji - National Institute of Informatics
Michael Beigl - Karlsruhe Institute of Technology
Gerhard Tröster - ETH Zurich

AcTrak - Unobtrusive Activity Detection and Step Counting using Smartphones
Vivek Chandel - Tata Consultancy Services
Anirban Dutta Choudhury - Tata Consultancy Services
Avik Ghose - Tata Consultancy Services
Chirabrata Bhaumik - Tata Consultancy Services

Practical image-enhanced LBS for AR applications
Antonio Ruiz-Ruiz - University of Murcia
Pedro Lopez-de-Teruel - University of Murcia
Oscar Canovas - University of Murcia

Appstrument - A unified App Instrumentation and automated playback framework for testing mobile applications
Vikrant Nandakumar - IBM Research, India
Vijay Ekambaram - IBM Research, India
Vivek Sharma - IBM Research, India

Session 8: Security and Privacy (II)
(13:00-14:30, Dec. 4, Wednesday, Room FOYER)
Session Chair: Shuang Li, Goolge Inc., U.S.A

A Layered Secret Sharing Scheme for Automated Profile Sharing in OSN Groups
Guillaume Smith - NICTA, UNSW, ISAE, Universite de Toulouse
Roksana Boreli - NICTA, UNSW
Mohamed Ali Kaafar - NICTA, INRIA France

Distributed Key Certification using Accumulators for Wireless Sensor Networks
Jun-Young Bae (jun-) - LIG
Claude Castelluccia - INRIA
Cédric Lauradoux - INRIA
Franck Rousseau - LIG

On Malware Leveraging the Android Accessibility Framework
Joshua Kraunelis - Computer Science Department, University of Massachusetts Lowell
yinjie chen - Computer Science Department, University of Massachusetts Lowell
Zhen Ling - Southeast University, China
Xinwen Fu - Computer Science Department, University of Massachusetts Lowell
Wei Zhao - University of Macau, China

Sate Reparametrization of Component-based WSNs
Wilfried Daniels - iMinds - DistriNet
Pedro Javier del Cid Garcia - iMinds - DistriNet
Wouter Joosen - iMinds - DistriNet
Danny Hughes - iMinds - DistriNet

Toward agent based inter-VM traffic authentication in a Cloud environment
Karim Benzidane - Hassan II University
Saad Khoudali - Hassan II University
Abderrahim Sekkaki - Hassan II University

Session 9: Wireless Communications and Networking
(14:45-16:15, Dec. 4, Wednesday, Room FOYER)
Session Chair: Deze Zeng, The University of Aizu, Japan

Adaptive Wireless Networks as an Example of Declarative Fractionated Systems
Jong-Seok Choi - Kyungkook National University
Tim McCarthy - SRI International
Minyoung Kim - SRI International
Mark-Oliver Stehr - SRI International

Elastic Ring Search for Ad Hoc Networks
Simon Shamoun - Bar Ilan University
David Sarne - Bar Ilan University
Steven Goldfeder - Princeton University

Suitability of a common ZigBee radio module for interaction and ADL detection
Jakob Neuhaeuser - TU München: The Entrepreneurial University
Tim C. Lueth - TU München: The Entrepreneurial University
Lorenzo T. D'Angelo - TU München: The Entrepreneurial University

The Need for QoE-driven Interference Management in Femtocell-Overlaid Cellular Networks
Dimitris Tsolkas - University of Athens
Eirini Liotou - University of Athens
Nikos Passas - University of Athens
Lazaros Merakos - University of Athens

Modeling Guaranteed Delay of Virtualized Wireless Networks Using Network Calculus
Jia Liu - Hunan Normal University, Changsha, China
Lianming Zhang - Hunan Normal University, Changsha, China
Kun Yang - University of Essex, Colchester. United Kingdom

Session 10: Context-awareness
(16:30-18:00, Dec. 4, Wednesday, Room FOYER)
Session Chair: Alisa Devlic, KTH Royal Institute of Technology, Sweden

A Data Distribution Model for Large-scale Context Aware Systems
Chattopadhyay Soumi - Indian Statistical Institute
Banerjee Ansuman - Indian Statistical Institute
Banerjee Nilanjan - IBM Research India

EduBay: A Mobile-Based, Location-Aware Content Sharing Platform
Amit Mohan - University of Illinois at Urbana-Champaign
Prasenjit Dey - IBM Research
Nitendra Rajput - IBM Research

Enhancing Context-Aware Applications Accuracy with Position Discovery
Khaled Alanezi - Colorado University at Boulder
Shivakant Mishra - Colorado University at Boulder

How's My Driving? A Spatio-Semantic Analysis of Driving Behavior with Smartphone Sensors
Nilanjan Banerjee - IBM Research - India
Dipyaman Banerjee - IBM Research - India
Dipanjan Chakraborty - IBM Research - India
Sumit Mittal - IBM Research - India
Aakash Iyer - IBM Research – India

Impact of Contextual Factors on Smartphone Applications Use
Artur Kronbauer - UNEB / Salvador University
Santos, Celso, Alberto Saibel - UFES/Federal University of Espírito Santo

Short-paper Session 1
(13:00-14:30, Dec. 4, Wednesday, Room 3F)
Session Chair: Doan B. Hoang, University of Technology, Sydney (UTS), Australia

A Highly Accurate Method for Managing Missing Reads in RFID Enabled Asset Tracking
Rengamathi Sankarkumar - University of Adelaide, Australia
Damith Ranasinghe - University of Adelaide, Australia
Thuraiappah Sathyan - University of Adelaide, Australia

A New Method for Automated GUI Modeling of Mobile Applications
Jing Xu - University of Massachusetts Lowell, USA
Xiang Ding - University of Massachusetts Lowell, USA
Guanling Chen - University of Massachusetts Lowell, USA
Jill Drury - University of Massachusetts Lowell, USA
Linzhang Wang - Nanjing University, China
Xuandong Li - Nanjing University, China

Towards Augmenting Legacy Websites with Context-awareness
Darren Carlson - National University of Singapore
Lukas Ruge - University of Luebeck

Improving Mobile Video Streaming with Mobility Prediction and Prefetching in Integrated Cellular-WiFi Networks
Vasilios Siris - Athens University of Economics and Business
Maria Anagnostopoulou - Athens University of Economics and Business
Dimitris Dimopoulos - Athens University of Economics and Business

Integration and Evolution of Data Mining Models in Ubiquitous Health Telemonitoring Systems

Vladimer Kobayashi - Université Jean Monnet
Pierre Maret - Université Jean Monnet
Fabrice Muhlenbach - Université Jean Monnet
Pierre-René Lhérisson - Université Jean Monnet

ITS-light: Adaptive lightweight scheme to resource optimize intelligent transportation tracking system (ITS) Customizing CoAP for opportunistic optimization
Soma Bandyopadhyay - Tata Consultancy Services
Abhijan Bhattacharyya - Tata Consultancy Services
Arpan Pal - Tata Consultancy Services

MELON: A Persistent Message-Based Communication Paradigm for MANETs
Justin Collins - University of California, Los Angeles
Rajive Bagrodia - University of California, Los Angeles

Short-paper Session 2
(14:45-16:15, Dec. 4, Wednesday, Room 3F)
Session Chair: Mohd Izuan Hafez Ninggal, Deakin University, Australia

MVPTrack: Energy-Efficient Places and Motion States Tracking
Chunhui Zhang - UMass Lowell
Ke Huang - UMass Lowell
Guanling Chen - UMass Lowell

Neighbourhood-Pair Attack in Social Network Data Publishing
Mohd Izuan Hafez NINGGAL - Deakin University
Jemal Abawajy - Deakin University

On-demand Mobile Charger Scheduling for Effective Coverage in Wireless Rechargeable Sensor Networks
Lintong Jiang - State Key Lab for Novel Software Technology, Nanjing University, CHINA
Haipeng Dai - State Key Lab for Novel Software Technology, Nanjing University, CHINA
Xiaobing Wu - State Key Lab for Novel Software Technology, Nanjing University, CHINA
Guihai Chen - State Key Lab for Novel Software Technology, Nanjing University, CHINA

RSS based Cell Fingerprint Patterns and Algorithms for Cell Identification in the Context of Self-organized Energy Saving
Elke Roth-Mandutz - TU Ilmenau
Stephen Mwanje - TU Ilmenau
Andreas Mitschele-Thiel - TU Ilmenau

Tailoring Activity Recognition to Provide Cues that Trigger Autobiographical Memory of Elderly People
Lorena Arcega - Universidad San Jorge
Jaime Font - Universidad San Jorge

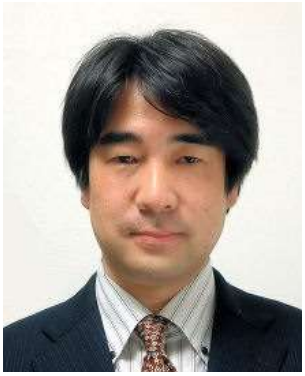
Carlos Cetina - Universidad San Jorge

Two-way communications through firewalls using QLM messaging
Sylvain Kubler - Aalto University
Manik Madhikermi - Aalto University
Andrea Buda - Aalto University
Kary Framling - Aalto University

Towards a Privacy Risk Assessment Methodology for Location-Based Systems
Jesus Friginal - LAAS-CNRS
Jeremie Guiochet - LAAS-CNRS
Marc-Olivier Killijian - LAAS-CNRS

WEWFMN

Keynote



Bio Hidetoshi Kayama received the B.E., M.E. and Ph.D. degrees from Kyoto University in 1987, 1989 and 2004, respectively. He has been with NTT Radio Systems Laboratories since 1989, working on research of packet radio access protocols for cellular and wireless LAN. Since 1998, he was with NTT DoCoMo, Inc., where he engaged in the development of PHS cell station and research of MAC/QoS control for 4G mobile communication systems. Since 2004, he was a director of Innovative Radio Transmission Lab in DOCOMO Beijing Communications Laboratories Co., Ltd. in China, where he engaged in the research about TDD transmission technologies. From 2010 to 2012, he leaded a national research project of cognitive radio technologies which was organized by MIA in Japan. Simultaneously, he was also an invited lecturer of Osaka University, Japan. Now he is the President and CEO of DOCOMO Beijing Labs. He received the Scholarship Encouragement Award in 1995 from IEICE, Distinguished Contributions Award of IEICE-CS in 2013, Best Paper Award of ICT2002, APCC2008, ICCTA2009, and APCC2012 respectively.

Abstract The paradigm shifts caused by smartphones brings large impact on mobile networks. The total amount of mobile data traffic in 2011 was almost double in 2010, and is expected to grow into 500 to 1000 times till 2020. To cope with such a traffic explosion, now mobile operators are facing big challenges. In this presentation, expected scenarios and some key technologies for increasing RAN (Radio Access Network) capacity will be introduced.

Traffic offloading by WiFi is one of an effective way to reduce the traffic burden on mobile network. Currently many mobile operators are actively constructing WiFi hotspots in public places. Thanks to the common frequency band (ISM band) usage, cost of WiFi equipment is very low. While in general, its coverage area is very limited, and almost no mobility is supported in reality. In this sense, WiFi offload seems to be effective in nomadic computing, but not enough to accommodate all mobile traffics. Small cell enhancement based on LTE-A is considered as a promising way to enhance the network capacity. By further exploiting space domain, it is expected to increase network capacity about 7 times than macro-cell systems. In contrast with WiFi, it employs centralized control manners which enable effective mobility support and interference mitigation mechanism between small cells. In addition, interworking with macro cell is also easier than WiFi, thus seamless connectivity with small amount of hand-over signaling can be expected.

From radio access technologies' points of view, advanced interference mitigation and non-orthogonal multiplexing are likely to be key issues for future systems. Currently 1-cell frequency reuse is used for effective radio resource assignment. In addition, small cells make a distance between a base station and terminals shorter than macro systems. Thus the capacity of RAN can be said as 'interference

limited'. Fortunately, coordinated multi-point transmission (CoMP) mechanism has already applied in LTE-A. By enhancing the CoMP to such a HetNet environment, further improvement of SINR (Signal to Interference and Noise) can be expected.

Non-orthogonal multiple access (NOMA) is investigated as a potential technologies for capacity improvement. It can be regarded as one kind of MUD (Multi-User Detection), but instead of signal spreading, it exploits power difference for signal separation. That is, a strongest signal is detected first, then eliminated it from original signal by applying SIC (Sequential Interference Cancelation) , thus the second stronger signal is detected in the next stage. By an initial performance evaluation, more than 30% improvement in overall cell throughput was observed.

Workshop Program

1. Keynote speech
(10:00am~10:45am, Dec. 4, Wednesday, Room 3F)

Title: Technical trend for RAN capacity increase in Future Radio Access (FRA)
Speaker: Hidetoshi KAYAMA, DOCOMO Beijing Communications Laboratories Co. Ltd.

2. Paper presentation
(11:00~12:00pm, Dec. 4, Wednesday, Room 3F)

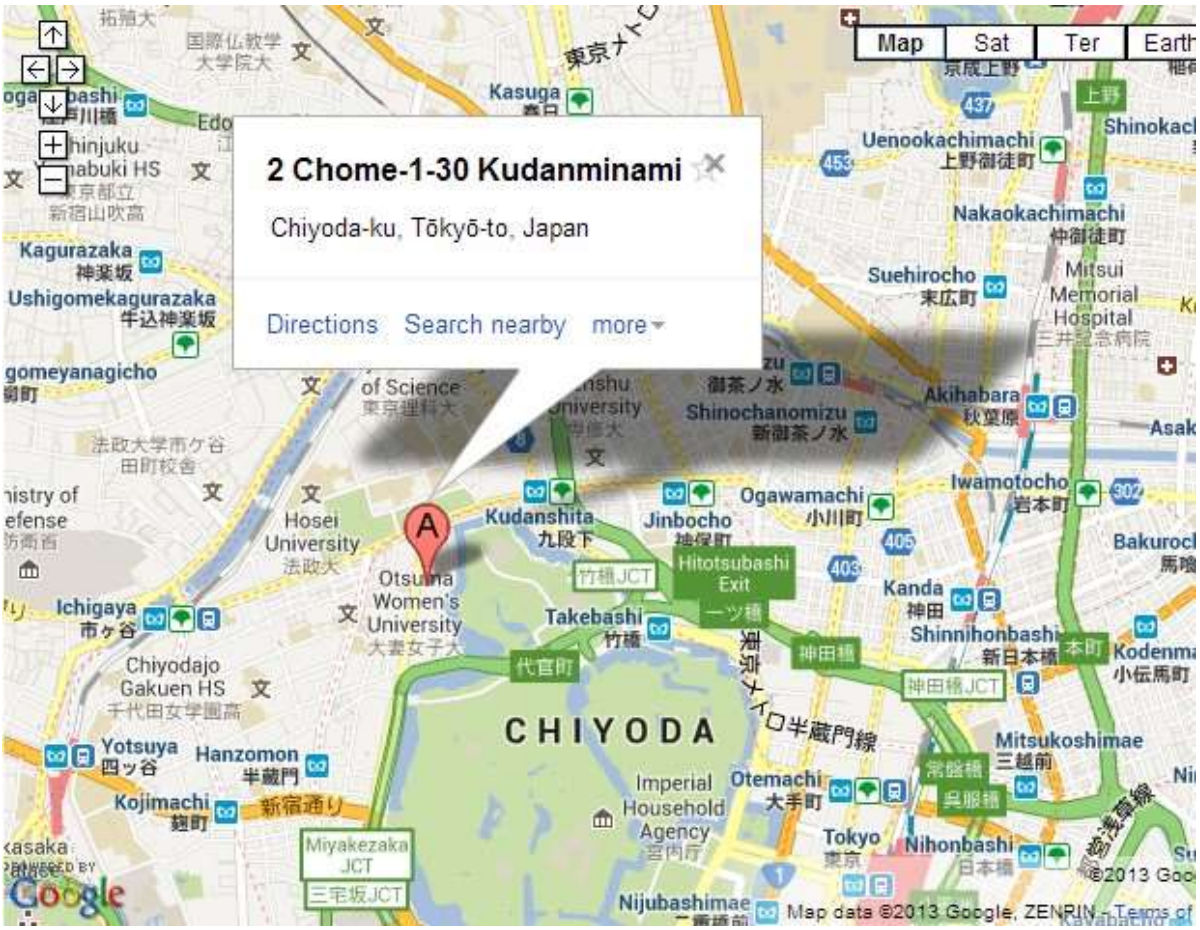
Mobility Models-Based Performance Evaluation of the History Based Prediction for Routing Protocol for Infrastructure-less Opportunistic Networks
Sanjay K. Dhurandher CAITFS, Division of Information Technology, NSIT, University of Delhi, New Delhi, India dhurandher@rediffmail.com
Deepak Kumar Sharma Division of Computer Engineering, NSIT, University of Delhi, New Delhi, India dk.sharma1982@yahoo.com
Isaac Woungang Department of Computer Science, Ryerson University, Toronto, Ontario, Canada iwoungan@scs.ryerson.ca

LTE_FICC: A New Mechanism for Provision of QoS and Congestion Control in LTE/LTE-Advanced Networks
Doan B Hoang Doan.Hoang@uts.edu.au
Fatima Furqan University of Technology, Sydney Fatima.Furqan@student.uts.edu.au

Virtual Wireless User: A Practical Design for Parallel MultiConnect Using WiFi Direct in Group Communication
Marat Zhanikeev, Kyushu Institute of Technology, Japan
Email: maratishe@gmail.com

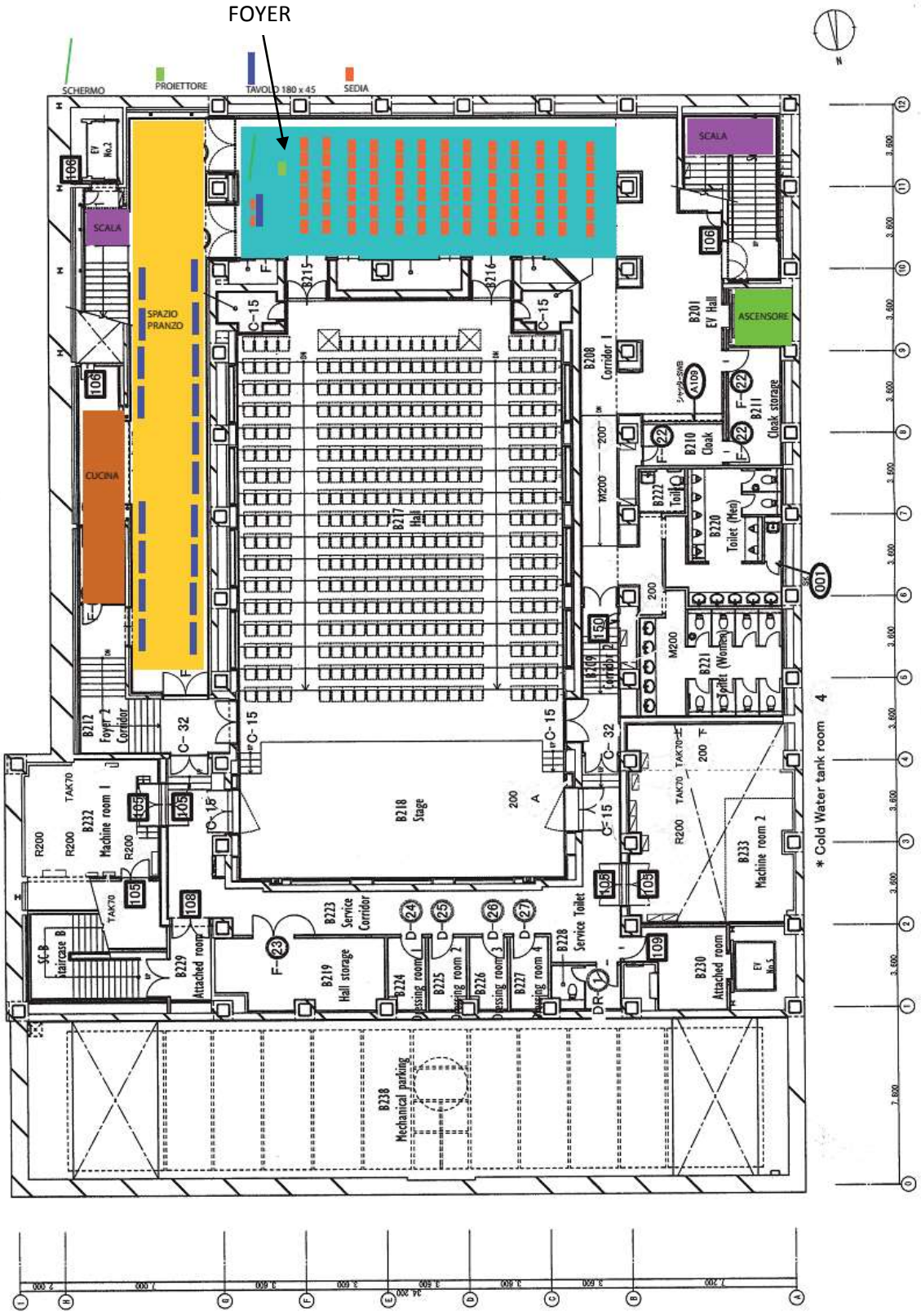
Small Cell Enhancement for LTE-Advanced Release 12 and Application of Higher Order Modulation
Qin Mu, Liu Liu, Huiling Jiang, Hidetoshi Kayama
DOCOMO Beijing Communications Laboratories Co.,Ltd.
Email: fmu,liul,jiang,kayamag@docomolabs-beijing.com.cn

Conference Venue



Istituto Italiano di Cultura di Tokyo (Italian cultural center in Tokyo)
2-1-30 Kudan Minami, Chiyoda-ku, Tokyo 102-0074
Tel: 81-(0)3-3264-6011
Fax: 81-(0)3-3262-0853
http://www.iictokyo.esteri.it

Floor map


FOYER
SCHERMO
PROIETTORE
TAVOLO 180 x 45
SEDIA
SCALA
SPAZIO PRANZO
CUCINA
B217 Hall
B218 Stage
B208 Corridor 1
B201 EV Hall
ASCENSORE
B210 Cloak
B211 Cloak storage
B220 Toilet (Men)
B221 Toilet (Women)
B222 Toilet
B212 Foyer 2 Corridor
B232 Machine room 1
B233 Machine room 2
B223 Service Corridor
B219 Hall storage
B224 Dressing room 1
B225 Dressing room 2
B226 Dressing room 3
B227 Dressing room 4
B228 Service Toilet
B229 Attached room
B230 Attached room
B238 Mechanical parking
Staircase B
* Cold Water tank room 4

Social Event

Time

18:30-21:00, Dec. 3, Tuesday

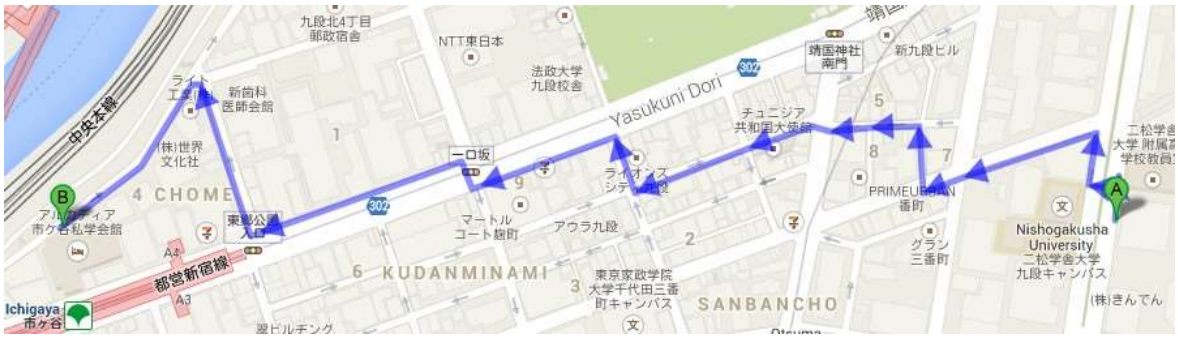
Location

ARCADIA Ichigaya (http://www.arcadia-jp.org/)
4-2-25, Kudan-Kita, Chiyoda-ku, Tokyo, JAPAN ZIP:102-0073
TEL: 03-3261-9921 FAX:03-3261-9931 or 7760

Style

A buffet style dinner (Japanese and international food) will be provided.

Access from conference venue



ICST : Opportunity, enabled.

The Institute for Computer Sciences, Social Informatics and Telecommunications Engineering (ICST) is the first web-moderated professional society, sponsoring **research**, **innovation** and **technology transfer** to harness and maximise the benefits of ICT in all sectors of human society. Viewing the advancement of ICT as the axis of the next technological and societal revolution, ICST aims to be a global, grass-roots organisation of research communities in diverse technical and geographical areas representing the academic, research, regulatory and business sectors.

ICST embraces web technologies to promote democracy, transparency and quality in science and innovation, empowering its members to succeed through direct participation as well as providing opportunities for objective recognition. With its universal outreach, ICST provides an effective and innovative platform for the ICT community where strategic partnerships are formed, research collaborations are enabled and business opportunities are created. By bringing together all members of the knowledge triangle, ICST is in a unique position to shape the global innovation paradigm.

A wide array of technical and scientific activities falls under the ICST umbrella:

- ✓ Over 50 annual scientific events worldwide – summits, conferences, workshops, symposia;
- ✓ An extensive publication portfolio – journals, books, proceedings and magazines;
- ✓ On-line tools and portals – social networking, multimedia sharing, collaboration;
- ✓ Digital libraries – articles, audio-video recordings;

European Alliance for Innovation

The *European Alliance for Innovation* (EAI) is a dynamic eco-system for fostering ICT enabled innovation to improve European competitiveness and for the benefit of society. As a member of the **European Alliance for Innovation** (EAI), ICST is able to provide you with access to a vast community of innovators, significantly increasing your opportunities for research collaborations, strategic partnerships and business ventures. EAI uses open e-platforms to inspire grassroots collaboration among all relevant actors, from organisations to individuals, to stimulate community driven innovation to its institutional and individual members worldwide. Together, EAI and ICST are therefore able to offer the society tools and framework which will allow their members to revolutionise and spearhead ICT innovation in Europe.

EAI's mission is to drive innovation in emerging information and communication technology (ICT) enabled areas by:

- ✓ providing an harmonised framework for agents to contribute, communicate and cooperate;
- ✓ acting against fragmentation affecting innovation agents;
- ✓ fostering innovation services sharing among different and peer entities;
- ✓ impacting the policy making agendas through a bottom up approach;
- ✓ creating business synergies;
- ✓ maximising inputs through targeted dissemination tools.

The **Strategic Forum** is the main advocacy body of EAI. It provides the Alliance guidelines on European strategy, goals and policies and provides high level representation for the wider EAI Community. The Forum is made up of institutions, universities, public bodies, private institutions, research centres and societies that share the same belief in the importance of promoting Innovation in all its different forms.

The **EAI Community** consists of and represents individual members and participants to EAI. They are organised in thematic interest groups termed Science, Innovation and Business (SIB) Councils, which form the interaction and cooperation platforms of EAI.

To read more about the European Alliance for Innovation and EAI society updates, or to join as member, please visit the European Alliance for Innovation website (www.eai.eu).