DASFAA

Database Systems for
Advanced Applications
Hong Kong 2011

22-25 April, 2011, Hong Kong

THE 16TH INTERNATIONAL CONFERENCE
on Database Systems for Advanced Applications

Organizers :

香港城市大學
City University
of Hong Kong

香港中文大學
The Chinese University of Hong Kong

香港浸會大學
HONG KONG BAPTIST UNIVERSITY

The Hong Kong
POLYTECHNIC UNIVERSITY
香港理工大學

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THE HONG KONG
UNIVERSITY OF SCIENCE
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THE UNIVERSITY OF HONG KONG

DASFAA
Database Systems for Advanced Applications
Hong Kong 2011

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DASFAA is an annual international database conference, which showcases state of-the-art R&D activities in database systems and their applications. It provides a forum for technical presentations and discussions among database researchers, developers and users from academia, business and industry. It is our great pleasure to have your participation and supports for the 16th International Conference on Database Systems for Advanced Applications (DASFAA 2011).

DASFAA 2011 received 225 research paper submissions from 32 countries / regions (based on the affiliation of the first author). After a thorough review, DASFAA 2011 accepted 53 full research papers, 12 short research papers, four industrial papers and eight demo papers. DASFAA 2011 also invited two leading experts in database research and advanced applications as keynote speakers - Josephine M. Cheng of IBM Research Almaden Lab and Divy Agrawal of University of California at Santa Barbara, with their papers entitled "Smarter Planet: Empower People with Information Insights" and "Database Scalability, Elasticity, and Autonomy in the Could," respectively. The DASFAA 2011 ten-year best paper on the topic "A Logical Foundation for Deductive Object-Oriented Databases" will be presented by the authors Mengchi Liu (Carleton University), Gillian Dobbie (University of Auckland), and Tok Wang Ling (National University of Singapore); three tutorial abstracts, "Managing Social Image Tags: Methods and Applications" by Aixin Sun and Sourav S. Bhowmick, "Searching, Analyzing and Exploring Databases" by Yi Chen, Wei Wang and Ziyang Liu, and "Web Search and Browse Log Mining: Challenges, Methods, and Applications" by Daxin Jiang and one panel discussion "Challenges in Managing and Mining Large, Heterogeneous Data", mediated by Wei Wang are also included. Beyond the main conference, six workshops will be held in conjunction with DASFAA 2011. They are the First InternationalWorkshop on Graph-structured Data Bases (GDB 2011), the First International Workshop on Spatial Information Modeling, Management and Mining (SIM3), the International Workshop on Flash-Based Database Systems (FlashDB), the Second International Workshop on Social Networks and Social Media Mining on the Web (SNSMW), the First International Workshop on Data Management for Emerging Network

Infrastructures (DaMEN), and the 4th International Workshop on Data Quality in Integration Systems (DQIS).

DASFAA 2011 was jointly organized by The Chinese University of Hong Kong, The Hong Kong University of Science and Technology, Hong Kong Baptist University, The University of Hong Kong, City University of Hong Kong, and The Hong Kong Polytechnic University. It received in-cooperation sponsorship from the China Computer Federation Database Technical Committee. We are grateful to the sponsors who contributed generously to making DASFAA 2011 successful. They are the Department of Systems Engineering and Engineering Management of The Chinese University of Hong Kong, Oracle, IBM, K.C. Wong Education Foundation, and Hong Kong Pei Hua Education Foundation. The conference would not have been possible without the support of many colleagues. We would like to express our special thanks to Honorary Conference Cochairs, Xingui He (Peking University), ShanWang (Renmin University of China), and Kyu-Young Whang (KAIST) for their valuable advice on all aspects of organizing the conference. We thank Organizing Committee Chair Kam-Fai Wong (The Chinese University of Hong Kong), Publicity Co-chairs, Raymond Wong (The Hong Kong University of Science and Technology), Xiaochun Yang (Northeastern University), and Xiaofang Zhou (University of Queensland), Publication Chair Rainer Unland (University of Duisburg-Essen), Finance Chair Vincent Ng (The Hong Kong Polytechnic University), Local Arrangements Chair Hongva Leong (The Hong Kong Polytechnic University), Sponsor Chair Joseph Ng (Hong Kong Baptist University), Best Award Committee Co-chairs Ming-Syan Chen (Academia Sinica, Taiwan and National Taiwan University) and Aoying Zhou (East China Normal University), and Demo Award Committee Co-chairs Ben Kao (The University of Hong Kong) and Lizhu Zhou (Tsinghua University). Our thanks go to all the committee members and other individuals involved in putting it all together, and all authors who submitted their papers to this conference.

Finally, we wish you enjoy DASFAA 2011 and the lovely city of Hong Kong.

Conference General Co-Chairs:

Dik Lun LEE,
The Hong Kong University of Science and Technology

Wang-Chien LEE,
Penn State University

Kamal KARLAPALEM,
IIIT-Hyderabad

Professor Benjamin W. Wah,
Provost and Wei Lun Professor of Computer Science and Engineering,
The Chinese University of Hong Kong

Professor Benjamin Wah was the Franklin W. Woeltge Endowed Professor of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign, and is a prominent computer scientist, with expertise in non-linear programming, multimedia signal processing and artificial intelligence. He is a fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Association for Computing Machinery (ACM), and the American Association for the Advancement of Science (AAAS) and has served as the President of IEEE Computer Society. Professor Wah has received numerous international honours and awards for his distinguished academic and professional achievements. Among these are the W. Wallace McDowell Award, the Tsutomu Kanai Award and the Richard E. Merwin Distinguished Service Award of the IEEE Computer Society.

In 1998-99, Professor Wah was Professor of Computer Science and Engineering at CUHK, and in that year received an Exemplary Teaching Award. His bonds with the University continued afterwards as he served in the capacity of Adjunct Professor in the Department from 1999 to 2003.

Professor Wah has also long been committed to enhancing the development of higher education and research in Hong Kong. He was a member of the Research Grants Council of the University Grants Committee in Hong Kong between 2005 and 2009, and served as the Chairman of its Engineering Panel between 2006 and 2009.

Born and brought up in Hong Kong, Professor Wah graduated from Queen Elizabeth School and pursued further studies in the US. He received his BS and MS in Electrical Engineering and Computer Science from Columbia University, and his MS in Computer Science and PhD in Engineering from the University of California, Berkeley. He began teaching in Purdue University in 1979, and later joined the University of Illinois at Urbana-Champaign in 1985. He also served as Director of the Advanced Digital Sciences Centre established by the University of Illinois in Singapore in 2009, with funding from the Singapore government's Agency for Science, Technology and Research.

22 April 2011 - Workshops

	GDB 2011 (LT7, Level 3)	SIM3 (Room 201, Level 2)	FlashDB (LT8, Level 3)	SNSMW (LT6, Level 2)	DaMEN (LT4, Level 2)	DQIS (LT5, Level 2)
8:00-8:15	Registration					
8:15-8:30		SIM3				
8:30-8:45				SNSMW		
8:45-9:00	GDB 2011					(Start at 8:40) DQIS
9:00-10:00		(End at 10:05)	FlashDB		DaMEN	
10:00-10:30	Refreshment (Foyer, Level 2)					
10:30-12:00	GDB 2011	(Start at 10:25) SIM3	FlashDB	SNSMW	DaMEN	DQIS
12:00-14:00	Lunch (SCR Club House, The Chinese University of Hong Kong)					
14:00-15:00	GDB 2011		FlashDB (Refreshment Break at 15:00)	SNSMW	DaMEN	DQIS
15:00-15:30	(End at 15:10)		Refreshment			
15:30-16:00	Refreshment		FlashDB	Refreshment		
16:00-17:00				SNSMW		
17:00-17:50						

23 April 2011 - Main Conference

8:00-8:30	Welcome tea/coffee (Foyer, Level 2)
8:30-9:00	Opening (LT1, Level 2)
9:00-10:00	Keynote 1: Database Scalability, Elasticity, and Autonomy in the Cloud Divyakant Agrawal, Amr El Abbadi, Sudipto Das, and Aaron Elmore (LT1, Level 2)
10:00-10:30	Refreshment Break (Foyer, Level 2)
10:30-12:10	Research Paper Presentation Session 1: Similarity (LT1, Level 2) / Research Paper Presentation Session 2: Social Network (LT6, Level 2) / Research Paper Presentation Session 3: Graph (LT5, Level 2)
12:10-14:00	Lunch (Happiness Cuisine, Hong Kong Science Park)
14:00-15:40	Research Paper Presentation Session 4: Probability and Uncertainty (LT1, Level 2) / Research Paper Presentation Session 5: Data Mining I (LT6, Level 2) / Industrial Paper Presentation Session (LT5, Level 2) / Tutorial 1 (Room201, Level 2)
15:40-16:10	Refreshment Break (Foyer, Level 2)
16:10-18:15	Research Paper Presentation Session 6: Indexing and High Performance (LT1, Level 2) / Research Paper Presentation Session 7: Query Processing I (LT6, Level 2) / Research Paper Presentation Session 8: XML and Graph (LT5, Level 2) / Tutorial 1 (Room201, Level 2)
18:30-20:30	Reception (Foyer, Level 2)

24 April 2011 - Main Conference

8:00-8:30	Welcome tea/coffee (Foyer, Level 2)			
8:30-10:00	Award ceremony and Plenary Speech: 10 year best paper award (LT1, Level 2)			
10:00-10:30	Refreshment Break (Foyer, Level 2)			
10:30-12:00	Panel Discussion (LT1, Level 2)			
12:00-14:00	Lunch (Chung Chi Staff Club, The Chinese University of Hong Kong)			
14:00-15:40	Research Paper Presentation Session 9: Search and Digital Preservation (LT1, Level 2)	Research Paper Presentation Session 10: Social Network and Privacy (LT6, Level 2)	Demo Session 1: (Room 211, Level 2)	Tutorial 2 (Room201, Level 2)
15:40-16:10	Refreshment Break (Foyer, Level 2)			
16:10-18:15	Research Paper Presentation Session 11: Stream Processing (LT1, Level 2)	Research Paper Presentation Session 12: Query Processing II (LT6, Level 2)	Demo Session 2: (Room 211, Level 2)	Tutorial 2 (Room201, Level 2)
18:15-22:00	DASFAA2011 Banquet (Serenade, Tsim Sha Tsui)			

25 April 2011 - Main Conference

8:30-9:00	Welcome tea/coffee (Foyer, Level 2)			
9:00-10:00	Keynote 2: Smarter Planet: Empower People with Information Insights Josephine M. Cheng (LT1, Level 2)			
10:00-10:20	Refreshment Break (Foyer, Level 2)			
10:20-12:00	Research Paper Presentation Session 13: Spatial Queries (LT1, Level 2)	Research Paper Presentation Session 14: Data Mining II (LT6, Level 2)	Research Paper Presentation Session 15: XML (LT5, Level 2)	Tutorial 3 (Room201, Level 2)
	End of Conference			

Divy Agrawal

Department of Computer Science
University of California at Santa Barbara

Database Scalability, Elasticity, and Autonomy in the Cloud

Abstract:

Over the past two decades, database and systems researchers have made significant advances in the development of algorithms and techniques to provide data management solutions that carefully balance the three major requirements when dealing with critical data: high availability, reliability, and data consistency. However, over the past few years the data requirements, in terms of data availability and system scalability, from Internet scale enterprises that provide services and cater to millions of users has been unprecedented. Cloud computing has emerged as an extremely successful paradigm for deploying Internet and Web-based applications. Scalability, elasticity, pay-per-use pricing, and autonomic control of large-scale operations are the major reasons for success and widespread adoption of cloud infrastructures. Current proposed solutions to scalable data management, driven primarily by prevalent application requirements, significantly downplay the data consistency requirements and instead focus on high scalability and resource elasticity to support data-rich applications for millions to tens of millions of users. In particular, the "newer" data management systems limit consistent access only at the granularity of single objects, rows, or keys, thereby significantly trading-off consistency in order to achieve very high scalability and availability. But the growing popularity of "cloud computing", the resulting shift of a large number of Internet applications to the cloud, and the quest towards providing data management services in the cloud, has opened up the challenge for designing data management systems that provide consistency guarantees at a granularity which goes beyond single rows and keys. In this talk, we analyze the design choices that allowed modern scalable data management systems to achieve orders of magnitude higher levels of scalability compared to traditional databases. With this understanding, we highlight some design principles for data management systems that can be used to augment existing databases with new cloud features such as scalability, elasticity, and autonomy. In this talk we present recent advances that have been made to strike a middle-ground between the two radically different data management architectures: traditional database management systems where the data is treated as a "whole" versus modern key-value stores where data is treated as a collection of independent "granules".

Speaker Biography:

Dr. Divyakant Agrawal is a Professor of Computer Science at the University of California at Santa Barbara. His research expertise is in the areas of database systems, distributed computing, data warehousing, and large-scale information systems. From January 2006 through December 2007, Dr. Agrawal served as VP of Data Solutions and Advertising Systems at the Internet Search Company ASK.com. Dr. Agrawal has also served as a Visiting Senior Research Scientist at the NEC Laboratories of America in Cupertino, CA from 1997 to 2009. During his professional career, Dr. Agrawal has served on numerous Program Committees of International Conferences, Symposia, and Workshops and served as an editor of the journal of Distributed and Parallel Databases (1993-2008), the VLDB journal (2003-2008) and currently serves on the editorial boards of the Proceedings of the VLDB and ACM Transactions on Database Systems. He recently served as the Program Chair of the 2010 ACM International Conference on Management of Data and served as the General Chair of the 2010 ACM SIGSPATIAL Conference on Advances in Geographical Information Systems. In 2011, Dr. Agrawal is organizing the NSF Workshop on the Science of Cloud Computing and will be serving as the General Co-Chair of ACM SIGSPATIAL Conference on Advances in GIS (ACM GIS'2011). Dr. Agrawal's research philosophy is to develop data management solutions that are theoretically sound and are relevant in practice. He has published approximately 300 research manuscripts in prestigious forums (journals, conferences, symposia, and workshops) on wide range of topics related to data management and distributed systems and has advised more than 30 Doctoral students during his academic career. Recently, Dr. Agrawal has been recognized as an Association of Computing Machinery (ACM) Distinguished Scientist. His current interests are in the area of scalable data management and data analysis in Cloud Computing environments, security and privacy of data in the cloud, and scalable analytics over social networks data and social media.

Josephine Cheng
IBM Fellow and Vice President
IBM Research - Almaden, San Jose, California

Smarter Planet: Empower People with Information Insights

Abstract:

We are all now connected – economically, technically and socially. Our planet is becoming smarter. Infusing intelligence into the way the world literally works – the systems and processes that enable physical goods to be developed, manufactured, bought and sold… services to be delivered… everything from people and money to oil, water and electrons to move… and billions of people to work and live. All these become possible via information integration scattering in many different data sources: from the sensors, on the web, in our personal devices, in documents and in databases, or hidden within application programs. Information is exploding with large amount of data generated every second. It creates many challenges in securely storing, managing, integrating, cleansing, analyzing and governing the massive generated information besides the privacy issue. This can be a difficult or time consuming endeavor. This talk describes some information-intensive tasks, choosing examples from such areas as healthcare, science, the business world and our personal lives. I will discuss the barriers to getting information together, delivering it to the people that need it, in a form they can understand, analyzing the diverse spectrum of information, giving insights to the decision makers. I will review key research on information integration and information interaction, indicate how the combination may enable real progress, and illustrate where research challenges remain.

Speaker Biography:

Ms. Cheng oversees the work of more than 400 scientists and engineers doing exploratory and applied research in various hardware, software and service areas, including nanotechnology, materials science, storage systems, data management, web technologies, workplace practices and user interfaces.

Prior to her role at IBM Almaden Research Center, Josephine was vice president, IBM China Development Laboratory, responsible for software development for IBM Software Group. She led a development team of over 3,000 employees located at three sites, Beijing, Shanghai and Taipei. Josephine has been at the forefront of relational database technology for more than 20 years.

She currently holds about 28 patents. Josephine was appointed IBM Fellow in 2000. She received the Asian American Engineer of the Year award in 2003. She was inducted into the United States National Academy of Engineering (NAE) in 2006 and received the Top 10 Software Leaders in China honor in 2007, as well as the UCLA School of Engineering Alumna of the Year Award in 2010.

Currently, she is on the advisory board for Computer Science Engineering of the University of California Berkeley and University of Miami; and Engineering Council of the San Jose State University, Josephine also serves on the advisory board of the Center for Information Technology Research in the Interest of Society (CITRIS), Bay Area Science and Innovation Consortium (BASIC) Board and Anita Borg Institute for Women and Technology Board.

Outstanding Contributions Award

Kyu-Young WHANG
Computer Science Department
Korea Advanced Institute of Science and Technology

Abstract:

Prof. Kyu-Young Whang received the BS from Seoul National University in 1973, MS degrees from KAIST in 1975 and from Stanford University in 1982, and PhD degree from Stanford University in 1984. From 1983 to 1991, he was a Research Staff Member at IBM T. J. Watson Research Center, Yorktown Heights, NY. In 1990, he joined KAIST, where he currently is a KAIST Distinguished Professor at the Department of Computer Science.

Prof. Kyu-Young Whang made a significant effort in promoting database research in the Asia/Pacific region as well as in Korea. As an early contributor, he actively involved in the DASFAA organizing activities by serving as the Program Vice Chair of the 2nd DASFAA in 1991 and the general chair of DASFAA 2004 hosting it in Seoul. He significantly contributed to DASFAA by serving as the SC member (1999-2004), SC Secretary (2004-2005), SC Vice Chair (2005-2007), SC Chair (2007-2009), and SC Advisor (2009-present) with 12 years of service in total until today. During his tenure as the Chair and an executive, he made a lot of effort to make DASFAA a prestigious international conference and to promote a sense of the "DASFAA community" by instituting the DASFAA 10+ year award, the outstanding contributions award, and the SC emeriti reception, where all the DASFAA ex-contributors can be invited. When he organized DASFAA 2004, he made the DASFAA proceedings to be part of Springer's LNCS series.

Besides hosting VLDB 2006, DASFAA 2004, and PAKDD 2003 as the general chair and APWeb 2010 as the honorary general chair, he led the Korean database and computer science community as the chair of Korea Information Science Society (KISS--currently, KIISE) SIGDB (1992-1994), Vice President of KISS (1999-2000), and President of KISS (2007).

Prof. Whang also made a significant worldwide contribution to database research by serving as an Editor-in-Chief (2003-2007) and the coordinating Editor-in-Chief (2007-2009) of The VLDB Journal, Program co-chair of VLDB2000, IEEE ICDE 1989, 2006, and CoopIS 1998, as a Trustee of The VLDB Endowment (1998-2004, 2010-present), and as a steering committee member of IEEE ICDE. He also actively involved in ensuring high standards of academic work by serving on prestigious awards committees including the ACM SIGMOD Jim Gray Dissertation Award Committee (2008-present), VLDB 10-Year Best Paper Award Committee ('03, '05, '06, '10), and IEEE ICDE Influential Paper Award Committee ('04–'08).

Prof. Whang is an ACM Fellow, an IEEE Fellow, and a member of IFIP WG 2.6.

10-Year Best Paper Award

Authors:

Mengchi Liu
State Key Lab of Software Engineering,
Wuhan University,
China

Gillian Dobbie
Department of Computer Science,
University of Auckland,
New Zealand

Tok Wang Ling
School of Computing,
National University of Singapore,
Singapore

A Logical Foundation for Deductive Object-Oriented Database

Abstract:

Deductive databases and object-oriented databases (DOOD) are two important extensions of the traditional relational database technology.

Deductive databases provide a rule-based language called Datalog (Datalog with negation) that uses function-free Horn clauses with negation to express deductive rules, and is a simplified version of the logic programming language Prolog. A deductive database consists of an extensional database and an intensional database. The extensional database (EDB) consists of the relations stored in a relational database whereas the intensional database (IDB) consists of a Datalog¬ program that is a set of deductive rules used to derive relations that are the logical consequences of the program and the extensional database. Datalog is more expressive than pure relational query languages such as relational algebra and relational calculus as it supports recursive deductive rules and recursive queries. Moreover, deductive databases have a firm logical foundation that consists of both model-theoretic semantics in terms of the minimal model, the stable model, and the well-founded model, and proof-theoretic semantics in terms of bottom-up fixpoint semantics.

DASAA2011 Best Paper Award

Authors: **Da Yan**
The Hong Kong University of Science and
Technology, Hong Kong

Wilfred
The Hong Kong University of Science and
Technology, Hong Kong

Robust Ranking of Uncertain Data

Abstract:

Numerous real-life applications are continually generating huge amounts of uncertain data (e.g., sensor or RFID readings). As a result, top-k queries that return only the k most promising probabilistic tuples become an important means to monitor and analyze such data. These "top" tuples should have both high scores in term of some ranking function, and high occurrence probability. The previous works on ranking semantics are not entirely satisfactory in the following sense: they either require user-specified parameters other than k, or cannot be evaluated efficiently in real-time scale, or even generating results violating the underlying probability model. In order to overcome all these deficiencies, we propose a new semantics called U-Popk based on a simpler but more fundamental property inherent in the underlying probability model. We then develop an efficient algorithm to evaluate U-Popk. Extensive experiments confirm that U-Popk is able to ensure high ranking quality and to support efficient evaluation of top-k queries on probabilistic tuples.

DASAA2011 Best Paper Award Runner-Up

Authors: **Xiao-Li Li**
Institute for Infocomm Research, Singapore

Aloysius Tan
Institute for Infocomm Research, Singapore

Philip S. Yu
Department of Computer Science, University of Illinois, USA

See-Kiong Ng
Institute for Infocomm Research, Singapore

ECODE : Event-Based Community Detection from Social Networks

Abstract:

People regularly attend various social events to interact with other community members. For example, researchers attend conferences to present their work and to network with other researchers. In this paper, we propose an Event-based COmmunity DEtection algorithm ECODE to mine the underlying community substructures of social networks from event information. Unlike conventional approaches, ECODE makes use of content similarity-based virtual links which are found to be more useful for community detection than the physical links. By performing partial computation between an event and its candidate relevant set instead of computing pair-wise similarities between all the events, ECODE is able to achieve significant computational speedup. Extensive experimental results and comparisons with other existing methods showed that our ECODE algorithm is both efficient and effective in detecting communities from social networks.

DASAA2011 Best Student Paper Award

Authors: **Yasuhiro Fujiwara**
NTT Cyber Space Laboratories,
The University of Tokyo, Japan

Masaru Kitsuregawa
Institute of Industrial Science,
The University of Tokyo, Japan

Makoto Onizuka
NTT Cyber Space Laboratories,
The University of Tokyo, Japan

Real-Time Diameter Monitoring for Time-Evolving Graphs

Abstract:

The goal of this work is to identify the diameter, the maximum distance between any two nodes, of graphs that evolve over time. This problem is useful for many applications such as improving the quality of P2P networks. Our solution, G-Scale, can track the diameter of time-evolving graphs in the most efficient and correct manner. G-Scale is based on two ideas: (1) It estimates the maximal distances at any time to filter unlikely nodes that cannot be associated with the diameter, and (2) It maintains answer node pairs by exploiting the distances from a newly added node to other nodes. Our theoretical analyses show that G-Scale guarantees exactness in identifying the diameter. We perform several experiments on real and large datasets. The results show that G-Scale can detect the diameter significantly faster than existing approaches.

DASAA2011 Best Student Paper Award Runner-Up

Authors: **Hoang Vu Nguyen**
School of Computer Engineering,
Nanyang Technological University, Singapore

Ira Assent
Department of Computer Science,
Aarhus University, Denmark

Vivekanand Gopalkrishnan
School of Computer Engineering,
Nanyang Technological University, Singapore

An Unbiased Distance-Based Outlier Detection Approach for High-Dimensional Data

Abstract:

Traditional outlier detection techniques usually fail to work efficiently on high-dimensional data due to the curse of dimensionality. This work proposes a novel method for subspace outlier detection, that specifically deals with multidimensional spaces where feature relevance is a local rather than a global property. Different from existing approaches, it is not grid-based and dimensionality unbiased. Thus, its performance is impervious to grid resolution as well as the curse of dimensionality. In addition, our approach ranks the outliers, allowing users to select the number of desired outliers, thus mitigating the issue of high false alarm rate. Extensive empirical studies on real datasets show that our approach efficiently and effectively detects outliers, even in high-dimensional spaces.

Panel Discussion:
Challenges in Managing and Mining Large, Heterogeneous Data

SUNDAY, 24 APRIL 2011, 10:30-12:00 [VENUE: LT1, LEVEL 2]

Mediator: Wei Wang

Panelists: Kyu-Young Whang, KAIST, Korea
Katsumi Tanaka, Kyoto University, Japan
Lei Chen, HKUST, Hong Kong China
Feida Zhu, Singapore Management University, Singapore

Success in various application domains including sensor networks, social networks, and multimedia, has ushered in a new era of information explosion. Despite the diversity of these domains, data acquired by applications in these domains are often voluminous, heterogeneous and containing much uncertainty. They share several common characteristics, which impose new challenges to storing, integrating, and processing these data, especially in the context of data outsourcing and cloud computing.

Some challenges include the following. First, autonomous data acquisition gives rise to privacy and security issues. Therefore, data management and mining must be elastic and privacy-conscious. Second, data is often dynamic and the trend in the data is often unpredictable. This calls for efficient incremental or cumulative algorithms for data management and mining. Load balancing and other real-time technologies are also indispensable for the task. Third, data repositories are distributed. Thus, gathering, coordinating, and integrating heterogeneous data in data management and mining will face unprecedented challenges.

This panel session gives researchers of different background and expertise an opportunity to address these challenging issues together. The main topics of this panel session target the themes in the interdisciplinary domains spreading across database, web, wireless data management, social networking, multimedia, and data outsourcing.

Tutorial 1: Web Search and Browse Log Mining: Challenges, Methods, and Applications

SATURDAY, 23 APRIL 2011, 14:00 [VENUE: ROOM 201, LEVEL 2]

Daxin Jiang

Huge amounts of search log data have been accumulated in various search engines. Currently, a commercial search engine receives billions of queries and collects tera-bytes of log data on any single day. Other than search log data, browse logs can be collected by client-side browser plug-ins, which record the browse information if users's permissions are granted. Such massive amounts of search/browse log data, on the one hand, provide great opportunities to mine the wisdom of crowds and improve search results as well as online advertisement. On the other hand, designing effective and efficient methods to clean, model, and process large scale log data also presents great challenges.

In this tutorial, I will focus on mining search and browse log data for search engines. I will start with an introduction of search and browse log data and an overview of frequently-used data summarization in log mining. I will then elaborate how log mining applications enhance the five major components of a search engine, namely, query understanding, document understanding, query-document matching, user understanding, and monitoring and feedbacks. For each aspect, I will survey the major tasks, fundamental principles, and state-of-the-art methods. Finally, I will discuss the challenges and future trends of log data mining.

Speaker Biography:

Daxin Jiang's research focuses on information retrieval and log data mining. He received Ph.D. in computer science from the State University of New York at Buffalo. He has published extensively in prestigious conferences and journals, and served as a PC member of numerous conferences. He received the Best Application Paper Award of SIGKDD'08 and the Runner-up for Best Application Paper Award of SIGKDD'04. Daxin Jiang has been working on development of Microsoft search engines, including Live Search and Bing. Daxin Jiang's publication list can be found at http://research.microsoft.com/en-us

Tutorial 2: Managing Social Image Tags: Methods and Applications

SUNDAY, 24 APRIL 2011, 14:00 [VENUE: ROOM 201, LEVEL 2]
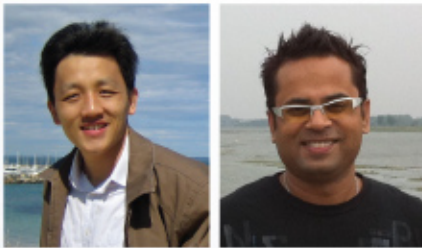
Aixin Sun and Sourav S Bhowmick

With the advances in digital photography (e.g., digital cameras and mobile phones) and social media sharing web sites, a huge number of multimedia content is now available online. Most of these sites enable users to annotate web objects including images with free tags. A key consequence of the availability of such tags as meta-data is that it has created a framework that can be effectively exploited to significantly enhance our ability to understand social images. Such understanding paves way to the creation of novel and superior techniques and applications for searching and browsing social images contributed by common users. The objective of this tutorial is to provide a comprehensive background on state-of-the-art techniques for managing tags associated with social images.

The tutorial is structured as follows. In the first part, we provide a comprehensive understanding of social image tags. We present a brief survey on studies related to motivation behind tagging and impact of various tagging systems that are used by users to create tags. We shall use Flickr as an example tagging system to illustrate various concepts. In the second part, we shall describe state-of-the-art techniques for measuring effectiveness of tags in describing its annotated resources (social images). Specifically, we shall describe techniques that enable us to quantitatively measure a tag's ability to describe the image content of social images. Note that this issue is one of the most fundamental problem in multimedia analysis, search, and retrieval. The third part of the tutorial is devoted to describing state-of-the-art techniques for discovering relationships between tags and how such knowledge is useful for various tag-based social media management applications such as tag recommendation, tag disambiguation and tag-based browsing systems. We conclude by identifying potential research directions in this area.

Speaker Biography:

Aixin Sun is an Assistant Professor with School of Computer Engineering (SCE), Nanyang Technological University (NTU), Singapore. He received his B.A.Sc (First class honors) and Ph.D. in 2001 and 2004 respectively, both in Computer Engineering from NTU. He was a postdoctoral fellow with School of Computer Science and Engineering (CSE) at The University of New South Wales (UNSW), Sydney, Australia. His current research interests include information retrieval, text/web/data mining, social computing, and digital libraries. He has published more than 60 papers in major international conferences and journals such as ACM SIGIR, ACM WSDM, ACM Multimedia, ACM CIKM, ACM/IEEE JCDL, IEEE ICDM, PAKDD, IEEE TKDE, DSS, JASIST, IP&M and KAIS. Aixin is serving as a program committee member of various conferences and reviewer for various journals in the areas of information retrieval, data mining and related areas. He is a member of ACM and a member of IEEE.

Sourav S Bhowmick is an Associate Professor in the School of Computer Engineering, Nanyang Technological University and the Director of Centre for Advanced Information Systems (CAIS). He is currently Visiting Associate Professor at the Biological Engineering Division, Massachusetts Institute of Technology (MIT), USA. He also holds the position of Singapore-MIT Alliance (SMA) Fellow in Computation and Systems Biology program (2005-2010). Sourav received his Ph.D. in computer engineering in 2001. His current research interests include tree and graph data management, social media and web data management, data mining, and computation and systems biology. He has published more than 100 papers in major international database and data mining conferences and journals such as VLDB, IEEE ICDE, ACM WWW, ACM SIGMOD, ACM SIGKDD, ACM MM, ACM CIKM, ER, PAKDD, IEEE TKDE, ACM CS, Information Systems, and DKE. Sourav is serving as a PC member of various database and data mining conferences and workshops and reviewer for various journals. He has served as a program chair/co-chair of several international conferences and workshops. He is a member of the editorial boards of several international journals. Sourav has been tutorial speaker in several international conferences such as ER 2006, APWeb 2008, WAIM 2008, and PAKDD 2009. He has co-authored a book entitled "Web Data Management: A Warehouse Approach" (Springers Verlag, October 2003). Sourav has received Best Interdisciplinary Paper Award (along with Q Zhao, M Mohania, Y Kambayashi) at ACM CIKM 2004.

Tutorial 3: Searching, Analyzing and Exploring Databases

MONDAY, 25 APRIL 2011, 10:20 [VENUE: ROOM 201, LEVEL 2]
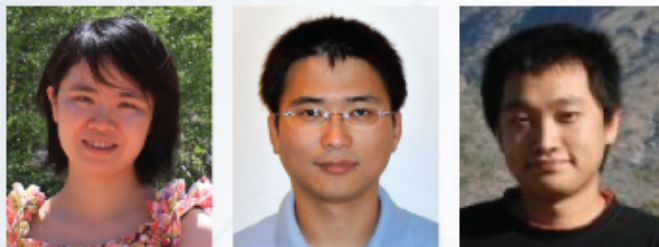
Yi Chen, Wei Wang and Ziyang Liu

Keyword based search, analysis and exploration enables users to easily access databases without the need to learn a structured query language and to study possibly complex data schemas. Supporting keyword based search, analysis and exploration on databases has become an emerging hot area in database research and development due to its substantial benefit. Researchers from different disciplines are working together to tackle various challenges in this area.

This tutorial aims at outlining the problem space of supporting keyword based search, analysis and exploration on databases, introducing representative and state-of-the-art techniques that address different aspects of the problem, and discussing further challenges and potential future research directions. The tutorial will provide the researchers and developers a systematic and organized view on the techniques related to this topic.

Speaker Biography:

Yi Chen is an Assistant Professor in the Department of Computer Science and Engineering at Arizona State University, USA. She received Ph.D. degree in Computer Science from the University of Pennsylvania in 2005. She is a recipient of an NSF CAREER award and an IBM faculty award. Her current research interests focus on empowering non-expert users to easily access diverse structured data, in particular, searching and optimization in the context of databases, information integration, workflows, and social network (http://www.public.asu.edu/~ychen127/).

Wei Wang is a Senior Lecturer in the School of Computer Science and Engineering at the University of New South Wales, Australia. He received his Ph.D. degree in Computer Science from Hong Kong University of Science and Technology in 2004. His recent research interests are integration of database and information retrieval technologies, similarity search, and spatial-temporal databases (http://www.cse.unsw.edu.au/~weiw/).

Ziyang Liu is a Ph.D. candidate and an SFAz (Science Foundation Arizona) Graduate Fellowship recipient in the Department of Computer Science and Engineering at Arizona State University. He joined Arizona State University in August 2006 and received M.S. degree in Computer Science in May 2008. His current research focuses on keyword search on structured and semi-structured data and workflow management (http://www.public.asu.edu/~zliu41/).

Saturday 23 April 2011

8:00-8:30	Welcome tea/coffee (Foyer, Level 2)
8:30-9:00	Opening (LT1, Level 2)
9:00-10:00	Keynote (LT1, Level 2) **Chair: Jeffrey Yu** Database Scalability, Elasticity, and Autonomy in the Cloud **Divyakant Agrawal, Amr El Abbadi, Sudipto Das, and Aaron Elmore**
10:00-10:30	Refreshment Break (Foyer, Level 2)

10:30-12:10	Research Paper Presentation Session 1: Similarity (LT1, Level 2)
	Chair: Guoliang Li
	- Efficient Histogram-based Similarity Search in Sparse and Ultra-high Dimensional Space
	  Jiajun Liu, Zi Huang, Heng Tao Shen and Xiaofang Zhou
	- A Retrieval Strategy using the Integrated Knowledge of Similarity and Associations
	  Yong-Bin Kang, Shonali Krishnaswamy, and Arkady Zaslavsky
	- PG-Skip: Proximity Graph Based Clustering of Long Strings
	  Michail Kazimianec and Nikolaus Augsten
	- An Effective Approach for Searching Closest Sentence Translations from The Web
	  Ju Fan, Guoliang Li, and Lizhu Zhou<hr>Research Paper Presentation Session 2: Social Network (LT6, Level 2)
	Chair: Jianyong Wang
	- ECODE: Event-Based Community Detection from Social Networks
	  Xiao-Li Li, Aloysius Tan, Philip S. Yu, and See-Kiong Ng
	- A User Similarity Calculation Based on the Location for Social Network Services
	  Min-Joong Lee and Chin-Wan Chung
	- Modeling User Expertise in Folksonomies by Fusing Multi-type Features
	  Junjie Yao, Bin Cui, Qiaosha Han, Ce Zhang, and Yanhong Zhou
	- Identifying Experts and Topic Communities in the Blogspace
	  Xiaoling Liu, Yitong Wang, Yujia Li, and Baile Shi<hr>Research Paper Presentation Session 3: Graph (LT5, Level 2)
	Chair: Sourav S. Bhowmick
	- Efficient Topological OLAP on Information Networks
	  Qiang Qu, Feida Zhu, Xifeng Yan, Jiawei Han, Philip S. Yu, and Hongyan Li
	- An Edge-based Framework for Fast Subgraph Matching in a Large Graph
	  Sangjae Kim, Inchul Song and Yoon Joon Lee
	- Context-sensitive Query Expansion over the Bipartite Graph Model for Web Service Search
	  Rong Zhang, Koji Zettsu, Yutaka Kidawara, and Yasushi Kiyoki
	- BMC: An Efficient Method to Evaluate Probabilistic Reachability Queries
	  Ke Zhu, Wenjie Zhang, Gaoping Zhu, Ying Zhang, and Xuemin Lin

12:10-14:00	Lunch (Happiness Cuisine, Hong Kong Science Park)

14:00-15:40	Research Paper Presentation Session 4: Probability and Uncertainty (LT1, Level 2)
	Chair: Yoshiharu Ishikawa
	- Robust Ranking of Uncertain Data
	  Da Yan and Wilfred Ng
	- Probabilistic Image Tagging with Tags Expanded By Text-based Search
	  Xiaoming Zhang, Zi Huang, Heng Tao Shen, and Zhoujun Li
	- Removing Uncertainties from Overlay Network
	  Ye Yuan Deke Guo, Guoren Wang, Lei Chen
	- Probabilistic & Interactive Retrieval of Chinese Calligraphic Character Images Based On Multiple Features
	  Yi Zhuang, Nan Jiang, Hua Hu, Haiyang Hu, Guochang Jiang, and Chengxiang Yuan<hr>Research Paper Presentation Session 5: Data Mining I (LT 6, Level 2)
	Chair: Feida Zhu
	- A Framework of Mining Semantic Regions from Trajectories
	  Chun-Ta Lu, Po-Ruey Lei, Wen-Chih Peng, and Ing-Jiunn Su
	- STS: Complex Spatio-Temporal Sequence Mining in Flickr
	  Chunjie Zhou and Xiaofeng Meng
	- Mining High Utility Mobile Sequential Patterns in Mobile Commerce Environments
	  Bai-En Shie, Hui-Fang Hsiao, Vincent S. Tseng, and Philip S. Yu
	- Reasoning about Dynamic Delegation in Role Based Access Control Systems
	  Chun Ruan and Vijay Varadharajan

	Industrial Paper Presentation Session (LT5, Level 2)
	 Chair: Tangjiao Wang
	 - Assessment of Cardiovascular Disease Risk Prediction Models: Evaluation Methods
	  Richi Nayak and Ellen Pitt
	 - Visual Analysis of Implicit Social Networks for Suspicious Behavior Detection
	  Amyn Bennamane, Hakim Hacid, Arnaud Ansiaux, and Alain Cagnati
	 - Compositional Information Extraction Methodology from Medical Reports
	  Pratibha Rani, Raghunath Reddy, Devika Mathur, Subhadip Bandyopadhya, and Arijit Laha
	 - A Framework for Semantic Recommendations in Situational Applications
	  Raphael Thollot and Marie-Aude Aufaure

	Tutorial 1: Web Search and Browse Log Mining: Challenges, Methods, and Applications (Room 201, Level 2) **Daxin Jiang**
15:40-16:10	Refreshment Break (Foyer, Level 2)

16:10-18:15	**Research Paper Presentation Session 6: Indexing and High Performance** (LT1, Level 2)
	 Chair: Weining Qian
	 - LinearDB: A Relational Approach to Make Data Warehouse Scale like MapReduce
	  Huiju Wang, Xiongpai Qin, Yansong Zhang, Shan Wang, and Zhanwei Wang
	 - Genetic Algorithm Based QoS-Aware Service Compositions in Cloud Computing
	  Zhen Ye, Xiaofang Zhou, and Athman Bouguettaya
	 - Energy-Efficient Tree-Based Indexing Schemes for Information Retrieval in Wireless Data Broadcast
	  Jiaofei Zhong, Weili Wu, Yan Shi, and Xiaofeg Gao
	 - Buffer Cache De-duplication for Query Dispatch in Replicated Databases
	  Takeshi Yamamuro, Yoshiharu Suga, Naoya Kotani, Toshio Hitaka and Masashi Yamamuro
	 - Indexing for Vector Projections
	  Sean Chester, Alex Thomo, S. Venkatesh, and Sue Whitesides

	Research Paper Presentation Session 7: Query Processing I (LT6, Level 2)
	 Chair: Gill Dobbie
	 - Querying Business Process Models Based on Semantics
	  Tao Jin, Jianmin Wang, and Lijie Wen
	 - Discovering Implicit Categorical Semantics for Schema Matching
	  Guohui Ding and Guoren Wang
	 - Expressive Power of Query Languages for Constraint Complex Value Databases
	  Hong-Cheu Liu
	 - Scaling Up Query Allocation in the Presence of Autonomous Participants
	  Jorge-Arnulfo Quiané-Ruiz, Philippe Lamarre, Sylvie Cazalens, and Patrick Valduriez
	 - Generating Preview Instances for the Face Validation of Entity-Relationship schemata: the Acyclic Case
	  Maria Amalfi, Alessandro Artal, Andrea Cali, and Alessandro Provetti

	Research Paper Presentation Session 8: XML and Graph (LT5, Level 2)
	 Chair: Mengchi Liu
	 - Efficient Evaluation of NOT-Twig Queries in Tree-Unaware Relational Databases
	  Kheng Hong Soh and Sourav S.Bhowmick
	 - A Hybrid Algorithm for Finding Top-k Twig Answers in Probabilistic XML
	  Bo Ning and Chengfei Liu
	 - Optimizing Incremental Maintenance of Minimal Bisimulation of Cyclic Graphs
	  Jintian Deng, Byron Choi, Jianliang Xu, and Sourav S. Bhowmick
	 - Social Based Layouts for the Increase of Locality in Graph Operations
	  Arnau Prat-Pérez, David Dominguez-Sal, and Josep L. Larriba-Pey
	 - Generating Random Graphic Sequences
	  Xuesong Lu and Stéphane Bressan

	Tutorial 1: Web Search and Browse Log Mining: Challenges, Methods, and Applications (Room 201, Level 2) **Daxin Jiang**
18:30-20:30	Reception (Foyer, Level 2)

Sunday 24 April 2011

8:00-8:30	Welcome tea/coffee (Foyer, Level 2)
8:30-10:00	Award ceremony and Plenary Speech: 10 Year Best Paper Award (LT1, Level 2) **Chair: Dik Lee**
10:00-10:30	Refreshment Break (Foyer, Level 2)
10:30-12:00	Panel Discussion: Challenges in Managing and Mining Large, Heterogeneous Data (LT1, Level 2) **Mediator: Wei Wang** **Panelists: Kyu-Young Whang,** KAIST, Korea 　　　　　　**Katsumi Tanaka,** Kyoto University, Japan 　　　　　　**Lei Chen,** HKUST, Hong Kong China 　　　　　　**Feida Zhu,** Singapore Management University, Singapore
12:00-14:00	Lunch (Chung Chi Staff Club, The Chinese University of Hong Kong)
14:00-15:40	Research Paper Presentation Session 9: Search and Digital Preservation (LT1, Level 2) **Chair: Xiaochun Yang** - Finding the Sites with Best Accessibilities to Amenities 　Qianlu Lin, Chuan Xia, Muhammad Aamir Cheema, and Wei Wang - Audio Lifelog Search System Using a Topic Model for Reducing Recognition Errors 　Taro Tezuka and Akira Maeda - Towards Web Search by Sentence Queries: Asking the Web for Query Substitutions 　Yusuke Yamamoto and Katsumi Tanaka - The DISTARNET Approach to Reliable Autonomic Long-Term Digital Preservation 　Ivan Subotic, Heiko Schuldt, and Lukas Rosenthaler Research Paper Presentation Session 10: Social Network and Privacy (LT6, Level 2) **Chair: Raymond Wong** - Utility-Oriented K-Anonymization on Social Networks 　Yazhe Wang, Long Xie, Baihua Zheng, and Ken C. K. Lee - Distributed Privacy Preserving Data Collection 　Mingqiang Xue, Panagiotis Papadimitriou, Chedy Raïssi, Panos Kalnis, and Hung Keng Pung - Privacy Preserving Query Processing on Secret Share Based Data Storage 　XiuXia Tian, ChaoFeng Sha, XiaoLing Wang, and AoYing Zhou - Node Protection in Weighted Social Networks 　Mingxuan Yuan and Lei Chen Demo Session 1: (Room 211, Level 2) - Storage and Use of Provenance Information for Relational Database Queries 　Zhifeng Bao, Henning Koehler, Xiaofang Zhou, and Tok Wang Ling - MRQSim: A Moving Range Query Simulation Platform in Spatial Networks 　Yu Gu , Na Guo, Chuanwen Li, and Ge Yu - AUCWeb: A Prototype for Analyzing User-Created Web Data 　Weining Qian, Feng Chen, Juan Du, Weiming Zhang, Can Zhang, Haixin Ma, Peng Cai, Minqi Zhou, and Aoyin Zhoug - AutoBayesian: Developing Bayesian Networks Based on Text Mining 　Sandeep Raghuram, Yuni Xial, Jiaqi Ge, Mathew Palaka1, Josette Jones, Dave Pecenka, Eric Tinsley, Jean Bandos, and Jerry Geesaman Tutorial 2: Managing Social Image Tags: Methods and Applications (Room 201, Level 2) **Aixin Sun and Sourav S Bhowmick**
15:40-16:10	Refreshment Break (Foyer, Level 2)
16:10-18:15	Research Paper Presentation Session 11: Stream Processing (LT1, Level 2) **Chair: Vincent S. Tseng** - Real-Time Diameter Monitoring for Time-evolving Graphs 　Yasuhiro Fujiwara, Makoto Onizuka, and Masaru Kitsuregawa - Handling ER-topk Query on Uncertain Streams 　Cheqing Jin, Ming Ga, and Aoying Zhou - Seamless Event and Data Stream Processing: Reconciling Windows and Consumption Modes 　Raman Adaikkalavan and Sharma Chakravarthy - Querying Moving Objects with Uncertainty in Spatio-temporal Databases 　Hechen Liu and Markus Schneider - A Novel Hash-Based Streaming Scheme for Energy Efficient Full-Text Search in Wireless Data Broadcast 　Kai Yang, Yan Shi, Weili Wu, Xiaofeng Gao, and Jiaofei Zhong

	Research Paper Presentation Session 12: Query Processing II (LT6, Level 2)
	Chair: Ladjel Bellatreche
	- Dynamic Skylines Considering Range Queries
	  Wen-Chi Wang, En Tzu Wang, and Arbee L.P.Chen
	- EcoTop: An Economic Model for Dynamic Processing of Top-k Queries in Mobile-P2P Networks
	  Nilesh Padhariya, Anirban Mondal, Vikram Goyal, Roshan Shankar, and Sanjay Kumar Madria
	- REQUEST: Region-based Query Processing in Sensor Networks
	  Dong-Wan Choi and Chin-Wan Chung
	- Efficient Distributed Top-k Query Processing with Caching
	  Norvald Ryeng, Akrivi Vlachou, Christos Doulkeridis, and Kjetil Nørvåg
	- Exploiting Correlation to Rank Database Query Results
	  Jaehui Park, and Sang-goo Lee

	Demo Session 2 (Room 211, Level 2)
	- DWOBS: Data Warehouse Design from Ontology-based Sources
	  Selma Khouri, and Ladjel Bellatreche
	- Blending OLAP Processing with Real-Time Data Streams
	  João Costa, José Cecilio, Pedro Martins, and Pedro Furtado
	- Classify Uncertain Data with Decision Tree
	  Biao Qin, Yuni Xia, Rakesh Sathyesh, Jiaqi Ge, and Sunil Probhakar
	- StreamFitter: A Real Time Linear Regression Analysis System for Continuous Data Streams
	  Chandima Hewa Nadungodage, Yuni Xia, Fang Li, Jaehwan John Lee, and Jiaqi Ge

	Tutorial 2: Managing Social Image Tags: Methods and Applications (Room 201, Level 2) **Aixin Sun and Sourav S Bhowmick**
18:15-22:00	DASFAA2011 Banquet (Serendae, Tsim Sha Tsui)

Monday 25 April 2011

8:30-9:00	Welcome tea/coffee (Foyer, Level 2)
9:00-10:00	Keynote: (LT1, Level 2) **Chair: Kam-fai Wong** Smarter Planet: Empower People with Information Insights **Josephine Cheng, IBM Fellow and Vice President, IBM Research - Almaden, San Jose, California**
10:00-10:20	Refreshment Break (Foyer, Level 2)

10:20-12:00	Research Paper Presentation Session 13: Spatial Queries (LT1, Level 2)
	Chair: Yunjun Gao
	- A Unified Algorithm for Continuous Monitoring of Spatial Queries
	  Mahady Hasan, Muhammad Aamir Cheema, Xuemin Lin, and Wenjie Zhang
	- Real-time Monitoring of Moving Objects Using Frequently Used Routes
	  Yutaka Ohsawa, Kazuhisa Fujino, Htoo Htoo, Aye Thida Hlaing, and Noboru Sonehara
	- wNeighbors: A Method for Finding k Nearest Neighbors in Weighted A Relational Regions
	  Chuanwen Li, Yu Gu, Ge Yu, and Fangfang Li
	- Aggregate Farthest-Neighbor Queries Over Spatial Data
	  Yuan Gao, Lidan Shou, Ke Chen, and Gang Chen

	Research Paper Presentation Session 14: Data Mining II (LT6, Level 2)
	Chair: Hong Cheng
	- A Framework of Mining Semantic Regions from Trajectories
	  Chun-Ta Lu, Po-Ruey Lei, Wen-Chih Peng, and Ing-Jiunn Su
	- STS: Complex Spatio-Temporal Sequence Mining in Flickr
	  Chunjie Zhou and Xiaofeng Meng
	- Mining High Utility Mobile Sequential Patterns in Mobile Commerce Environments
	  Bai-En Shie, Hui-Fang Hsiao, Vincent S. Tseng, and Philip S. Yu
	- Reasoning about Dynamic Delegation in Role Based Access Control Systems
	  Chun Ruan and Vijay Varadharajan

	Research Paper Presentation Session 15: XML (LT5, Level 2)
	Chair: Xiaofeng Meng
	- XStreamCluster: an Efficient Algorithm for Streaming XML Data Clustering
	  Odysseas Papapetrou and Ling Chen
	- Improving XML Data Quality with Functional Dependencies
	  Zijing Tan and Liyong Zhang
	- Identifying Relevant Matches with NOT Semantics over XML Documents
	  Rung-Ren Lin, Ya-Hui Chang, and Kun-Mao Chao
	- Evaluating Contained Rewritings for XPath Queries on Materialized Views
	  Rui Zhou, Chengfei Liu, Jianxin Li, Junhu Wang, and Jixue Liu

	Tutorial 3: Searching, Analyzing and Exploring Databases (Room 201, Level 2) **Yi Chen, Wei Wang and Ziyang Liu**

The 1st International Workshop on Graph-structured Data Bases (GDB 2011)

FRIDAY, 22 APRIL 2011, 8:45 – 15:10 [VENUE: LT7, LEVEL 3]

Chaired by: **Sourav S Bhowmick,**
Nanyang Technological University, Singapore

Byron Choi,
Hong Kong Baptist University, China

Wei Wang,
The Univesity of New South Wales, Australia

Website: http://www.comp.hkbu.edu.hk/~gdb2011/org.html

Recent applications on graph-structured data, for example, biological and chemical databases, social networks, business process models, the Semantic Web and XML, have sparked a renewed interest on graph-structured databases. The GDB workshop targets at bringing academic and industrial researchers together to share their knowledge and opinions on visions, challenges and solutions on graph-structured databases. The workshop solicits original research contributions, reports on prototype systems, reports on industrial experience, position paper and vision paper on a wide range of topics of graph-structured databases.

Program:

Welcome and Opening remarks

GDB Keynote by **Dr Lei Chen**, HKUST

Session 1 Systems

- Towards Efficient Subgraph Search in Cloud Computing Environments
  Luo Yifeng, Jihong Guan, Shuigeng Zhou
- Latency-Optimal Walks in Replicated and Partitioned Graphs
  Stefan Plantikow, Maik Jorra
- Graph-based Matching of Composite OWL-S Services
  Alfredo Cuzzocrea, Marco Fisichella (L3S), Juri Luca De Coi, Dimitrios Skoutas

Session 2 Theories

- Design Non-recursive and Redundant-Free XML Conceptual Schema with Hypergraph
  Joseph Fong, Wai Mok, Haizhou Li
- Classifying Graphs using Theoretical Metrics: a Study of Feasibility
  Linhong Zhu, Wee Keong Ng, Shuguo Han

Closing remarks

The First International Workshop on Spatial Information Modeling, Management and Mining (SIM3)

FRIDAY, 22 APRIL 2011, 08:15 – 12:00 [VENUE: ROOM 201, LEVEL 2]

Chaired by: **Xin Wang,**
University of Calgary, Canada
Jihong Guan,
Tongji University, China

Website: http://admis.fudan.edu.cn/conferences/sim3-2011.html

Nowadays, spatial data exists pervasively in various information systems and applications. The unprecedented amount of spatial data that has been amassed and that is being produced in an increasing speed, via various facilities such as sensors, GPS receivers, smart phones and remote sensing, calls for extensive, deep and sustaining research on spatial information modeling, management and mining. In the past decade, we witnessed increasing research interests in these areas from database, data mining and geographic information systems (GIS) communities.

The First International Workshop on Spatial Information Modeling, Management and Mining (SIM3-2011) is a half day workshop conjuncted with DASFAA 2011, which intend to bring together researchers, developers, users, and practitioners carrying out research and development in spatial information modeling, management and mining, and foster discussions in all aspects of these research areas. The workshop will provide a forum for original research contributions and practical experiences of spatial information modeling, management and mining and will highlight future trends in these topics.

Program:

Welcome Remarks

Session 1: Spatial data management: compression, storage and query Session Chair: **Prof. Xin Wang**

- A GML documents Stream Compressor
  Yinan Yu, Yuzhen Li, and Shuigeng Zhou
- A Query-friendly Compression for GML Documents
  Qingting Wei
- Storing GML Documents: A Model-Mapping based Approach
  Fubao Zhu, Qianqian Guo, and Jinmei Yang
- GML Data Management: Framework and Prototype
  Weili Wang, Fabiao Wang, Zhiping Qian, and Long Zhang
- An Efficient Multi-Layer Grid Method for Skyline Queries in Distributed Environment (short presentation)
  He Li, Sumin Jang, and Jaesoo Yoo

Session 2: Spatial planning, visualization, mining and system Session Chair: **Prof. Jihong Guan**

- 3D Indoor Route Planning for Arbitrary-shape Objects
  Wenjie Yuan and Markus Schneider
- A Web-based Visualization Tool for Analyzing Mouse Movements to Support Map Personalization
  Ali Tahir, Gavin McArdle, and Michela Bertolotto
- On the Requirements for User-Centric Spatial Data Warehousing and SOLAP
  Ganesh Viswanathan and Markus Schneider
- Optimal Bandwidth Selection for Density-based Clustering
  Hong Jin, Shuliang Wang, Qian Zhou, and Ying Li
- Developing an Oracle-Based Spatio-temporal Information Management System (short presentation)
  Lei Zhao, Peiquan Jin, Lanlan Zhang, Huaishuai Wang, and Sheng Lin

The International Workshop on Flash-based Database Systems (FlashDB)

FRIDAY, 22 APRIL 2011, 09:00 – 17:50 [VENUE: LT8, LEVEL 3]

Chaired by: **Xiaofeng Meng,**
Renmin University of China (RUC)
Lihua Yue,
University of Science and Technology of China (USTC)

Website: http://idke.ruc.edu.cn/FlashDB_2011/

Recently, new storage media such as flash memory have been developed very quickly, which brings big challenges to the architecture of computer systems as well as the design of system software. In particular, NAND flash (either SLC- or MLC-based) in the form of solid state disks (SSDs) has been an alternative to traditional magnetic disks, both in the home-user environment and in the enterprise computing environment, due to its shock-resistance, low power consumption, non-volatile, and high I/O speed. The special features of flash memory and other new storage media impose new challenges to traditional data management technologies. As a result, traditional database architectures and algorithms designed for magnetic-disk-based storage fail to utilize new storage media efficiently. Meanwhile, the new characteristics of modern storage media, such as not-in-place update and asymmetric read/write/erase latencies of flash memory, also bring great challenges in optimizing database performance, by using new querying algorithms, indexes, buffer management schemes, and new transaction processing protocols. Consequently, exploiting the characteristics of flash memory and other new storage media has become an important topic of database systems research.

In order to make database systems adapt automatically to the characteristics of flash memory and other new storage media, the data management community needs to rethink traditional underlying storage architecture, query processing algorithms, indexing mechanism, buffer management schemes as well as many traditional issues in magnetic-disk-oriented database systems to adapt to the advances in the underlying storage infrastructure.

The aim of this one-day workshop is to bring together researchers who are interested in optimizing database performance on flash memory or other new storage media based storage infrastructure by designing new data management techniques and tools.

Program:

Opening Speech by Prof. Xiaofeng Meng

Invited Talk: Some Research Directions in FlashDB, by Prof. Sang-Won Lee Session A: Storage Management for SSD

- Page-Level Log Mapping: From Many-to-Many Mapping to One-to-One Mapping
  Jing Xu, Fang Xie, Guoliang Li and Jianhua Feng
- A Novel Method to Extend Flash Memory Lifetime in Flash-based DBMS
  Zhichao Liang, Yulei Fan and Xiaofeng Meng
- Log-Compact R-Tree: an Efficient Spatial Index for SSD
  Yanfei Lv, Jing Li, Bin Cui and Xuexuan Chen
- An FTL-agnostic Layer to Improve Random Write on Flash Memory
  Brice Chardin, olivier pasteur and Jean-Marc Petit

Invited Talk: Energy Efficiency is not Enough, Energy Proportionality is Needed! by Prof. Theo Haerder

Session B: Energy Efficiency & Hybrid Storage

- Trading Memory for Performance and Energy
  Yi Ou and Theo Haerder
- Design of embedded database based on hybrid storage of PRAM and NAND flash memory
  Youngwoo Park, Sung Kyu Park and Kyu Ho Park
- Hybrid Storage with Disk Based Write Cache
  Puyuan Yang, Peiquan Jin and Lihua Yue

Invited Talk and Discussion

Flash-Based Database Systems: Experiences from the FlashDB Project by Prof. Jianliang Xu

Closing Remarks

The 2nd International Workshop on Social Networks and Social Media Mining on the Web (SNSMW)

FRIDAY, 22 APRIL 2011, 08:30 – 17:00 [VENUE: LT6, LEVEL 2]

Chaired by: **Guandong Xu,**
Aalborg University, Denmark
Lin Li,
Wuhan University of Technology, China

Hong Cheng,
Chinese University of Hong Kong, China
Botang Wang,
Northeastern University, China

Web site: http://www.se.cuhk.edu.hk/~snsmw/

Today the emergence of web-based communities and hosted services such as social networking sites, wikis and folksonomies, brings in tremendous freedom of Web autonomy and facilitate collaboration and knowledge sharing between users. Along with the interaction between users and computers, social media are rapidly becoming an important part of our digital experience, ranging from digital textual information to diverse multimedia forms. These aspects and characteristics constitute of the core of second generation of Web.

A prominent challenge lies in modeling and mining this vast pool of data to extract, represent and exploit meaningful knowledge and to leverage structures and dynamics of emerging social networks residing in the social media. Social networks and social media mining combines data mining with social computing as a promising direction and offers unique opportunities for developing novel algorithms and tools ranging from text and content mining to link mining.

The 2nd International Workshop on Social Networks and Social Media Mining on the Web in conjunction with DASFAA 2011 will bring together the academia, researchers and industrial practitioners from computer science, information systems, statistics, sociology, behavior science and organization science discipline, and provide a forum for recent advances in the field of social networks and social media, from the perspectives of data management and mining.

Program:

Session 1A: Social Networking and Community Structure
- An Analysis of Network Structure and Post Content for Blog Post Recommendation
  Wan-Shiou Yang, Yi-Rong Lin
- Extracting Local Community Structure from Local Cores
  Xianchao Zhang, Liang Wang, Yueting Li, and Wenxin Liang
- On Summarizing Graph Homogeneously
  Zheng Liu and Jeffrey Xu Yu

Refreshment Break

Session 1B: Social Networking and Community Structure
- Expansion Properties of Large Social Graphs
  Fragkiskos D. Malliaros and Vasileios Megalooikonomou
- What's in a Name: A Study of Names, Gender Inference, and Gender Behavior in Facebook
  Cong Tang, Keith Ross, Nitesh Saxena, and Ruichuan Chen
- A Local Information Passing Clustering Algorithm for Tagging Systems
  Yu Zong, Guandong Xu, Ping Jin, Peter Dolog, Shan Jiang

Lunch Break

Session2: Social Media and Data Mining
- Text Representation using Dependency Tree Subgraphs for Sentiment Analysis
  Alexander Pak and Patrick Paroubek
- Realtime Social Sensing of Support Rate for Microblogging
  Jun Huang , Mizuho Iwaihara
- Searching Consultants in Web Forum
  Zhao Zhang, Weining Qian, and Aoying

Refreshment Break

Session2: Social Media and Data Mining
- Comparing Similarity of HTML Structures and Affiliate IDs in Splog Analysis
  Taichi Katayama, Akihito Morijiri, Soichi Ishii, Takehito Utsuro, Yasuhide
- Kawada, and Tomohiro FukuharaCrowd-powered TV Viewing Rates: Measuring Relevancy between Tweets and TV Programs
  Shoko Wakamiya, Ryong Lee and Kazutoshi Sumiya

The First International Workshop on Data Management for Emerging Network Infrastructures (DaMEN)

FRIDAY, 22 APRIL 2011, 09:00 – 15:30 [VENUE: LT4, LEVEL 2]

Chaired by: **Prof. Aoying Zhou,**
East China Normal University, China
Prof. Yoshiharu Ishikawa,
Nagoya University, Japan

Website: http://www.comp.hkbu.edu.hk/damen/

The emerging network infrastructures such as P2P, mobile and sensor networks, and cloud computing were once lab toys. Nonetheless, they show strong potential to become mainstreams in the foreseeable future. While most network-side issues have been addressed or resolved, the data management issues that arise from the real deployment of these infrastructures are ever increasing. In particular, challenges associated with acquiring, storing, processing, and analyzing large-scale data from these heterogeneous networks call for novel data management techniques. The inherently dynamic nature of these networks further poses new research issues, such as privacy and security. This workshop aims to facilitate the collaboration between researchers in database and networking areas by presenting cutting edge research topics and methodologies.

Program:

Invited Talk: "GreenOrbs: Lessons Learned from Extremely Large Scale Sensor Network Deployment"
Prof. Yunhao Liu, Hong Kong University of Science and Technology, China

Refreshment Break

Session 1: Query and Stream Processing
- Adapting Skyline Computation to the MapReduce Framework: Algorithms and Experiments
  Boliang Zhang, Shuigeng Zhou, and Jihong Guan
- Efficient Event Stream Processing: Handling Ambiguous Events and Patterns with Negation
  Murali Mani
- Effective Keyword Search for Candidate Fragments of XML Documents
  Yanlong Wen, Haiwei Zhang, Ying Zhang, Lu Zhang, Lei Xu, and Xiaojie Yuan

Lunch Break

Session 2: Storage and Scheduling
- Optimized Data Placement for Column-oriented Data Store in the Distributed Environment
  Minqi Zhou and Chen Xu
- Two-step Joint Scheduling Scheme for Road Side Units (RSUs)-based Vehicular Ad Hoc Networks (VANETs)
  G. G. Md. Nawaz Ali , Edward Chan, and Wenzhong Li
- A Content-aware Adaptive Storage Approach for XML in PXRDB
  Xue Wang, Xiao Zhang, Xiaoyong Du, Shan Wang, Kuicheng Liu

Fourth International Workshop on Data Quality in Integration Systems (DQIS)

FRIDAY, 22 APRIL 2011, 08:40 – 15:30 [VENUE: LT5, LEVEL 2]

Chaired by: **Shazia Sadiq, Xiaofang Zhou, Ke Deng,**
University of Queensland, Australia
Xiaochun Yang,
Northeastern University, China

Web site: http://faculty.neu.edu.cn/yangxc/DQIS2011/

The integration systems have been a subject of intense research and development for over three decades. Basically the goal of integration systems is to provide a uniform interface to a multitude of data sources. Difficulties in overcoming the schematic, syntactic and semantic differences of data from multiple autonomous and heterogeneous sources are well recognized, and have resulted in a data integration market valued at US$1.34 billion and growing. With the phenomenal increase in the scale and disparity of data, the problems associated with data integration have increased dramatically.

A fundamental aspect of user satisfaction from integration systems is the data quality. Industry reports indicate that expensive data integration initiatives stemming from migrations, mergers, legacy upgrades etc, succeed in achieving a common technology platform, but are rejected by the user communities due to the presence (or exposure) of poor data quality. Poor data quality is known to compromise the credibility and efficiency of commercial as well as public endeavours. Several developments from industry as well as academia have contributed significantly towards addressing the problem.

These typically include analysts and practitioners who have contributed to the design of strategies and methodologies for data governance; solution architects including software vendors who have contributed towards appropriate system architectures that promote data integration and; and data experts who have contributed to data quality problems such as duplicate detection, identification of outliers, consistency checking and many more through the use of computational techniques. The attainment of true data quality lies at the convergence of the three aspects, namely organizational, architectural and computational.

The workshop will provide a forum to bring together diverse researchers and make a consolidated contribution to new and extended methods to address the challenges of data quality in data integration systems.

Program:

Opening

Keynote   The Flamingo Software Package on Approximate String Queries
Chen Li (UC Irvine, USA)

Tea break

Session 1 -   Invited paper: A Framework for Data Quality Aware Query Systems
Naiem K. Yeganeh, Mohamed A. Sharaf
-    SemGen-Towards a Semantic Data Generator for Benchmarking Duplicate Detectors
Wolfgang Gottesheim, Stefan Mitsch, Werner Retschitzegger, Wieland Schwinger,
and Norbert Baumgartner
-    Estimating a Transit Passenger Trip Origin-Destination Matrix Using Automatic Fare Collection System
Daming Li, Yongjie Lin, Xinliang Zhao, Hongjun Song, and Nan Zou

Lunch

Session 2 -   Invited paper: Approach to Assess the Quality of Web Pages in the Deep Web
Tiezheng Nie, Dejun Yue, Derong Shen, Yue Kou, Ge Yu
-    Using Machine Learning to Support Resource Quality Assessment: An Adaptive Attribute-based
Approach for Health Information Portals
Jue Xie, Frada Burstein
-    Grid-based Probabilistic Skyline Retrieval on Distributed Uncertain Data
Xiaowei Wang, Yan Jia

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Banquet and Excursion

On 24 April evening, a banquet dinner is arranged at Serenade, a renowned Chinese restaurant in Hong Kong Cultural Centre in Tsim Sha Tsui where you can enjoy a sumptuous dinner accompanied with the spectacular night view of Victoria Habour.

Coaches from The Chinese University of Hong Kong to Serenade will be arranged for participants:
Gathering Time: 18:20
Gathering Point: Level 1, Cheng Yu Tung Building (Conference Venue)
Departure Time: 18:30

After the Banquet, we have spare some time for you to explore Tsim Sha Tsui, one of the most vibrant districts of Hong Kong.

Star Avenue

The Star Avenue is built to pay tributes to professionals who have contributed to Hong Kong's history of filmmaking. It features commemorative plaques, handprints and statues of movie celebrities, and much more!
Spectacular View of Victoria Habour and A Symphony of Lights

At Tsim Sha Tsui promenade, you can enjoy the incredible panoramic views of the famed Victoria Harbour and the memorable Hong Kong skyline light. It is the best place to watch A Symphony of Lights, a nightly multimedia show with participation of more than 40 buildings on both sides of Victoria Harbour.

More about Serenade :
http://www.maxims.com.hk/en/main.asp?t=130209410391811850)

More about Tsim Sha Tsui: http://www.discoverhongkong.com

Coaches from Serenade back to Hyatt Regency Hong Kong Sha Tin and Royal Park Hotel will be arranged:
Gathering Time: 21:30 (Tentatively scheduled. Latest arrangement will be announced after the Banquet)
Gathering Point: Outside Serenade
Departure Time: 21:40

Public Transport between Serenade and Sha Tin/University

Means of Transportation – MTR
Path – University or Sha Tin Station <-> Tsim Sha Tsui station Exit E or East Tsim Sha Tsui station Exit J
Duration – Approximately 30 minutes
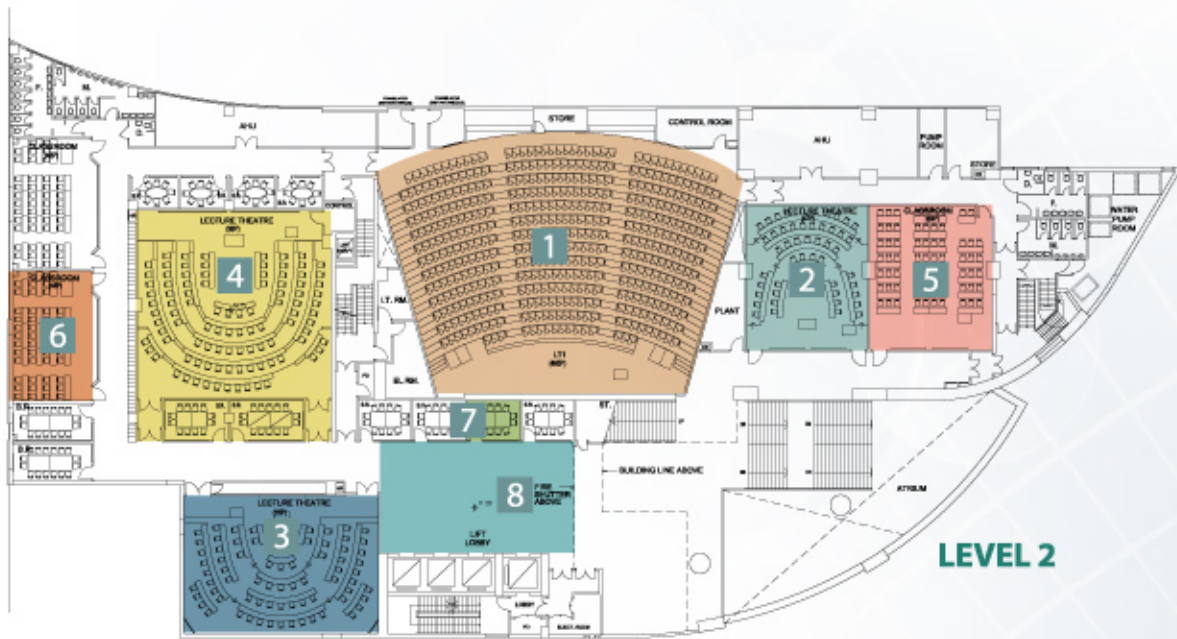Service Time – 6:04am – 00:19am
Fare – HK$8.0 – HK$8.5

Enquiries

Our staff will be at Serenade starting from 6 pm. If you have any query, please reach them there or call them at:
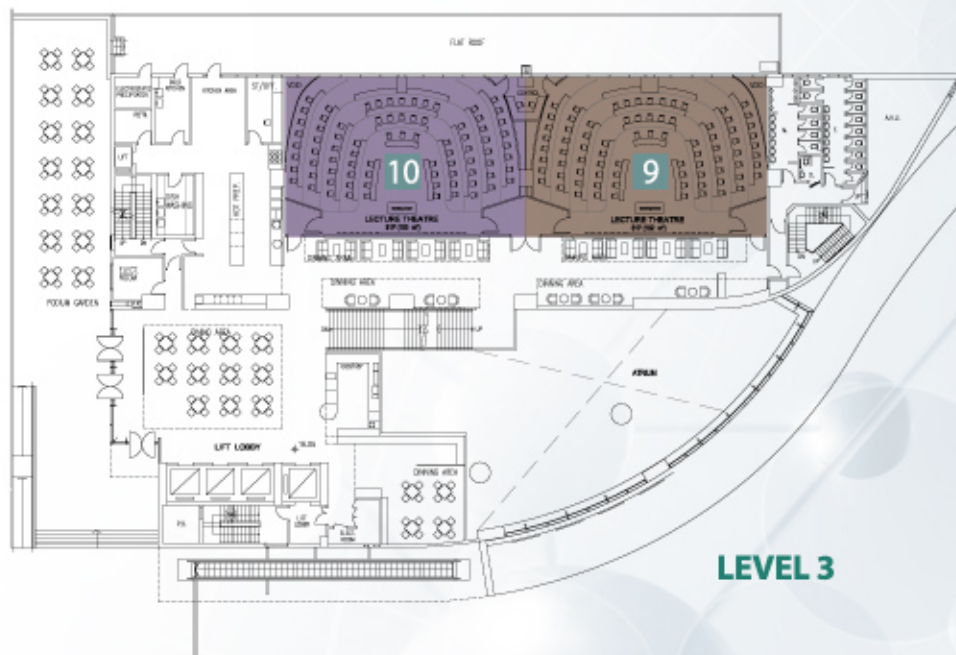(852) 9446 7585

Whereabouts in Tsim Sha Tsui
● Serenade (Hong Kong Cultural Center)
● Star Avenue
● Tsim Sha Tsui MTR Station

LEVEL 2

1 LT1	**2** LT4	**3** LT5	**4** LT6
5 Room 201	**6** Room211	**7** Internet Room and Registration Counter	**8** Foyer

LEVEL 3

9 LT7	**10** LT8

SCR Club House

- Lunch, 22 April
- Shuttle Bus will be provided from the conference venue to the restaurant.
- Alternatively, guests may take the bus at the University Shuttle Bus Station and get off at the 2nd Stop "Sir Run Run Shaw Hall" to walk to SCR Club House (5-10 minute walking distance)

Chung Chi Staff Club

- Lunch, 24 April
- Shuttle Bus will be provided from the conference venue to the restaurant.
- Alternatively, guests may walk from the University Station to Chung Chi Staff Club (10-15 minute walking distance)

University Shuttle Bus Station

Cheng Yu Tung Building (Conference Venue)

Happiness Cuisine Restaurant

1st Floor, Core Building 1

- Lunch, 23 April
- Shuttle Bus will be provided from the conference venue to the restaurant.

Registration:

Workshops	22 April, 2011	
	8:00 – 17:00	
	Foyer, Level 2	
Main Conference	23-24 April, 2011	25 April, 2011
	8:00 – 16:30	8:30 – 10:30
	Foyer, Level 2	Foyer, Level 2
Reception	23 April, 2011	
	18:00 – 19:00	
	Foyer, Level 2	

WIFI Connection:

Every participant will receive their own login ID and password for Internet access.

WIFI service is available during the conference period: 22 – 25 April, 2011 at the conference venue: Cheng Yu Tung Building, The Chinese University of Hong Kong.

Contact Information:

If there is any problem, please contact us at:

Email: dasfaa2011@gmail.com

Phone No.: (852) 9446 7585
(Operates during 21-25 April, 2011, from 8:00 – 23:00)

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