

MDM 2006
JAPAN

7th International Conference on
Mobile Data Management



**7th International Conference on
Mobile Data Management**

Nara, Japan, May 9-13, 2006

Conference Program

Workshop Program included

Co-SPONSORED by

IEEE Technical Committee on Data Engineering (TCDE)

Information Processing Society of Japan (IPSI)

The Institute of Electronics, Information and Communication Engineers (IEICE)

The Database Society of Japan (DBSJ)

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PROGRAM AT A GLANCE

May 9th (Tue): Pre-Conference Workshops (MCISME, MoSO and FMUIT)
 May 10th (Wed): MDM 2006 Conference (1st day)
 May 11th (Thu): MDM 2006 Conference (2nd day)
 May 12th (Fri): MDM 2006 Conference (3rd day)
 May 13th (Sat): Post-Conference Workshops (MLASN and TAMC)

	May 9th (Tue)	May 10th (Wed)	May 11th (Thu)	May 12th (Fri)	May 13th (Sat)				
9:00	Workshops 9:00-12:00	Opening		Keynote Address 3 9:00-10:15	Workshops 9:00-12:30				
10:00		Keynote Address 1 9:15-10:30				Keynote Address 2 9:00-10:15			
11:00		Invited Seminar (1/2) 11:00-12:30	Research 1 Context Awareness 11:00-12:30	Invited Seminar (2/2) 10:45-12:15	Research 5 Mobile Broadcast 10:45-12:15		Research 7 Sensor Networks(I) 10:45-12:15	Research 8 Resource Management 10:45-12:15	Industrial 10:45-12:15
12:00	Lunch 12:00-13:00	Lunch 12:30-14:00		Lunch & Demo 12:15-13:45		Lunch & Demo 12:15-13:45			Lunch 12:30-14:00
13:00	Workshops 13:00-18:00								
14:00		Seminar 1 14:00-15:30	Research 2 MANETs 14:00-15:30	Seminar 2 13:45-15:15	Research 6 Adaptation 13:45-15:15	Panel Discussion 13:45-15:15			Workshops 14:00-18:00
15:00									
16:00		Research 3 Query Processing 16:00-17:30	Research 4 Mobile Cooperation 16:00-17:30	Excursion 15:45-18:00		Research 9 Sensor Networks(II) 15:45-17:15	Research 10 Cellular Networks 15:45-17:15	Research 11 Moving Objects 15:45-17:15	
17:00									
18:00		Reception & Demo 18:00-21:00		Banquet 18:30-21:30					



May 9th (Tue):Pre-Conference Workshops						
	Noh Theatre	Reception Hall	Conference Room 1	Conference Room 2	Conference Room 3	Conference Room 4
9:00-12:00	FMUIT 1		FMUIT 2	MCISME	FMUIT 3	MoSO
12:00-13:00	Lunch		Lunch	Lunch	Lunch	Lunch
13:00-18:00	FMUIT 1		FMUIT 2	MCISME	FMUIT 3	MoSO

FMUIT: Future Mobile and Ubiquitous Information Technologies
 MCISME: Managing Context Information and Semantics in Mobile Environments
 MoSO: Mobile Services Ontologies

May 10th (Wed): MDM 2006 Conference (1st day)						
	Noh Theatre	Reception Hall	Conference Room 1	Conference Room 2	Conference Room 3	Conference Room 4
9:00-9:15	Opening Session					
9:15-10:30	Keynote Address 1 ExScal: A Perspective on Large Scale Wireless Sensor Networks A. Arora (Ohio State U.)					
11:00-12:30			Invited Seminar (1/2) TinyOS: An Open Operating System for Wireless Sensor Networks Philip Levis (Stanford U.)		Research 1 Context Awareness	
12:30-14:00	Lunch					
14:00-15:30			Seminar 1 Data Access Techniques for Location-Based Services J. Xu, B. Zheng and W.-C. Lee		Research 2 MANETs	
16:00-17:30				Research 3 Query Processing	Research 4 Mobile Cooperation	
18:00 - 21:00		Reception & Demo				



May 11th (Thu): MDM 2006 Conference (2nd day)						
	Noh Theatre	Reception Hall	Conference Room 1	Conference Room 2	Conference Room 3	Conference Room 4
9:00-10:15	Keynote Address 2 The Changing Face of Web Search P. Raghavan (Yahoo! Research)					
10:45-12:15			Invited Seminar (2/2) TinyOS: An Open Operating System for Wireless Sensor Networks Philip Levis (Stanford U.)		Research 5 Mobile Broadcast	
12:15-13:45	Lunch & Demo (Room: Reception Hall)					
13:45-15:15			Seminar 2 Network-Aware Wireless Sensor Data Mangement V.I. Zadorozhny and P.K. Chrysanthis		Research 6 Adaptation	
15:45-18:00	Excursion					
18:30 - 21:30	Banquet (Nara Hotel)					

May 12th (Fri): MDM 2006 Conference (3rd day)						
	Noh Theatre	Reception Hall	Conference Room 1	Conference Room 2	Conference Room 3	Conference Room 4
9:15-10:15	Keynote Address 3 The convergence of Mobile and Enterprise software Toru Hayashi (Oracle Corporation Japan)					
10:45-12:15			Research 7 Sensor Networks (I)		Research 8 Resource Management	Industrial
12:15-13:45	Lunch & Demo (Room: Reception Hall)					
13:45-15:15	Panel Discussion					
15:45-17:15			Research 9 Sensor Networks (II)		Research 10 Cellular Networks	Research 11 Moving Objects

May 13th (Sat): Post-Conference Workshops						
	Noh Theatre	Reception Hall	Conference Room 1	Conference Room 2	Conference Room 3	Conference Room 4
9:00-12:30					MLASN	TAMC
12:30-14:00					Lunch	Lunch
14:00-18:00					MLASN	TAMC

MLASN: Mobile Location-Aware Sensor Networks
TAMC: Tools and Applications for Mobile Contents



MAY 10th (Wed)

9:00-9:15 **Opening Session (Noh Theatre)**

9:15-10:30

Keynote Address 1: ExScal: A Perspective on Large Scale Wireless Sensor Networks (Noh Theatre)

A. Arora (Ohio State U.)

11:00-12:30

Invited Seminar (1/2): TinyOS: An Open Operating System for Wireless Sensor Networks (Conference Room 1 & 2)

Philip Levis (Stanford U.)

Research Session 1: Context Awareness (Conference Room 3)

Session Chair: Dipanjan Chakraborty (IBM India Research Lab)

Efficient Context-aware Service Discovery in Multi-Protocol Pervasive Environments

Pierre-Guillaume Raverdy (INRIA), Oriana Riva (Helsinki Institute for Info. Tech.), Agnes de La Chapelle, Rafik Chibout, Valerie Issarny (INRIA)

Discovering Causal Dependencies in Mobile Context-Aware Recommenders

Ghim-Eng Yap, Ah-Hwee Tan (Nanyang Technological U.), Hwee-Hwa Pang (Singapore Management U.)

Context Integration for Mobile Data Tailoring

Cristiana Bolchini, Carlo Curino, Fabio A. Schreiber, Letizia Tanca (Politecnico di Milano)

12:30-14:00 **Lunch**

14:00-15:30

Seminar 1: Data Access Techniques for Location-Based Services (Conference Room 1 & 2)

J. Xu (Hong Kong Baptist U.), B. Zheng (Singapore Management U.) and W.-C. Lee (Pennsylvania State U.)

Research Session 2: MANETs (Conference Room 3)

Session Chair: Takahiro Hara (Osaka U.)

Time Geography for Ad-Hoc Shared-Ride Trip Planning

Stephan Winter (U. of Melbourne), Martin Raubal (U. of Muenster)

An Efficient Resilience Mechanism for Data Centric Storage in Mobile Ad Hoc Networks

Dominique Dudkowski, Pedro Jose Marron, Kurt Rothermel (U. of Stuttgart)

On the Content Predictability of Cooperative Image Caching in Ad Hoc Networks

Bo Yang, Ali Hurson (Pennsylvania State U.)

16:00-17:30

Research Session 3: Query Processing (Conference Room 1 & 2)

Session Chair: Hong Va Leong (HK Polytechnic U.)

BMQ-Index: Shared and Incremental Processing of Border Monitoring Queries over Data Streams

Jinwon Lee, Youngki Lee, Seungwoo Kang, Hyunju Jin, Sangjeong Lee, Byoungjip Kim, Junehwa Song (KAIST)

Window Query Processing with Adaptive Proxy Cache

Xing Gao, John Sustersic, Ali Hurson (Pennsylvania State U.)

To Broadcast Push or Not and What? (S)

Jonathan Beaver, Panos Chrysanthis, Kirk Pruhs (U. of Pittsburgh), Vincenzo Liberatore (Case Western Reserve U.)

On Mining Moving Patterns for Object Tracking Sensor Networks (S)

Wen-Chih Peng, Yu-Zen Ko (National Chiao Tung U.), Wang-Chien Lee (Pennsylvania State U.)

Research Session 4: Mobile Cooperation (Conference Room 3)

Session Chair: Karl Aberer (EPFL)



Cooperative Device Browsing through Portable Private Area Network

Yutaka Kidawara (NICT), Katsumi Tanaka (Kyoto U.)

Ad-Hoc Collaboration Between Messengers

Zakaria Maamar (Zayed U.), Qusay H. Mahmoud (U. of Guelph), Abdelouahid Derhab (CERIST)

Access Control and Privacy in Location-aware Services for Mobile Organizations

Maria Luisa Damiani (U. of Milano), Elisa Bertino (Purdue U.)

18:00-21:00 **Reception & Demo (Reception Hall)**

MAY 11th (Thu)

9:00-10:15

Keynote Address 2: The Changing Face of Web Search (Noh Theatre)

P. Raghavan (Yahoo! Research)

10:45-12:15

Invited Seminar (2/2): TinyOS: An Open Operating System for Wireless Sensor Networks (Conference Room 1 & 2)

Philip Levis (Stanford U.)

Research Session 5: Mobile Broadcast (Conference Room 3)

Session Chair: Dik Lee (HKUST)

Global Cache Management in Nonuniform Mobile Broadcast

Wei Wu (SMA), Kian-Lee Tan (National U. of Singapore)

Efficient Object Retrieval from Parallel Air Channels in the Presence of Replicated Objects

Padmapriya Ayyagari, Prasenjit Mitra, Ali Hurson (Pennsylvania State U.)

Evaluation of Dual-Structure Key-management Scheme based on Two Broadcasting Service Models (S)

Kazuhide Fukushima, Shinsaku Kiyomoto, Toshiaki Tanaka (KDDI R&D Lab Inc.)

Update-aware Scheduling Algorithms in Hierarchical Data Dissemination Systems (S)

Adesola Omotayo, Moustafa Hammad, Ken Barker (U. of Calgary)

12:15-13:45 **Lunch & Demo (Reception Hall)**

13:45-15:15

Seminar 2: Network-Aware Wireless Sensor Data Mangement (Conference Room 1 & 2)

V.I. Zadorozhny and P.K. Chrysanthis

Research Session 6: Adaptation (Conference Room 3)

Session Chair: Arkady Zaslavsky (Monash U.)

u-Cam: A User-driven Control Mechanism for Ubiquitous Cameras and Its Content Management

Shumian He, Yukiko Kawai, Yutaka Kidawara, Koji Zettsu (NICT), Katsumi Tanaka (Kyoto U.)

A Mobile Information Service Adapted to Vague and Situational Requirements of Individual

Sineenard Pinyapong, Hiroko Shoji, Akihiro Ogino, Toshikazu Kato (Chuo U.)

A Rule-based Approach to Content Delivery Adaptation in Web Information Systems (S)

Roberto De Virgilio, Riccardo Torlone (U. Roma Tre), Geert-Jan Houben (Vrije U. Brussel)

Detecting the Sufficient Display Resolution for Image Browsing on Limited Screens (S)

Xin Fan (U. of Science and Tech. of China), Xing Xie, Wei-Ying Ma (MSRA)

15:45-17:30 **Excursion**

18:00-21:30 **Banquet (Nara Hotel)**



MAY 12th (Fri)

9:00-10:15

Keynote Address 3: The convergence of Mobile and Enterprise software (Noh Theatre)

Toru Hayashi (Oracle Corporation Japan)

10:45-12:15

Research Session 7: Sensor Networks (I) (Conference Room 1 & 2)

Session Chair: Pedro Jose Marron (U. of Stuttgart)

CAR: Controlled Adjustment of Routes and Sensor Networks Lifetime

Goce Trajcevski, Oliviu Ghica, Peter Scheuerman (Northwestern U.)

Efficient Online State Tracking Using Sensor Networks

Maria Halkidi (AUEB), Vana Kalogeraki, Dimitrios Gunopulos, Dimitrios Papadopoulos (UC-Riverside), Demetris Zeinalipour-Yazti (U. of Cyprus), Michail Vlachos (IBM T.J. Watson R. C.)

Data Stream Query Optimization Across System Boundaries of Server and Sensor Network (S)

Wolfgang Lindner (MIT), Holger Velke, Klaus Meyer-Wegener (U. Erlangen-Nuremberg)

In-network Data Processing for Wireless Sensor Networks (S)

Yingwen Chen, Hong Va Leong (HKPU), Ming Xu (National U. of Defense Tech.), Jiannong Cao, Keith Chan, Alvin Chan (HKPU)

Research Session 8: Resource Management (Conference Room 3)

Session Chair: Anupam Joshi (U. of Maryland, Baltimore County)

Service Maps for Heterogeneous Network Environments

Dirk Kutscher (U. Bremen), Jorg Ott (Helsinki U. of Technology)

Efficient Querying and Resource Management Using Distributed Presence Information in Converged Networks

Dipanjana Chakraborty, Koustuv Dasgupta (IBM India Research Lab), Archan Misra (IBM T.J. Watson R. C.)

Distributed Leader Election in P2P Systems for Dynamic Sets (S)

Dominic Heutelbeck, Matthias Hemmje (U. of Hagen)

Efficient Access to Wireless Web Services (S)

Xu Yang, Athman Bouguettaya (Virginia Tech.)

Industrial Session (Conference Room 4)

Session Chair: Wathiq Mansoor (Zayed U.)

Macroscopic Structural Summarization of Road Networks for Mobile Traffic Information Services

Akinori Asahara, Shigeru Shimada, Kishiko Maruyama (Hitachi)

Context-Aware Information Provision to the Mobile Phone Standby Screen

Takeshi Nakatsuru, Koji Murakami, Hiroshi Sakai (NTT)

Developing a Web Crawler for Massive Mobile Search Services

Hiroshi Takeno, Makoto Muto (NTT Resonant), Noriyuki Fujimoto, Kenichi Hagihara (Osaka U.)

12:15-13:45 **Lunch & Demo (Reception Hall)**

13:45-15:15 **Panel Discussion (Noh Theatre)**

15:45-17:15

Research Session 9: Sensor Network (II) (Conference Room 1 & 2)

Session Chair: Panos K. Chrysanthis (U. of Pittsburgh)

Processing Precision-Constrained Approximate Queries in Wireless Sensor Networks

Minji Wu, Jianliang Xu (HKBU), Xueyan Tang (Nanyang Technological U.)



On In-network Synopsis Join Processing for Sensor Networks

Hai Yu, Ee-Peng Lim, Jun Zhang (Nanyang Technological U.)

A Coverage-Based Maximum Lifetime Data Gathering Algorithm in Sensor Networks

Xiaoyuan Wang, Qing Zhang, Weiwei Sun, Wei Wang, Baile Shi (Fudan U.)

Research Session 10: Cellular Networks (Conference Room 3)

Session Chair: Yoshiharu Ishikawa (Nagoya U.)

User Pattern Analysis in Cellular Systems

Xiang Li, Qing Li (City U. of Hong Kong)

Data Delivery System with Convergence of Terrestrial Digital Broadcasting and Communication for Cellular Phone

Arei Kobayashi, Toshiaki Uemukai, Atsushi Koike, Satoshi Nishiyama (KDDI R&D Lab Inc.)

Nearly Lossless Audio Watermark Embedding Techniques to be Extracted Contactlessly by Cell Phone (S)

Toshio Modegi (Dai Nippon Printing Co.,Ltd.)

Data Dissemination to a Large Mobile Network: Simulation of Broadcast Clouds (S)

Aslihan Celik, JoAnne Holliday, Zachary Hurst (Santa Clara U.)

Research Session 11: Moving Objects (Conference Room 4)

Session Chair: Wang-Chien Lee (Pennsylvania State U.)

Robust B+-Tree-Based Indexing of Moving Objects

Christian S. Jensen, Dalia Tiesyte, Nerius Tradisaukas (Aalborg U.)

LUGrid: Update-tolerant Grid-based Indexing for Moving Objects

Xiaopeng Xiong, Mohamed Mokbel, Walid G. Aref (Purdue U.)

k-Closest Pair Query Monitoring Over Moving Objects

Manli Zhu (Institute for Infocomm Research), Dik Lee (HKUST), Jun Zhang (Nanyang Technological U.)

KEYNOTE ADDRESSES

Keynote Address 1

ExScal: A Perspective on Large Scale Wireless Sensor Networks

Anish Arora (Ohio State University)

May 10th (Wed), 9:15-10:30, Noh Theatre

Recent experiments have evaluated the ability of heterogeneous, hierarchical wireless sensor networks to scale to large node numbers and coverage areas. An exemplar is Project ExScal, where we designed and deployed a network of 1000+ sensor nodes and 200+ 802.11b backbone nodes for a 1.3km by 300m remote, open area. In this talk, we overview key issues in the scaling of wireless sensor network operations and applications, based on lessons derived from ExScal and other related experiments. We discuss at some length the impact of the network characteristics on a number of data management problems related to convergecast, broadcast, and in-network data flows. Finally, we identify challenges for future work in this area.

Anish Arora

Anish Arora is Professor of Computer Science and Engineering at the Ohio State University. Dr. Arora focuses on fault tolerance, security, and timeliness of distributed and networked systems, with special emphasis on sensor networked systems. He is an expert in self-stabilization. He has chaired/co-chaired several seminars/conferences in self-stabilization, as well as in distributed computing and computer networking; most recently, Arora has served as program chair of the 25th International Conference on Distributed Computing Systems (ICDCS'05) and the program co-chair of the Second ACM Conference on Embedded Sensor Networks Systems (SENSYS'04). Arora is an editor of the ACM Transactions on Sensor Networks, Real Time





Systems, and New Generation Systems. His research is presently supported by DARPA, NSF, and Microsoft Research Embedded Systems Program. For more information, please visit <http://www.cse.ohio-state.edu/~anish>

Keynote Address 2

The Changing Face of Web Search Prabhakar Raghavan (Yahoo! Research)

May 11th (Thu), 9:00-10:15, Noh Theatre

Web search has come to dominate our consciousness as a convenience we take for granted, as a medium for connecting advertisers and buyers, and as a fast-growing revenue source for the companies that provide this service. Following a brief overview of the state of the art and how we got there, this talk covers a spectrum of technical challenges arising in web search - ranging from social search to auction design and incentive mechanisms.

Prabhakar Raghavan

Prabhakar Raghavan is Head of Yahoo! Research. His research interests include text and web mining, and algorithm design. He is a Consulting Professor of Computer Science at Stanford University and Editor-in-Chief of the Journal of the ACM. Raghavan received his PhD from Berkeley and is a Fellow of the ACM and of the IEEE. Prior to joining Yahoo, he was Senior Vice-President and Chief Technology Officer at Verity; before that he held a number of technical and managerial positions at IBM Research.



Keynote Address 3

The convergence of Mobile and Enterprise Toru Hayashi (Oracle Corporation Japan)

May 12th (Thu), 9:00-10:15, Noh Theatre

The two big paradigm shift will be totally changed the IT and communication industry near future. The first wave is fixed mobile convergence and the second wave is “Software as a service”. After the fixed mobile convergence world, the enterprise business application user can easy to access and update enterprise information and asset via mobile phone from outside office. The other way, Oracle Corporation CEO Larry Ellison did fundamental prediction that the traditional software license business model will be changed to usage payment model about five years ago. It called “Software as a service” The synchronization of the big paradigm shift will make new business opportunity and benefit to the mobile phone user. I'd like to introduce Oracle's experience in this world.

Toru Hayashi

Toru Hayashi has joined Oracle Corporation Japan in July 1994 and manages Advanced Solution Development division since 2004. His team is developing new solutions to the emerging market, such as utility computing, enterprise mobile solution, enterprise blog and location based services framework, etc. He served on Content ID Forum as a securitant from 2000 to 2003; Prior to joining Oracle Corporation Japan, he was parallel processing computer graphics engineer at Mitsubishi Precision Co.,Ltd.





SEMINARS

Invited Seminar

TinyOS: An Open Operating System for Wireless Sensor

Philip Alexander Levis (Stanford U.)

May 10th (Wed), 11:00-12:30

May 11th (Thu), 10:45-12:15

Conference Room 1 & 2

Moore's law has led to a new class of computing device, wireless sensor networks. Made up of many nodes, most of which have very limited energy and resources, sensor networks have the potential to transform a wide range of fields, such as structural health monitoring, resource management, scientific research, and public health. This different application pull, combined with extreme power limitations, leads a sensor node operating system to take very different approaches than traditional computing classes.

Over the past few years, TinyOS has grown from a small research project to the dominant operating system for low power wireless sensor networks. In this tutorial, we will detail TinyOS and how the novel constraints of sensor networks led to its design. Beginning with early versions, we will describe how the open source TinyOS project has evolved in the past and its future directions, such as the formation of an open TinyOS alliance made up of industry and academics and the formation of working groups to tackle technical challenges the community faces. We will cover the role TinyOS plays in current deployed sensor networks, the emerging network architecture within the TinyOS cloud, and what implications these clouds have on current and future Internet systems

Philip Alexander Levis

Philip Levis is an Assistant Professor of Computer Science and Electrical Engineering at Stanford University. He researches wireless sensor network systems, protocols, and languages. His work, used by thousands of research groups



worldwide, includes the TinyOS operating system, the Maté application specific virtual machine framework, the nesC language, dissemination protocols, the TOSSIM simulator, and sensor network architectures.

Seminar 1

Data Access Techniques for Location-Based Services

Jianliang Xu (Hong Kong Baptist U.)

Baihua Zheng (Singapore Management U.)

Wang-Chien Lee (Pennsylvania State U.)

May 10th (Wed), 14:00-15:30

Conference Room 1 & 2

Location based service (LBS) is emerging as a killer application in mobile data services thanks to the rapid development in wireless communication and location positioning technologies. Users with location-aware wireless devices can query about their surroundings (e.g., finding the nearest Japanese restaurant or all shopping malls within 5 miles) at any place, anytime. While this ubiquitous computing paradigm brings great convenience for information access, the constraints of mobile environments, the spatial property of location-dependent data, and the mobility of mobile users pose a great challenge for the provision of location-based services to mobile users. This seminar will provide an overview of research issues arising from accessing of location-based services in a mobile computing environment and discuss the state-of-the-art solutions. In particular, it will focus the discussions on the following topic areas: 1) location positioning technologies; 2) query processing; 3) cache management; and 4) privacy and security.

Jianliang Xu

Jianliang Xu is an Assistant Professor in the Department of Computer Science at Hong Kong Baptist University. He received his BEng degree in computer science and engineering from Zhejiang University, Hangzhou, China, in 1998, and his PhD degree in computer science from Hong Kong University of Science and Technology in 2002. His research interests include





mobile and pervasive computing, wireless sensor networks, and distributed systems, with an emphasis on data management. He has published over 40 technical papers in these areas, many in prestigious journals and conferences, including SIGMOD, MobiSys, ICDE, EDBT, INFOCOM, TKDE, and VLDBJ. He has served as a session chair and program committee member for many international conferences, including IEEE INFOCOM and MDM. He is currently a program committee co-chair of International Workshop on Peer-to-Peer Information Management (P2PIM'06). For more information, please visit <http://www.comp.hkbu.edu.hk/~xujl>.

Baihua Zheng

Baihua Zheng received the BEng degree in computer science and engineering from Zhejiang University in 1999, and the PhD degree in computer science from Hong Kong University of Science and Technology in 2003. She is an assistant professor in the School of Information Systems at Singapore Management University. Her research interests include mobile/pervasive computing, spatial database, and data privacy. She has served as TPC members for several international conferences including IEEE ICDE 2007, DASFAA 2006, WISE 2006, and ACM SAC 2006. She is a member of ACM and IEEE. For more information, please visit <http://www.mysmu.edu/faculty/bhzheng/>.



Wang-Chien Lee

Wang-Chien Lee is an Associate Professor of Computer Science and Engineering at Pennsylvania State University. He received his B.S. from the Information Science Department, National Chiao Tung University, Taiwan, his M.S. from the Computer Science Department, Indiana University, and his Ph.D. from the Computer and Information Science Department, the Ohio State University. Prior to joining Penn State, he was a principal member of the technical staff at Verizon/GTE Laboratories, Inc. Dr. Lee performs cross-area research in database systems, pervasive/mobile computing, and networking. He is



particularly interested in developing data management techniques (including accessing, indexing, caching, aggregation, dissemination, and query processing) for supporting complex queries in a wide spectrum of networking and mobile environments such as peer-to-peer networks, mobile ad-hoc networks, wireless sensor networks, and wireless broadcast systems. Dr. Lee is very active in various academic and industrial activities. He has taught several tutorials in top database and mobile computing conferences (e.g., ICDE and MobiCom). He has served as a guest editor for several journal special issues on mobile database-related topics, including IEEE Transaction on Computer, IEEE Personal Communications Magazine, ACM MONET, and ACM WINET. He was the founding program committee co-chair for the International Conference on Mobile Data Management. He is a member of the IEEE and the Association for Computer Machinery. For more information, please visit <http://www.cse.psu.edu/~wlee>.

Seminar 2

Network-Aware Wireless Sensor Data Management

Vladimir I. Zadorozhny (U. of Pittsburgh)

Panos K. Chrysanthis (U. of Pittsburgh)

May 11th (Thu), 13:45-15:15
Conference Room 1 & 2

Sensor Networks have brought closer than ever before the network and database research communities. A novel sensor data management paradigm appeared with the development of data-centric routing protocols viewing the network as a huge distributed database. However, this paradigm is typically supported through a query processing layer that treats the wireless network as a black box and underestimates its fundamental limitations. In this seminar, we elaborate on these limitations and utilize them in favor of efficient data management in wireless sensor environments.

In the first part of the seminar, we will cover relevant background in wireless networks and review specific requirements for data-intensive sensor applications. We will introduce data management strategies that properly fuse network and database techniques for efficient query processing in wireless sensor networks. We will consider cross-layer query



optimization that utilizes the information about how the lower networks layers operate while processing sensor queries. An example of such an optimization is collision-aware query scheduling that avoids wherever possible simultaneous transmissions in the same collision domain.

In the second part, we consider how proposed network-aware techniques can facilitate data delivery in mobile sensor networks. In particular, we will introduce multicriteria optimization strategies to capture various mobility trade-offs in sensor networks. We will compare these techniques with existing wireless network standards and explore to which extent they help sensor networks to meet QoS and QoD requirements at higher data rates and heavy network loads.

Vladimir I. Zadorozhny

Vladimir I. Zadorozhny is an Assistant Professor in Department of Information Science and Telecommunications, University of Pittsburgh. He received his Ph.D. in 1993 from the Institute for Problems of Informatics, Russian Academy of Sciences in Moscow. Before coming to USA he was a Principal Research Fellow in the Institute of System Programming, Russian Academy of Sciences. His research interests include networked information systems, wireless and sensor data management, query optimization in resource-constrained distributed environments, and scalable architectures for wide-area environments with heterogeneous information servers. His research has been funded by DARPA and NSF. He has published over 30 papers in journals and peer-reviewed conferences and workshops in the field of data management. His publications also include book chapters and tutorials on advanced data management techniques in highly distributed environments. Dr. Zadorozhny has served on program committees of multiple Database and Distributed Computing Conferences. He also co-chaired the technical program of MDDS 2005. He is a member of ACM SIGMOD and IEEE Computer Society. His complete professional bio is available at WWW: <http://www.sis.pitt.edu/~vladimir/>.



Panos K. Chrysanthis

Panos K. Chrysanthis is a Professor of Computer Science and of Telecommunication at the University of Pittsburgh and an Adjunct Professor at Carnegie Mellon University. He received his B.S. from the University of Athens, Greece and his M.S. and Ph.D. from the University of Massachusetts at Amherst. His current research focus is on mobile and pervasive data management including sensor networks. In 1995, he was a recipient of the NSF CAREER Award for his investigation on the management of data for mobile and wireless computing. His research accomplishments have been published in over 100 papers in journals and peer-reviewed conferences and workshops in the field of data management. In addition, his publications include a book and book chapters and tutorials on transaction processing and data access in distributed, mobile and web databases. He is on the editorial board of the VLDB Journal, and was program chair of several workshops and conferences related to mobile data management. More recently, he was the ICDE 2004 Vice Chair for the area of distributed, parallel and mobile databases and the General Chair of MobiDE 2003 and MDM 2005. This year he is the PC Co-chair for MobiDE 2006. He is a member of ACM and IEEE. His complete bio is available at WWW: <http://www.cs.pitt.edu/~panos/>.





PANEL

Data Intensive Mobile Sensors: Killer Applications and Grand Deterrents

May 12th (Fri) 13:45-15:15, Noh Theatre

Moderator:

Vladimir Zadorozhny (Dep. Of Information Science and Telecommunication, U. of Pittsburgh)

Panelists:

Dimitrios Gunopulos (U. of California)

Pedro Jose Marron (U. of Stuttgart)

Ouri Wolfson (U. Of Illinois at Chicago)

Arkady Zaslavsky (Monash U.)

DEMOS

**May 11th (Wed) – May 12th (Fri),
At the time of Lunch and Reception,
Reception Hall**

Invited Demo

DeaiExplorer: a social network display for academic conferences

Shinichi Konomi (U. of Colorado at Boulder), Sozo Inoue (Kyushu U.), Takashi Kobayashi (Tokyo Institute of Technology), Masashi Tsuchida (Hitachi, Ltd.), Masaru Kitsuregawa (U. of Tokyo)

Many academic conferences offer informal as well as formal opportunities to learn from others and connect with each other. Finding the "right" peers to connect with could be difficult if one can only know other participants' physical appearance and the information printed on their conference badges. DeaiExplorer is a social network display for supporting conference attendees through dynamic visualization of relevant social networks that are extracted from a publication database (DBLP).

Sponsor's Demo

Embedded Database Entier

Taichi Ishikawa (Hitachi, Ltd.)

Entier is a high performance and small footprint relational database management system for embedded applications. We demonstrate music search system for portable music player and portable navigation system, POI (point of interest) search system, and data replicator system between server database and mobile database.

General Demos

U-Cam: Ubiquitous Camera in Real World with User-driven Control

Shumian He (Kyoto U.), Yukiko Kawai, Koji Zetsu (NICT), Katsumi Tanaka (Kyoto U.)

Photo-to-Search: Using Camera Phones to Inquire of the Surrounding World

Menglei Jia, Xin Fan (U. of Science and Technology of China, PRC), Xing Xie, Mingjion Li, Wei-Ying Ma (Microsoft Research Asia)

Querying Moving Objects in SECONDO

Victor Teixeira de Almeida, Ralf Hartmut Güting, Thomas Behr (Fernuniversität Hagen)

P2P-Based Semantic Service Management in Mobile Ad-hoc Networks

Peter Baumung (U. of Karlsruhe), Stefan Penz (Aachen U.), Michael Klein (U. of Karlsruhe (TH))

Security Management for Mobile Devices by Face Recognition

Yoshihisa Ijiri, Miharu Sakuragi, Shihong Lao (OMRON Corp.)

ANNATTO: Adaptive Nearest Neighbor Queries in Travel Time Networks

Wei-Shinn Ku, Roger Zimmermann, Haojun Wang, Trung Nguyen (U. of Southern California)

Cell-Phone Based User Activity Recognition, Management and Utilization

Daisuke Morikawa, Masaru Honjo (KDDI Corp.), Akira Yamaguchi (ATR), Satoshi Nishiyama, Masayoshi Ohashi (KDDI Corp.)



*Two Approaches to Browse LargeWeb Pages
Using Mobile Devices*

Takuya Maekawa, Takahiro Hara, Shojiro Nishio
(Osaka U.)

*Self-Organizing Location Estimation Method
using Ad-hoc Networks*

Yasuhisa Takizawa, Peter Davis (ATR), Makoto
Kawai (Ritsumeikan U.), Hisato Iwai (Doshisha
U.), Akira Yamaguchi, Sadao Obana (ATR)

*Wireless Information Sharing in Ubiquitous
Environments*

Satoko Itaya, Jun Hasegawa, Peter Davis, Naoto
Kadowaki, Sadao Obana (ATR)

*MobiREAL : Scenario Generation and Toolset for
MANET Simulation with Realistic Node Mobility*

Kumiko Maeda, Takaaki Umedu, Hirozumi
Yamaguchi (Osaka U.), Keiichi Yasumoto
(NAIST), Teruo Higashino (Osaka U.)

*A User-driven Device Handover System in PAN
Environments*

Eiji Kamioka, Shigeki Yamada (NII), Shigeru
Morifuku, Makoto Gozu, Shigeo Takifuji, Makoto
Okita (HP Japan, Ltd)

*Location-based Information Delivery Using
Stream Processing Engine StreamSpinner*

Sinichi Yamada, Yousuke Watanabe, Hiroyuki
Kitagawa, Toshiyuki Amagasa (U. of Tsukuba)

*An Energy-Aware Video Streaming System for
Portable Computing Devices*

Morihiko Tamai (Shiga U.), Naoki Shibata,
Keiichi Yasumoto, Minoru Ito (NAIST)

*Demonstration of a Cellular Phone Application
based on Context-Aware Group Formation*

Kouji Nishigaki, Keiichi Yasumoto (NAIST),
Takaaki Umedu, Teruo Higashino (Osaka U.),
Minoru Ito (NAIST)

*A System for Analyzing Life Rhythm Using
Wireless Sensors on Mules*

Tomohiro Uchiyama, Yuichi Uehara, Masato
Mori, Hiroki Saito, Yoshito Tobe (Tokyo Denki
U.)

*u-PaV: Automatic Transformation of Web content
into TV-like video content for ubiquitous
environment*

Akiyo Nadamoto, Tadahiko Kumamoto (NICT),
Hiromi Uwada, Toru Hamabe, Makoto Yokozawa
(NRI), Katsumi Tanaka(Kyoto U.)

*A Real-World Event Search System in Sensor
Network Environments*

Takashi Okadome, Takashi Hattori, Kaoru
Hiramatsu, Yutaka Yanagisawa (NTT Corp.)



USEFUL INFORMATION

Contact Information

In case of emergency please contact us.
Staff Room (2nd floor, Meeting Room 3)

Conference Reception

May 10th (Wed) 18:00 – 21:00, Reception Hall

The MDM2006 is featuring a reception. Your registration includes the reception. The meal is served buffet-style. You can also enjoy demonstrations of experimental systems from universities, companies and research organizations.

Excursion

May 11th (Thu) 15:45-17:30

We are planning the tour that includes taking a walk around our conference venue.

First, we would like you to visit to Todai-ji Temple. This is the representative temple of the Nara period and its Daibutsu-den, or Great Buddha's Hall, is the largest wooden structure in the world. By all means, please check the size of Great Buddha by your own eyes. The ticket for entering Todai-ji Temple is put and given to those who participate in tour.



Great Buddha in Todai-ji Temple.

The next in Todai-ji Temple is Nara Park. This is a park which has immense land of 660 hectares including the eastern side of Nara City, Kofuku-ji Temple, Todai-ji Temple, Kasuga Grand Shrine, National Museum, Wakakusa-yama Hill and Mt. Kasuga-yama virgin forest.

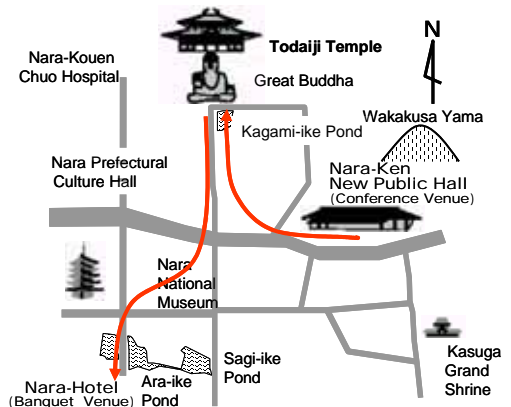
Many deer live in this park and you can enjoy watching them. We will prepare Shika-Senbei, food for deer, for tour participants. Please try feeding.



Nara Park ¹

For foreigners, several persons will support the tour and various interesting episode will be introduced in English. May in Japan is one of the best seasons for taking a walk. Please participate in this tour and enjoy spring of Japan fully.

Tour participants need to gather to the entrance hall at 15:45 on the day and please receive a ticket for entrance of Todai-ji Temple, and Shika-Senbei. After enjoying a walk for about 2 hours, please arrive at Nara Hotel, the banquet venue, by 18:30.



¹ The picture of Nara Park is provided by Tourism Section Nara Municipal Office.



Conference Banquet

May 11th (Thu) 18:00-21:00, Nara Hotel

The conference banquet will be held on the evening of May 11th at the Nara Hotel. Your registration includes the banquet. Banquet participants will enjoy dinner in Japanese traditional atmosphere. It is an about ten-minute walk from the conference venue to the Nara Hotel. The location of the hotel is shown on the map of the end of this program. **MAKE SURE TO BRING YOUR BANQUET TICKET. You can never enter the banquet venue without the banquet ticket.**

The Nara Hotel has a long and distinguished history of some 97 years, and its architectural style is designed to represent the stately balanced majesty of 16th century style Japanese architecture. It is built of Hinoki cypress and fit for royalty—it has, on several occasions, accommodated the Japanese royal family when they visit the ancient Japanese capital.



Entrance of Nara Hotel



Lobby of Nara Hotel

In the banquet, the sound of Koto, a Japanese harp, will greet you first. Please enjoy the graceful tune of Koto, relieving by the welcome drink. Moreover, it is due to have you enjoy the performance of Japanese drums in the banquet. Please enjoy fully beats of drums and dynamic

motion of players. Probably, through this banquet, Japanese “静 –Sei- (tranquility)” and “動 –Dou- (energy, activity, etc.)” will be able to be experienced at once.

Lunch

All registered participants will enjoy a Japanese lunchbox. Workshop participants can take a lunch in Conference Rooms for workshops (MAY 9th and May 13th). Your lunch box is gotten in a conference room 1 (1st floor) during workshops.

From May 10th to May 12th, during MDM2006 conference, you can get your lunch box in the Reception Hall (2nd floor) and have lunch there. In the lunchtime, the Reception Hall will also become a place for demonstrations.

Coffee Breaks

May 10th (Wed) - May 12th (Fri)

All participants can enjoy the drink services near the Conference Room 3 on the 2nd floor. Please check the place for coffee breaks on Floor Map in this program.

Internet Access

May 9th (Wed) - May 13th (Fri)

In the conference venue, you can access to the Internet through wireless LAN access points. The Internet Corner for wired access user is prepared at the Gallery in front of the Reception Hall on the 2nd floor. Please check the location of Internet Corner on Floor Map in this program.



WORKSHOPS

International Workshop on Managing Context Information and Semantics in Mobile Environments (MCISME)

May 9th (Tue), Conference Room 2

9:00-9:10 Opening address by the PC chairs

9:10-10:00 Invited talk

A New Ph.D. Program in Computational Transportation Science
Ouri Wolfson (U. of Illinois at Chicago)

10:00-10:30 Coffee Break

10:30-12:00 Paper session 1

Sharing Location Dependent Experiences in MANET
Kihwan Kim, Ying Cai and Wallapak Tavanapong

Ontology Based Dynamic Updates in MANETs for Rescue Scenarios
Norun Sanderson, Vera Goebel and Ellen Munthe-Kaas

Update Log Dissemination in Mobile Ad Hoc Networks
Hideki Hayashi, Takahiro Hara and Shojiro Nishio

12:00-13:00 Lunch

13:00-14:30 Paper session 2

On a cooperation of Broadcast Scheduling and Base Station Caching in the Hybrid Wireless Broadcast Environment
Jing Cai, Tsutomu Terada, Takahiro Hara and Shojiro Nishio

Extracting Semantic Location from Outdoor Positioning Systems
Juhong Liu, Ouri Wolfson and Huabei Yin

An Anonymous Context Aware Access Control Architecture
Shigetoshi Yokoyama, Eiji Kamioka and Shigeaki Yamada

14:30-15:00 Coffee Break

15:00-16:30 Paper session 3

Using Moving Object Databases to Provide Context Information in Mobile Ad-hoc Networks
Katharina Hahn, Agnès Voisard, Manuel Scholz, Heinz Schweppe and Joos-Hendrik Böse

Putting Context in Context: Context Management's Integral Role in a Mobility and Adaptation Enabling Middleware
Marius Mikalsen, Nearchos Paspallis, Jacqueline Floch, Erlend Stav, George Papadopoulos and Pedro Antonio Ruiz

Query Modification Based on Real-World Contexts for Mobile and Ubiquitous Computing Environments
Shun Hattori, Taro Tezuka and Katsumi Tanaka

16:30-17:00 Break

17:00-18:00 Discussion Session

International Workshop on Mobile Services and Ontologies (MoSO) May 9th (Tue), Conference Room 4

9:00-10:00 Keynote session with Q&A

10:00-10:30 Coffee break

10:30-12:00

Session 1: Annotating and transforming contents

Session Chair: Birgitta König-Ries

Semantic Web Content Adaptation and Services Delivery on Morfeo's Semantic Mobility Channel.
Javier Soriano, Genoveva Lopez, Miguel Jimenez, Rafael Fernandez and Juan J. Hierro (F)

Automating Photo Annotation using Services and Ontologies. Fergal Monaghan (P)

The Role of Ontologies in Context-Aware Recommender Systems. Luca Buriano, Marco Marchetti, Francesca Carmagnola, Federica Cena, Cristina Gena, Ilaria Torre (P)



12:00-13:00 Lunch

13:00-14:30

Session 2: Architectures for Mobile Service Provisioning

Session Chair: Jari Veijalainen

Using FIPA Agents with Service-Oriented Peer-to-Peer Middleware

John Buford and Bernard Burg (F)

SOGOS – A Distributed Meta Level Architecture for the Self-Organizing Grid of Services

Clemens Beckstein, Peter Dittrich, Christian Erfurth, Dietmar Fey, Birgitta König-Ries, Martin Mundhenk and Harald Sack (F)

Ontology-based Semantic Web Service platform in Mobile Environments

Jari Veijalainen, Sergiy Nikitin, Ville Törmälä (F)

14:30-15:00 Coffee break

15:00-16:00

Session 3: Content search at mobile terminals

Session Chair: Jari Veijalainen

DigiMe - Ubiquitous Search and Browsing for Digital Libraries

Slawomir Grzonkowski, Adam Gzella, Mariusz Cygan and Sebastian Ryszard Kruk (F)

Fox Service: An Implementation Case of Ontology-based Search Agent in Mobile Environments

Dong-il Han, Sang-Bum Ha, Ho-Jun Choi (P)

Context-Aware Processing of Ontologies in Mobile Environments

Günther Specht and Timo Weithöner (P)

Improving context sensitive mobile access to grid environments and VO workspaces

Piotr Grabowski, Krzysztof Kurowski, Jarek Nabrzycki (P)

International Workshop on Future Mobile and Ubiquitous Information Technologies (FMUIT)

May 9th (Tue)

9:00-9:10 Opening (Noh Theatre)

9:10-10:00 Invited Talk (Noh Theatre)

Breakthroughs in Large-scale Ad Hoc Wireless Networking and Application for Vehicle Safety

Sadao Obana, Naoto Kadowaki and Peter Davis (ATR)

10:00-10:30 Coffee Break

10:30-12:10

Session 1: Mobile and Context-aware Applications (Noh Theatre)

A SW Framework for Retrieving and Organizing Real-time Mobile Data

Esa Koskinen, Jussi Kaasinen

A Real-time Mobile System for Fetal Heart Rate Monitoring and Fetal Distress Detection

Chieh-yuan Tsai, Chuang-cheng Chiu, Shin-min Chao

Mobile Advertisement System Utilizing User's Contextual Information

Josephine de Castro, Hiromitsu Shimakawa

Generating Useful Photo Context Metadata for the Semantic Web

Fergal Monaghan and David O'Sullivan

Call Intent based "Enhanced Caller ID"

Subodh Sohi

Session 2: Security in Mobile and Ubiquitous Networks (Conference Room 1)

A New User Authentication Protocol for Mobile Terminals in Wireless Network

Mirang Park, Naonobu Okazaki, Yoshimasa Baba

Evaluation of the Impact of Selfish Nodes in Ad Hoc Networks and Detection and Countermeasure Methods

Shin Yokoyama, Yoshikazu Nakane, Osamu Takahashi, Eiichi Miyamoto



Secure Access Control Schemes for RFID Systems with Anonymity
Hung-yu Chien

On the Security of Two Group Key Agreement Protocols for Mobile Devices
Yuh-min Tseng

Content-Based Entry Control for Secure Spaces
Shun Hattori, Taro Tezuka, Katsumi Tanaka

Session 3: Ubiquitous Devices and Networks
(Conference Room 3)

Server Side C-DASH : Ubiquitous Hardware/Software Codesign Environment
Hideaki Yanagisawa, Minoru Uehara, Hideki Mori

Ubiquitous Gadgets for Constructing Flexible Ubiquitous Services
Yasue Kishino, Tsutomu Terada, Shojiro Nishio

Flexible Network System for Wearable Computing Using Conductive Fabric
Junichi Akita, Toru Shinmura, Tomomichi Murakami, Mariko Yao, Masashi Toda

NB-FACE: No-Beacon FACE Ad-hoc Routing Protocol for Reduction of Location Acquisition Overhead
Minami Narasawa, Masakazu Ono, Hiroaki Higaki

Pointing and Retrieving: A Model of Data Translation Method for Real World Computing
Yuichi Mitsudo

12:10-13:10 Lunch

13:10-15:10

Session 4: Information Retrieval (Noh Theatre)

A Demand-Oriented Information Retrieval Method on MANET
Makoto Enomoto, Naoki Shibata, Keiichi Yasumoto, Minoru Ito, Teruo Higashino

Profile-based Query Routing in a Mobile Social Network
Hirokazu Tomiyasu, Takuya Maekawa, Takahiro Hara, Shojiro Nishio

A Web Search Method using User Operation on Digital Maps
Ryoko Hiramoto, Kazutoshi Sumiya

A Query Processing Method Considering Query Frequency for Broadcast Database Systems
Shinya Kitajima, Jing Cai, Tsutomu Terada, Takahiro Hara, Shojiro Nishio

Topic Detection from Blog Documents Using User Interests
Yuichiro Sekiguchi, Harumi Kawashima, Hidenori Okuda, Masahiro Oku

Context-Aware SVM for Context-Dependent Information Recommendation
Kenta Oku, Shinsuke Nakajima, Jun Miyazaki, Shunsuke Uemura

Session 5: Mobile and Ubiquitous Networks
(Conference Room 1)

Extended Correspondent Registration Scheme for Reducing Handover Delay in Mobile IPv6
Ved P. Kafle, Eiji Kamioka, Shigeki Yamada

Intra-Class Utility-Fair Bandwidth Adaptation for Multi-Class Traffic in Wireless Networks
Ning Lu, John Bigham

An Internet Gateway Access-Point Selection Problem for Wireless Infrastructure Mesh Networks
Shigeto Tajima, Nobuo Funabiki, Teruo Higashino, Shoji Yoshida

Dynamic Address Configuration Supporting One Hop Communication of Mobile Personal Area Network
Masahiro Shijo, Kiyoko Tanaka, Hideharu Suzuki, Norihiro Ishikawa, Susumu Ishihara

Discovery and Delay Analysis of Bluetooth Devices
Debasish Chakraborty, Goutam Chakraborty, Sagar Naik, Norio Shiratori

Enhancing Network Performance with Adaptive Admission Control
Sergey Garnov, Eiji Okubo



Session 6: Multimedia Communication and Application (Conference Room 3)

An Adaptive Scheme for Consistency among Players in Networked Racing Games
Tomohito Ikedo, Yutaka Ishibashi

Maximizing User Gain in Multi-flow Multicast Streaming on Overlay Networks
Yoshitaka Nakamura, Hirozumi Yamaguchi, Teruo Higashino

QoS Control for Continuous Media over Heterogeneous Environment by Wired and Wireless Network
Xuanrui Xiong, Noriaki Uchida, Koji Hashimoto, Yoshitaka Shibata

Power Controlled Routing in Wireless Multihop Communication for Higher End-to-End Bandwidth
Yuya Numata, Hiroaki Higaki

Influences of Network Latency of Voice and Haptic Media on Efficiency of Collaborative Work
Seiji Kameyama, Yutaka Ishibashi

Collaborative Virtual Environment Considering Scalability and Usability
Yushi Nakai, Naoki Kamon, Yoshitaka Shibata

15:10-15:40 Coffee Break

15:40-17:40

Session 7: Ad Hoc Network (Noh Theatre)

A Security Model for OLSR MANET Protocol
Jean-Marie Orset, Ana Cavalli

Light Client Management Protocol for Wireless Mesh Networks
Bachar Wehbi, Wissam Mallouli, Ana Cavalli

Conformance and Interoperability Testing of an Ad Hoc Routing Protocol
Cyril Grepet, Stephane Maag

On TDMA Slot Assignment Protocol Considering the Existence of Unidirectional Wireless Links in Ad Hoc Sensor Networks
Akimitsu Kanzaki, Takahiro Hara, Shojiro Nishio

A Study on Performance Evaluation of Real-time Data Transmission on Vehicular Ad Hoc Networks
Wei-hua Sun, Hirozumi Yamaguchi, Shinji Kusumoto

Session 8: Data Management (Conference Room 1)

Accelerating Remote Logging by Two Level Asynchronous Checkpointing
Hideyuki Kawashima, Michita Imai, Yuichiro Anzai

Consistency Management among Replicas Using a Quorum System in Ad Hoc Networks
Yohei Sawai, Masako Shinohara, Akimitsu Kanzaki, Takahiro Hara, Shojiro Nishio

FlexSched: A Parameterized Data Schedule Generator for Multi-Channel Broadcast Systems*
Jen-jou Hung, Andre Seifert

A Technique for Information Sharing Using Inter-Vehicle Communication with Message Ferrying
Takashi Shinkawa, Takashi Terauchi, Tomoya Kitani, Naoki Shibata, Keiichi Yasumoto, Miruru Ito, Teruo Higashino

An Embedded Intelligence Model: Issues in the Real-World Empowered Organizational Computing
Toshihiko Yamakami

Session 9: Mobile Agent and Web Services (Conference Room 3)

Effect of Retransmissions in Mobile Agent Communications under Unstable Network Conditions
Masayuki Sato, Misako Urakami, Hiroshi Matsuno

Trapco: Website Design by Transforming Paper-based Prototypes to Computer-based Prototypes
Kentaro Go, Jun'ichi Hirayama

A New Secure Mobile Community System
Toshihiko Wakahara, Yuya Hiwatashi, Hirofumi Iori, Ziliki Tei, Munehisa Shibata



Activity Scheduling in Web-Service Based Workflow Management for Balancing Load and Handling Failures

Hideyuki Katoh, Takashi Kobayashi, Haruo Yokota

Collecting Adaptive Data for Isolated Wireless Sensors with Patrol Nodes in Live E!

Hiroki Ishizuka, Kenji Sasaki, Satoshi Matsuura, Makoto Kamiya, Hideki Sunahara, Hiroshi Esaki

An Antecedence Graph Approach for Fault Tolerance in a Multi-Agent System

Muhammad Masud Khokhar, Aamer Nadeem, Omer Mansoor Paracha

International Workshop on Mobile Location-Aware Sensor Networks (MLASN)
May 13th (Sat), Conference Room 2

9:00-9:10 Welcome and opening

9:10-10:00 Keynote talk
Speaker: Vana Kalogeraki

10:00-10:30 Coffee break

10:30-11:30:
Routing in location-aware sensor networks

RectNet – A Distributed Geometrical Data Structure

Dominic Heutelbeck and Matthias Hemmje

Processed Data Collection using Opportunistic Routing in Location Aware Wireless Sensor Networks

Chi Chen, Demet Aksoy and Tufan Demir

11:30-12:30:
Localization in wireless sensor networks

Scalable Self-Configuring Integration of Localization and Indexing in Wireless Ad-Hoc Sensor Networks

Lin Xiao and Aris M. Ouksel

Selective Iterative Multilateration for Hop Count-Based Localization in Wireless Sensor Networks

Jeffrey HS Tay, Vijay R Chandrasekhar and Winston KG Seah

12:30-14:00 Lunch

14:00-15:30:
Aggregation techniques in location-aware sensor networks

NED: An Efficient Noise-Tolerant Event and Event Boundary Detection Algorithm in Wireless Sensor Networks

Guang Jin and Silvia Nittel

A Meta-Data-Based Data Aggregation Scheme in Clustering Wireless Sensor Networks

Huifang Chen, Hiroshi Mineno and Tadanori Mizuno

Wolfgang Lindner, Holger Velke and Klaus Meyer-Wegener

Operator Allocation in Borealis with Integrated Sensor Network Query Processors

15:30-16:00 Coffee break

16:00-17:00:
Modeling mobility in location-aware sensor networks

Modeling and Predicting Future Trajectories of Moving Objects in a Constrained Network

Jidong Chen, Xiaofeng Meng, Yanyan Guo, Stephane Grumbach and Haixun Wang

Formalizing Mobility in Dynamic Location-Aware Sensor Networks

Mike Worboys and Matt Duckham

17:00-17:30:
Invited experience report: Simulating (deploying) location-aware sensor networks

A Fuzzy Approach to Mobile Tracking using Wireless Sensor Networks

C. Farah, P. Spinney, B. Meulendyk, D. Gallimore and B. Sturtevant

17:30-18:00 Workshop Closing



International Workshop on Tools and Applications for Mobile Contents (TAMC)
May 13th (Sat), Conference Room 3

9:00-9:10 Opening

9:00-10:30

Session 1: Mobile Service Platforms

Session Chair: Masayoshi Ohashi

Service-Oriented in Mobile Computing - An Overview

Mohamed Hamdy and Birgitta Konig-Ries

Delivering Mobile Enterprise Services on Morfeo's MMC Open Source Platform

Javier Soriano, Miguel Jim'enez, Jose M. Cantera, and Juan J. Hierro

Design and Implementation of WAP Certificate Converter Toolkit

Chih-Ming Yan, Wen-Chen Sun, Tzu-Yen Wang, Tzu-Han Kao, and Shyan-Ming Yuan

10:30-11:00 Coffee Break

11:00-12:30

Session 2: Mobile Multimedia

Session Chair: Satoshi Nishiyama

(Invited paper)

Developing client-server speech translation platform

Tohru Shimizu, Yutaka Ashikari, Toshiyuki Takezawa, Masahide Mizushima, Genichiro Kikui, Yutaka Sasaki, and Satoshi Nakamura

Quality Improvement of MP3 Encoded Audio Reproduction using Fluency Locally Supported Sampling Function for Use in Cell Phones

Masakazu Higuchi, Shuji Kawasaki, Keisuke Kameyama, Yasuo Morooka and Kazuo Toraichi

A Proposal of Test Bed for "Intelligent" Multimedia Communication System Using MPEG-4

Yasuyuki Miura and Michiaki Katsumoto

12:30-14:00 Lunch

14:00-15:30

Session 3: Mobile Applications

Session Chair: Jun Munemori

GeoNote.net: A social network system for geographic information

Kotaro Nakayama, Takuya Maekawa, Hirokazu Tomiyasu, Takahiro Hara, and Shojiro Nishio

Design of a Car Navigation System that Predicts User Destination

Tsutomu Terada, Masakazu Miyamae, Yasue Kishino, Kohei Tanaka, Shojiro Nishio, Takashi Nakagawa and Yoshihisa Yamaguchi

Active Folders: A Metaphor for Developing and Interacting with Context-Aware Applications

Stavros Polyviou, George Samaras, and Paraskevas Evripidou

15:30-16:00 Coffee Break

16:00-17:00

Session 4: Mobile Network

Session Chair: Hiroshi Shigeno

A Simple Broadcasting Method for Computation Time Reduction on Grid Computing Environment

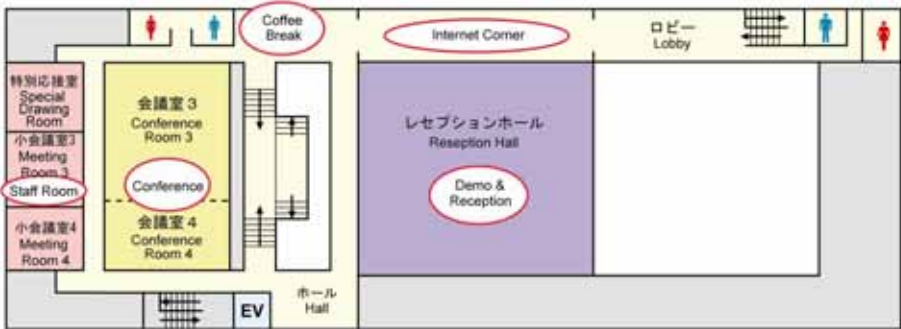
Tomoki Yoshihisa, Shigenobu Nomura, and Masanori Kanazawa

A Study on Formulation of the Ubiquitous Cloud Model

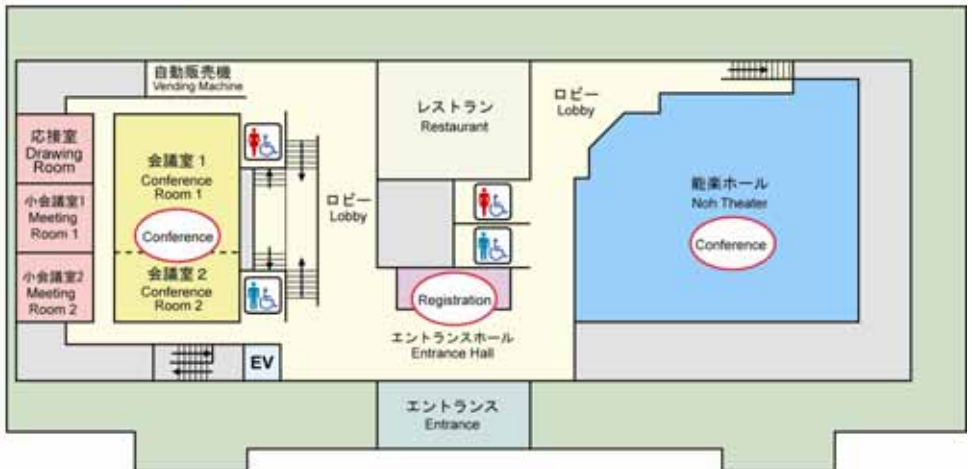
Shuji Kawasaki, Miyuki Niwa, Tetsuo Kamina, De-An Wu, Hitomi Murakami, and Masayoshi Ohashi

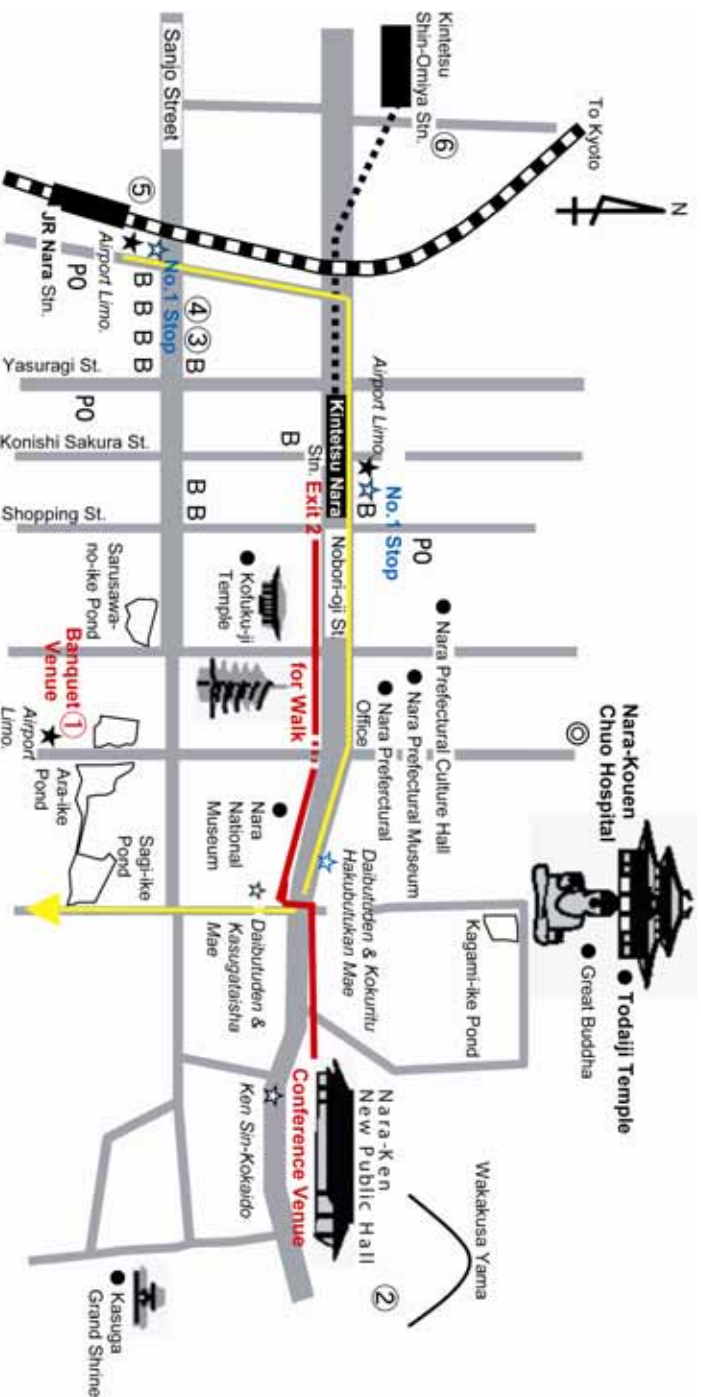
FLOOR MAP

2nd Floor



1st Floor





① Nara Hotel (Banquet Venue) ② Nara Garden Hotel ③ Hotel Fujita Nara

④ Nara Washington Hotel Plaza ⑤ Hotel Nikko Nara ⑥ Hotel Half Time

B : Banks (major) Foreign Currency Exchange]

P0 : Post Offices

★ : Airport Limousine Bus Stops

◎ : Nara -Kouen Chuo Hospital.

Tel: 0742 -26-0277, Fax: 0742 -22-7820

Public Bus Route
(loop Line of the City [Clockwise])

☆ : Public Bus Stops near the conference site

When you would like to go to the conference venue by bus, it is convenient to use buses for "Loop Line of the City [Clockwise]". You can get on these buses at No. 1 bus stop in front both of JR Nara Stn. and Kinetsu Nara Stn.

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MDM 2006
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Mobile Data Management 