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Messages from Conference Chairs

Since its inauguration in Hong Kong 2000 MDM has gone around the globe, landing on many great countries and cities and serving as a top forum for researchers working in the area of mobile data management. After eight years, we are glad to see MDM coming back to the country where it was begun: China. Beijing, the great capital city of China and home of the 2008 Summer Olympic Games, will be the host of MDM 2008!

The Program Committee together with the workshop, seminar and demo chairs, had put together a great technical program. We owe them a big thank-you for their hard work and leadership that ensured the high quality of the technical program.

We want to thank our sponsors EMC2, HP, IBM, National Natural Science Foundation of China, and LIAMA, for their financial support. Last but not least, the conference would not be successful without the excellent logistics support provided by the Local Organization Committee. We hope every participant would find the conference intellectually stimulating and the time to enjoy the city.

Dik Lun Lee, Ling Liu, Timos Sellis

Conference Co-Chairs, MDM 2008

Messages from Program Chairs

As the program co-chairs for the 9th International Conference on Mobile Data Management (MDM), it is our pleasure to welcome you to Beijing, China. The first MDM conference was held in Hong Kong, China, under the leadership of Professor Dik Lee. We are excited and privileged to bring MDM back to China after eight years. We hope you enjoy the technical program that we have organized for you and that you enjoy your interactions with the wonderful group of researchers and practitioners that have come together for this great event.

Our call for papers attracted 119 paper submissions that represented 22 countries and regions. We managed to obtain three reviews for the vast majority of papers, with a few exceptions that had only two reviews. Based on the review results, we accepted 26 papers, which correspond to a very competitive acceptance rate of 21.8%. The accepted papers are included in these proceedings, and have been arranged into 8 technical sessions spanning the three days of the conference. The technical sessions cover a set of important topics in mobile data management, such as moving objects, mobile users, context awareness, privacy and security, sensor networks, and broadcasting. In addition to the presentation of research papers, the conference program also features three keynote speeches and two seminars. The keynote speeches are delivered by Denis Caromel, Richard Hull and Hanping Feng respectively. The two seminars provide tutorials on data management issues for sensor networks and peer-to-peer computing.

We warmly thank the members of the program committee. This year's program committee showed us amazing support, providing us with extensive reviews with constructive information for the authors and in a very timely manner. Since we had many papers that were delegated to external reviewers, we would also like to thank these reviewers for helping in the success of MDM 2008.

We look forward to a thought-provoking and informative conference. We appreciate your active engagement.

Xiaofeng Meng, Hui Lei, Stephane Grumbach

Program Co-Chairs, MDM 2008

Conference Officers

General Co-Chairs:

Dik Lun Lee, Hong Kong University of Sci. and Tech., China

Ling Liu, Georgia Institute of Technology, USA

Timos Sellis, National Technical University of Athens, Greece

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Xiaofeng Meng, Renmin University of China, China

Hui Lei, IBM T. J. Watson Research, USA

Stephane Grumbach, INRIA, France

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Wang-Chien Lee, Pennsylvania State University, USA

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Evaggelia Pitoura, University of Ioannina, Greece

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Arkady Zaslavsky, Monash University, Australia

Demonstration Chair:

Xing Xie, Microsoft Research Asia, China

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Publication Chair:

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Wenping Chen, Renmin University of China, China

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Xing Xie, Microsoft Research Asia, China
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Lizhen Xu, Southeast University, China
Jeffrey Xu Yu, Chinese University of Hong Kong, China
Vladimir Zadorozhny, University of Pittsburgh, USA
Arkady Zaslavsky, Monash University, Australia
Donghui Zhang, Northeastern University, USA
Baihua Zheng, Singapore Management University, Singapore
Xiaofang Zhou, University of Queensland, Australia

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Alex Aved

Daniel Ayala

Carlos Bobed

Nicolas Bonvin

Joel Booth

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Hao Cheng

Kang-Hsien Chou

Vasilis Darligiannos

Tai T Do

Nima Dokoohaki

Yang Du

Wojtek Galuba

Sarunas Girdzijauskas

Parisa Haghani

Takahiro Hara

Abdul Haseeb

Ai Hua Ho

Yao Hua Ho

Haibo Hu

Ling Hu

Sergio Ilarri

Akimitsu Kanzaki

Hideyuki Kawashima

Soontharee Koombairojn

Ken Lee

Huajing Li

Yu Li

Zhisheng Li

Bing-Rong Lin

Fuyu Liu

Xingjie Liu

Yan Luo

Nikola Mitrovic

Kotaro Nakayama

Sirikunya Nilpanich

Saitung On

Himanshu Pagey

Rui Peng

Antoniya Petkova

Ali Salehi

Zhongnan Shen

Angela Siu

Piotr Szczurek

Manolis Terrovitis

Yuan Tian

Leong Hou U

Brandon Unger

Yousuke Watanabe

Jian Wen

Aihua Wu

Wei Wu

Xiangye Xiao

Fei Xie

Bo Xu

Mao Ye

Man Lung Yiu

Ning Yu

Lin Zhao
Xiangpeng Zhao

Yu Zheng
Cathy Zhong

Conference Program

Sunday, April 27, 2008

Workshops

Workshop 1: **RoSOC-M** (the Role of Services, Ontologies, and Context in Mobile Environments)

Chair: Manfred Hauswirth, Birgitta König-Ries, Wathiq Mansoor, Dumitru Roman, Jari Veijalainen

Time: April 27, 2008

Venue: 405 room, School of Business, Mingde Building

Workshop 2: **PALMS08**(Privacy-Aware Location-based Mobile Services)

Chair: Wei-Shinn Ku, Mohamed F. Mokbel, Wen-Chih Peng

Time: April 27, 2008

Venue: 406 room, School of Business, Mingde Building

Workshop 3: **SeNTIE2008**(Sensor Network Technologies for Information Explosion Era)

Chair: Takahiro Hara, Vladimir I. Zadorozhny, Manfred Hauswirth

Time: April 27, 2008

Venue: 407 room, School of Business, Mingde Building

Workshop 4: **DMCAC**(Data Management in Context-Aware Computing)

Chair: M.A. Maluk Mohamed

Time: April 27, 2008

Venue: 408 room, School of Business, Mingde Building

Welcome Reception

Time: 18:30-20:30, April 27, 2008

Venue: Ju Fuyuan, First Floor, Friendship Palace, Friendship Hotel

Monday, April 28, 2008

Opening

Session Chair: Dik Lun Lee

Time: 8:30-8:45, April 28, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

Keynote 1: Cloud Computing and Its Usage on Google Mobile

By Hanping Feng, Engineering Manager, Google China

Session Chair: Hui Lei

Time: 8:45-9:30, April 28, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

Session 1: Location Tracking of Moving Objects

Session Chair: Wang-chien Lee

Time: 10:00-12:00, April 28, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **A Flexible Spatio-Temporal Indexing Scheme for Large-Scale GPS Track Retrieval**
Longhao Wang, Yu Zheng, Xing Xie Wei-Ying Ma, Microsoft Research Asia, China
- **Efficient Cost-Based Tracking of Scheduled Vehicle Journeys**
Dalia Tiesyte, Christian S. Jensen, Aalborg University, Denmark
- **A Lattice-based Semantic Location Model for Indoor Navigation**
Dandan Li, Dik Lun Lee, Hong Kong University of science and Technology, China
- **Monitoring Moving Objects Using Low Frequency Snapshots in Sensor Networks**
Egemen Tanin, SongTing Chen, Junichi Tatemura, Wang-Pin Hsiung , NEC Labs, Cupertino, California, USA

Session 2: Data Management for Moving Objects

Session Chair: Baihua Zheng

Time: 14:00-15:30, April 28, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **UTR-Tree: An Index Structure for the Full Uncertain Trajectories of Network-Constrained Moving Objects**

Zhiming Ding, Institute of Software, Chinese Academy of Sciences, China

- **Preprocessing Position Data of Mobile Objects**

Nicola Höhle, Matthias Grossmann, Daniela Nicklas, Bernhard Mitschang, Universität Stuttgart, Germany

- **Road Network Based Adaptive Query Evaluation in VANET**

Jun Gao, Peking University, China, Jinsong Han, HKUST, Hongkong, China, Dongqing Yang, Tengjiao Wang, Peking University, China

Seminar 1: Distributed Top-K Query Processing in Wireless Sensor Networks

By Demetrios Zeinalipour-Yazti (Open University of Cyprus)

and Zografoula Vagena (Microsoft Research Cambridge)

Session Chair: Jianliang Xu

Time: 14:00-15:30 & 16:00-17:30, April 29, 2008

Venue: No.2 Lecture Hall, 2nd floor, Yifu Conference Center

Session 3: Privacy and Security

Session Chair: Ki-Joune Li

Time: 16:00-17:30, April 28, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **Secure Data Sharing in Mobile Environments**

Takashi Matsunaka, Takayuki Warabino, Yoji Kishi, KDDI R&D Laboratories, Inc., Japan

- **Privacy Preservation in the Publication of Trajectories**

Manolis Terrovitis, Nikos Mamoulis, University of Hong Kong, Hong Kong, China

- **A Profile Anonymization Model for Privacy in a Personalized Location Based Service Environment**

Heechang Shin, Vijayalakshmi Atluri, Jaideep Vaidya, Rutgers University, USA

Tuesday, April 29, 2008

Keynote 2: Strong Programming Model for Strong Weak Mobility: The ProActive Parallel Suite

By Denis Caromel, INRIA, France

Session Chair: Stephane Grumbach

Time: 8:30-9:30, April 29, 2008

Venue: No.2 Lecture Hall, 2nd floor, Yifu Conference Center

Session 4: Context-Aware Applications

Session Chair: Arkady Zaslavsky

Time: 10:00-12:00, April 29, 2008

Venue: No.2 Lecture Hall, 2nd floor, Yifu Conference Center

- **Modeling and Managing Mobile Commerce Spaces using RESTful Data Services**
S. McFaddin, D. Coffman, IBM T.J. Watson Research Center, USA, J.H. Han, H.K. Jang, J.H. Kim, J.K Lee, M.C. Lee, Y.S. Moon, IBM Ubiquitous Computing Laboratory, Seoul, Korea, C.Narayanaswami, IBM T.J. Watson Research Center, USA, Y.S. Paik(IBM Ubiquitous Computing Laboratory, Seoul, Korea, J.W. Park, IBM Ubiquitous Computing Laboratory, Seoul, Korea, D. Soroker, IBM T.J. Watson Research Center, USA
- **A Next Generation Operator Environment to Turn Context-aware Services into a Commercial Reality**
Oriana Riva, University of Helsinki, Finland, Veli-Matti Teittinen, Nokia Siemens Networks, Finland, Sebastian Siikavirta, University of Helsinki, Finland, Lasse Huovinen, Nokia Siemens Networks, Finland
- **Mobile User Profile Acquisition Through Network Observables and Explicit User Queries**
Nilton Bila, University of Toronto, Toronto, Canada, Jin Cao, Robert Dinoff, Tin Kam Ho, Richard Hull, Bharat Kumar, Paulo Santos, Bell Labs, USA
- **Follow Me, Follow You-Spatiotemporal Community Context Modeling and Adaptation for Mobile Information Systems**

Yiwei Cao, Ralf Klamma, Min Hou, RWTH Aachen University, Germany, Matthias Jarke, Fraunhofer FIT, Germany

Demo Session

Session Chair: Xing Xie

Time: 10:00-12:00, April 29, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **GeoLife: Managing and Understanding Your Past Life over Maps**
Yu Zheng, Longhao Wang, Xing Xie, Wei-Ying Ma
- **NexusEditor: A Schema-Aware Graphical User Interface for Managing Spatial Context Models**
Daniela Nicklas, Carsten Neumann
- **Mobile Mining and Information Management in HealthNet Scenarios**
Philipp Kranen, David Kensche, Saim Kim, Nadine Zimmermann, Emmanuel M'uller, Christoph Quix, Xiang Li, Thomas Gries, Thomas Seidl, Matthias Jarke, Steffen Leonhardt
- **Conceptual Modeling for Moving Objects Database Applications**
Peiquan Jin, Shouhong Wan, Lihua Yue
- **MOIR: A Prototype for Managing Moving Objects in Road Networks**
Zhiming Ding, Limin Guo, Kuien Liu, Hu Wu, Xiaofang Zhou
- **CarWeb: A Traffic Data Collection Platform,**
Chia-Hao Lo, Chien-Wen Chen, Ting-Yu Lin, Chun-Shuo Lin and Wen-Chih Peng
- **A Simulator for A Mobile Peer-to-Peer Database Environment**
Verena Kantere, Konstantina Palla, Timos Sellis
- **Spoken Dialog System for Next Generation Knowledge Access**
Hideki Kashioka, Susumu Akamine, Takafumi Nakanishi, Hisashi Miyamori, Koji Zettsu, Yutaka Kidawara, Satoshi Nakamura

Session 5: Nearest Neighbor Queries

Session Chair: Scott McFaddin

Time: 14:00-15:30, April 29, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **Processing Mutual Nearest Neighbor Queries for Moving Object Trajectories**
Yunjun Gao, Gencai Chen, Zhejiang University, China, Qing Li, City University of Hong Kong, Hong Kong, China, Baihua Zheng, Singapore Management University, Singapore, Chun Li, Zhejiang University, China
- **Safe Time: Distributed Real-time Monitoring of cKNN in Mobile Peer-to-Peer Networks**
Kihwan Kim, Ying Cai, Wallapak Tavanapong, Iowa State University, USA
- **Continuous Reverse k-Nearest-Neighbor Monitoring**
Wei Wu, Fei Yang, Chee Yong Chan, Kian-Lee Tan, NUS, Singapore

Seminar 2: Economic-based Incentive Schemes for Dynamic Data Management in Mobile P2P Computing

By Sanjay Kumar Madria and Anirban Mondal

Session Chair: Jianliang Xu

Time: 14:00-15:30 & 16:00-17:30, April 29, 2008

Venue: No.2 Lecture Hall, 2nd floor, Yifu Conference Center

Session 6: Query processing for Mobile Users

Session Chair: Zhiming Ding

Time: 16:00-17:30, April 29, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **LAOF: A New Framework to Efficiently Process Business Objects on Resource Constrained Mobile Phones**
Huaigu Wu, Josh Borts, Yi Zheng, SAP Labs, Canada
- **Location-Dependent Skyline Query**
Baihua Zheng, Singapore Management University, Singapore, Ken C. K. Lee, Wang-Chien Lee, Pennsylvania State University, University Park, USA
- **On Reducing Communication Cost for Distributed Moving Query Monitoring Systems**
Fuyu Liu, Kien A. Hua, Fei Xie, University of Central Florida Orlando, USA

Banquet & Performance

Time: 19:00-21:30, April 29, 2008

Venue: Beijing Night Show, Dayabao Hutong, Dongcheng District

Wednesday, April 30, 2008

Keynote 3: Unleashing Shared-Experience Communications for a Mobile World

By Richard Hull, Bell Labs Research, Alcatel-Lucent, USA

Session Chair: Xiaofeng Meng

Time: 8:30-9:30, April 30, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

Session 7: Data Management and Broadcasting

Session Chair: Weiwei Sun

Time: 10:00-11:30, April 30, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

- **Cyclic Data Synchronization through Reusing SyncML**

Alexander Traud, Jürgen Nagler-Ihle, Frank Kargl, Michael Weber, Ulm University, Germany

- **Mobile Data Overlay (MDO): A Data Placement Paradigm for Mobile Applications**

Yun Huang, Nalini Venkatasubramanian, University of California, Irvine, USA

- **Multi-data Delivery Based on Network Coding in On-demand Broadcast**

Chung-Hua Chu, De-Nian Yang, Ming-Syan Chen, National Taiwan University, Taiwan, China

Session 8: Query Processing in Sensor Networks

Session Chair: Takahiro Hara

Time: 10:00-11:30, April 30, 2008

Venue: No.2 Lecture Hall, 2nd floor, Yifu Conference Center

- **Workload-aware Optimization of Query Routing Trees in Wireless Sensor Networks**
Panayiotis Andreou, University Of Cyprus, USA, Demetrios Zeinalipour-Yazti, Open University of Cyprus, USA, Panos K. Chrysanthis, University of Pittsburgh, USA, George Samaras, University Of Cyprus, USA
- **Grid-based Access Scheduling for Mobile Data Intensive Sensor Networks**
Chih-kuang Lin, Vladimir Zadorozhny, Prashant Krishnamurthy, University of Pittsburgh, USA
- **Querying Imprecise Data in Sensor Databases**
Zongmin Ma, Li Yan, Northeastern University, China

Closing Remarks

Session Chair: Arkady Zaslavsky

Time: 11:30-12:00, April 30, 2008

Venue: No.2 Conference Room, 2nd floor, Yifu Conference Center

Keynotes

Keynote: Strong Programming Model for Strong Weak Mobility: The ProActive Parallel Suite

By Denis Caromel, INRIA, France

ABSTRACT

ProActive (<http://proactive.inria.fr/>) is a Java library (Source code under GPL license) for parallel, distributed, and concurrent computing, also featuring mobility and security in a uniform framework. ProActive aimed at simplifying the programming of applications that are distributed on Local Area Network (LAN), on cluster of workstations, or large scale Grids. ProActive promotes a strong NoC approach, Network On Ship, to cope seamlessly with both distributed and shared-memory multi-core machines. A theoretical foundation ensures constant behavior, whatever the environment.

ProActive features location tracking of moving objects, together with a strong programming model that makes it very suitable for global computing infrastructure.

Interactive and graphical GUI of the ProActive Parallel Suite will also be presented during the talk.

References: <http://proactive.inria.fr/>

A Theory of Distributed Objects (book):

D. Caromel, L. Henrio - Springer, 2005

<http://www-sop.inria.fr/oasis/Denis.Caromel/TDO/>

ProActive research and developments are conducted with all the great researchers and developers from the OASIS Team: <http://www-sop.inria.fr/oasis/>

University of Nice-Sophia Antipolis, INRIA, CNRS-I3S

BIOGRAPHY



Denis Caromel is full professor at University of Nice-Sophia Antipolis and CNRS-INRIA. He is also member of the Institut Universitaire de France (IUF), a multi-disciplinary national academia that select a few professors based on the excellence of their research records. His research interests include parallel, concurrent, and distributed object-oriented programming. He has published more than 70 scientific papers in referred international journals and conferences, and edited 5 volumes of Lecture Notes. In 2005 he published a monograph, *A Theory of Distributed Objects*. He gave many invited talks on Object, concurrency, and Distributed Computing at various universities around the world (including Jet Propulsion Laboratory, Berkeley, Stanford, Harvard Medical School, ISI, USC, Electrotechnical Laboratory Tsukuba, Univ. of Sydney, Univ. of Adelaide, Univ. Federal de Rio, University College London, European Science Foundation). He was also an invited visiting scientist at various universities and research institutions (including Digital System Research Center in Palo Alto, NASA Langley Research Center in Hampton, Virginia, and IBM Tom Watson). He serve(s/d) many academic conferences, at various positions (Conference Chair, Program Committee Chair, Organizer Chair, Tutorials Chair).

He recently created the startup ActiveEon, dedicated to Parallel, Distributed, and Grid Computing. <http://www.ActiveEon.com>.

<http://www-sop.inria.fr/oasis/Denis.Caromel/>

Keynote: Unleashing Shared-Experience Communications for a Mobile World

By Richard Hull, Bell Labs Research, Alcatel-Lucent, USA

ABSTRACT

Recent years have brought several dramatic advances in mobile services, including data and web services, mash-ups, and rich improvements in mobile handsets and their interfaces. But the user's control and experience of shared and real-time communication services remains essentially unchanged. For example, audio calls, streaming video, and Instant

Messaging are generally supported by silo technologies in the underlying network, with different styles of access and little or no support for creating true blends of these services.

This talk describes an approach under development at Bell Labs that enables easy access and control of shared-experience communication services, and overcomes the separations between the underlying silos. The central premise of the Session Data Type (SDT) framework is, conceptually, to treat a shared-experience communication session as an evolving database, or more specifically, as a rich state machine. An API, which will be supported through WSDL and HTTP, provides access to the current state of the session along with events from the network, including in-band signaling. Applications can query the state, can respond to events explicitly, or can dynamically load event-handling policies into the network. The event handling can include adding/dropping participants from sessions and sub-sessions; launching, merging, and splitting of (sub-)sessions; and invoking other communication and web services.

The talk also describes how SDTs can enable a broad variety of blended services, discusses key aspects of integrating SDTs into telecommunications networks, draws parallels to current advances in web services, and overviews the many open research questions that the SDT framework raises.

(This work is joint with Al Aho of Columbia University, and Bob Arlien, Dennis Dams, Rob Dinoff, John Letourneau, Kedar Namjoshi, Frans Panken, and H. van Tellingén of Bell Labs.)

BIOGRAPHY



Richard Hull is Director of Computing and Software Principles Research at Bell Labs Research, a division of Alcatel-Lucent. Hull has broad research interests in the areas of data and information management, and web and converged services. Hull is co-author of the book "Foundations of Databases" (Addison-Wesley); has published over 100 articles in journals, conferences and books; and holds six U.S. patents. Before joining Bell Labs he served on

the faculty of Computer Science at the University of Southern California, and was a frequent visitor at INRIA in France. His research has been supported in part by grants from NSF, DARPA, and AT&T. Hull was named Bell Labs Fellow in 2005 and ACM Fellow in 2007.

Hull's current research is focused on web services, workflow, pervasive computing, and personalization. In recent years he has been instrumental in developing and transferring new technologies into Alcatel-Lucent's product line, including the Vortex policy engine and the Datagrid data integration tool. In the web services area he has been active with the Semantic Web Services Framework (SWSF) consortium, and has developed foundational results on automated composition of semantic web services and business processes.

Keynote: Cloud Computing and Its Usage on Google Mobile

By Hanping Feng(Engineering Manager, Google China)

BIOGRAPHY



Hanping Feng joined Google Inc. in 2003. He is currently an engineering manager with Google China, acting as the technical lead for mobile product development in China. He is also responsible of growing the mobile R&D team in China. Hanping Feng received his bachelor degree and master degree with Xi'an Jiaotong University, in 1997 and 2000, correspondingly. He got his Ph.D. in Electrical and Computer Engineering with University of Massachusetts, in 2005.

Seminars

Seminar 1: Distributed Top-K Query Processing in Wireless Sensor Networks

By Demetrios Zeinalipour-Yazti (Open University of Cyprus)

and Zografoula Vagena (Microsoft Research Cambridge)

ABSTRACT:

Wireless Sensor Networks create an innovative technology that enables users to monitor and study the physical world at an extremely high resolution. Query processing in such ad-hoc environments is a challenging task due to the complexities imposed by the inherent energy and communication constraints. To this end, the research community has proposed to take into account user-defined parameters in order to derive the K most relevant (or Top-K) answers quickly and efficiently. A Top-K query returns the subset of most relevant answers, in place of all answers, for two reasons: i) to minimize the cost metric that is associated with the retrieval of all answers; and ii) to improve the recall and the precision of the answer set, such that the user is not overwhelmed with irrelevant results.

This tutorial presents the fundamental concepts behind distributed Top-K query processing and the adaptations of these algorithms to distributed and wireless sensor networks. It additionally provides a gentle overview of rudimentary and advanced techniques covering a significant body of research in this domain. The tutorial will start out with an overview of the most influential centralized and middleware Top-K query processing algorithms and then proceed with an elaborate description of distributed Top-K ranking algorithms for *One-time Top-K Queries*, *Continuous Top-K Queries* and *Approximate Top-K Queries*. Finally, it will provide an outlook to compelling future applications that can be constructed on the foundation of these algorithms. Although the tutorial is specifically geared towards Wireless Sensor Networks, many of the presented ideas find extensions in other mobile environments such as *Adhoc Networks*, *Vehicular Networks* and *the Mobile Web*.

BIOGRAPHY



Dr Demetrios Zeinalipour-Yazti (PhD, University of California, Riverside, 2005) is a Lecturer of Computer Science at the Open University of Cyprus. Before that he was a Visiting Lecturer at the University of Cyprus. He has also spent a research internship at Akamai Technologies (MA, USA). His primary research interests include Distributed Query Processing, Storage and Retrieval Methods for Sensor and Peer-to-Peer Systems and Network Data Management. He is a member of ACM, IEEE and USENIX. For more information, please visit: <http://is.ouc.ac.cy/~zeinalipour/>



Dr Zografoula Vagena (PhD, University of California, Riverside, 2005) recently joined the Systems and Networking Group of Microsoft Research in Cambridge, UK. Before that she was a Postdoctoral Research Associate at the IBM Almaden Research Center (CA, USA). She has also spent research internships at IBM Almaden Research (CA, USA), AT&T Labs (NJ, USA) and Microsoft Research Redmond (WA, USA). Her primary research interests include Query Processing and Optimization, Text Indexing and Retrieval and XML Data Management. She is a member of ACM.

Seminar 2: Economic-based Incentive Schemes for Dynamic Data Management in Mobile P2P Computing

By Sanjay Kumar Madria(University of Missouri-Rolla, USA)
and Anirban Mondal(University of Tokyo, Japan)

ABSTRACT:

Data Management in Mobile Peer to Peer (M-P2P) systems needs dynamic data management due to mobility and fragile wireless connection connecting resource constraint devices. Traditional methods of data management and services in mobile P2P environment generally assume all peers to cooperate. Since peer activities in M-P2P are not generally monitored, users assume that they are free to use the resources anyway they like. Under this feeling of freedom, a subset of users (free riders) begins to consume much more resources available on M-P2P than they wish to contribute. In addition, due to the dynamic nature of moving hosts, topology changes very often and traditional schemes fall short in providing

reasonable data availability. This becomes much more important in M-P2P where the network communication is generally multi-hop and intermediate peers have to render relay services other than data providers to improve the connectivity. Economic-based incentive schemes have been proposed which may play a better role in inciting free riders to collaborate. The data and service availability can be increased by associating a price with data items and services. In such schemes, peers can bid for better services, intermediate peers can earn incentives by providing relay services and in fact, outgoing peers can lease data items to others to still earn incentives while disconnected. New peers can become data providers by providing hosting services to earn incentives. This tutorial will explore issues involved in managing resources using Economic incentives.

BIOGRAPHY



Sanjay Kumar Madria received his Ph.D. in Computer Science from Indian Institute of Technology, Delhi, India in 1995. He is an Associate Professor, Department of Computer Science at the University of Missouri-Rolla, USA. Earlier he was Visiting Assistant Professor in the Department of Computer Science, Purdue University, West Lafayette, USA. He has published more than 120 Journal and conference papers in the areas of mobile and sensor data management. He has organized International conferences, workshops and presented tutorials in the areas of mobile computing. He has given invited talks and served as panelists in National Science Foundation, USA and Swedish Research Council. His research is supported by NSF, DOE, UMRB and industrial grants for over \$1.2M. He was awarded JSPS fellowship in 2006 and University of Missouri-Rolla's Faculty Excellence award in 2007. He is IEEE Senior Member.



Anirban Mondal received his Ph.D. degree in 2002 from the National University of Singapore. He is currently doing research at the Center for Information Fusion, University of Tokyo, Japan . He has publications in several international conferences and workshops. He has participated in the program committee of several international conferences and acted as a reviewer for journals such as IEEE TKDE. His research interests include spatial databases,

clusters, spatial indexing, peer-to-peer computing, GRID computing, load-balancing in distributed systems, and mobile computing.

MDM 2008 Workshops

RoSOC-M (the Role of Services, Ontologies, and Context in Mobile Environments)

Time: April 27, 2008

Venue: 405 room, School of Business ,Mingde Building

08:00-08:15 Opening of the workshop

08:15-09:45

Session 1: Mobile context-aware services and technologies

Chair: TBA

- **Adaptive Caching Scheme for Heterogeneous Mobile Devices and Wireless Networks: a Service Oriented Perspective**
Fan Ye, Qing Li and EnHong Chen
- **Locally Differential Map Update Method with Maintained Road Connections for Telematics Services**
Akinori Asahara, Masaaki Tanizaki, Michio Morioka and Shigeru Shimada.
- **Leveraging Multi-Agent Systems Backed by Semantic Web for the Delivery of Innovative Value Added Mobile Telecommunications Services**
Ahmet Feyzi Ates and R. Cenk Erdur.

09:45-10:15 Coffee break

10:15-11:45

Session 2 : Mobile ontologies in action

Chair: TBA

- **Ontology-based Context Life Cycle Modeling for Building Smarter Applications in Ubiquitous Computing Environments**
Hyunjun Chang, Seokkyoo Shin and Changshin Chung.
- **Ontology-based Use Cases for Design-time and Runtime Composition of Mobile**

Services

Michal Roj, Per Håkon Meland, Jacqueline Floch and Jaroslaw Domaszewicz.

- **Towards Context-Aware Semantic Web Service Allocation in Mobile Environments**

Stefan Dietze, Alessio Gugliotta and John Domingue.

PALMS08(Privacy-Aware Location-based Mobile Services)

Time: April 27, 2008

Venue: 406 room, School of Business, Mingde Building

8:50-9:00 Opening Remarks

9:00-10:30

Session 1

Chair: Wen-Chih Peng (National Chiao Tung University, Taiwan)

- **p-Sensitivity: A Semantic Privacy-Protection Model for Location-based Services**
Zhen Xiao, Jianliang Xu, and Xiaofeng Meng
- **SPIRAL:A Scalable Private Information Retrieval Approach to Location Privacy**
Ali Khoshgozaran, Houtan Shirani-Mehr and Cyrus Shahabi
- **How much Room before you Rely: Balancing Privacy control and Fidelity in the Location-based Pervasive Applications**
Nilothpal Talukder and Sheikh I Ahamed

10:30 – 10:50 Coffee break

11:00-12:30:

Session 2

Chair: Jianliang Xu (Hong Kong Baptist University, Hong Kong)

- **Generating Virtual Users with Real Path Information to Improve Location Privacy**
Hubert Kreuzpointner and Robert Eigner
- **Context-Based Privacy Protection for Location-Based Mobile Services using Pseudonyms**
Joachim Zeiss and Oliver Jorns
- **Cache Management Techniques for Privacy Protected Location-based Services**
Yu Chen, Jie Bao, Wei-Shinn Ku, and Jiun-Long Huang

12:40-13:30: Lunch Break

SeNTIE2008(Sensor Network Technologies for Information Explosion Era)

Time: April 27, 2008

Venue: 407 room, School of Business, Mingde Building

8:45-9:00 Opening

9:00-10:15 Invited talk

10:15-10:30 Coffee break

10:30-12:00

Session1: Data Stream Processing

- **Real-Time Monitoring of Mobile Biological Sensor Data-Streams: Architecture and Cost-Model**
Alfredo Goni, Jimena Rodriguez, Alfredo Burgos, Arantza Illarramendi Lacramioara Dranca
- **Lineage-based Probabilistic Event Stream Processing**
Zhitao Shen, Hideyuki Kawashima, Hiroyuki Kitagawa
- **The Integration of Data Streams with Probabilities and a Relational Database using Bayesian Networks**
Ryo Sato, Hideyuki Kawashima, Hiroyuki Kitagawa

12:00-14:00 Lunch break

14:00-15:30

Session2: Mobile Sensor Networks

- **On a Mobile Sensor Control Method for Uniform Sensing in Sparse Sensor Networks**
Kriengsak Treeprapin, Akimitsu Kanzaki, Takahiro Hara, Shojiro Nishio
- **Mobile Sensor Control Methods for Reducing Power Consumption in Sparse Sensor Network**

Tatsuya Shinjo, Shinya Kitajima, Takefumi Ogawa, Takahiro Hara, Shojiro Nishio

- **Maximizing Lifetime and Coverage of Wireless Sensor Networks with Mobile Sensor Nodes**

Ryo Katsuma, Yoshihiro Murata, Naoki Shibata, Keiichi Yasumoto, Minoru Ito

15:30-16:00 Coffee break

16:00-17:30

Session3: Mobile Ad Hoc and Ubiquitous Networks

- **Estimating the Relevance of Information in Inter-Vehicle Ad Hoc Networks**

Thierry Delot, Nicolas Cenerario, Sergio Ilarri

- **Contact-based Notation for Describing Rules on Sensor Nodes**

Takeshi Kanda, Yutaka Yanagisawa, Michita Imai, Yasue Kishino, Takuya Maekawa, Takeshi Okadome

- **Information Dissemination of Location Dependent Data in Consideration of Connectivity and Network Partition in Mobile Ad Hoc Sensor Networks**

Gen Tsuchida, Susumu Ishihara (Shizuoka University)

17:30-17:45 Closing

DMCAC08(Data Management in Context-Aware Computing)

Time: April 27, 2008

Venue: 408 room, School of Business, Mingde Building

9:00-12:00

Chair: Jidong Chen (EMC Research China, China)

- **Network Distance Based Cache Replacement Policy for Location-Dependent Data in Mobile Environment**
Mary Magdalene Jane. F , Yaser Nouh and R.Nadarajan
- **Proactive Replica Placement Using Mobility Prediction**
Julien Gossa, Andreas G. Janecek, Jean-Marc Pierson, Karin A. Hummel, Wilfried N. Gansterer
- **Cost Efficient Data Collection of Sensory Originated Data using Context-Aware Mobile Devices**
Prem Prakash Jayaraman, Arkady Zaslavsky, Jerker Delsing
- **Context Driven Compositional Adaptation of Mobile Agents Kutila Gunasekera**
Arkady Zaslavsky, Seng Wai Loke and Shonali Krishnaswamy

Registration

April 26

16:00 ~ 21:00 Jingbin building (Building 2), Friendship Hotel

April 27

8:30 ~ 16:00 4th Floor, School of Business, Mingde Building

April 28

8:30 ~ 16:00 2th Floor, Yifu Conference Center

April 29

8:30 ~ 16:00 2th Floor, Yifu Conference Center

April 30

8:30 ~ 11:00 2th Floor, Yifu Conference Center

Social Program

Welcome Reception

Time: 18:30-20:30, April 27, 2008

Venue: Ju Fuyuan, First Floor, Friendship Palace, Friendship Hotel

Banquet & Performance

Time: April 29, 19:00~21:30

Venue: Beijing Night Show, Dayabao Hutong, Dongcheng District

Departure: Participants will get on the bus at the *Yifu Conference Center* at 17:45



Map of Friendship Hotel



北京友谊宾馆示意图
Plan of Beijing Friendship Hotel

Friendship Hotel to Renmin University

