Lecture Theater, 9/F, William MW Mong Engineering Building

Programme

(Morning Session)

9:45 am – 10:00 am Opening Ceremony

- Opening Speech by Professor Benjamin Wah
  Provost, The Chinese University of Hong Kong
- Welcome Speech by Professor C.P. Wong
  Dean of Engineering, The Chinese University of Hong Kong
- Presentation of Souvenirs and Photo Taking

10:00 am – 10:30 am Keynote Speech

Topic: "Quantum Computing: A Great Science in the Making"

Speaker: Professor Andrew Yao
Distinguished Professor-At-Large
The Chinese University of Hong Kong

10:30 am – 11:30 am Keynote Speech

Topic: "Computational Thinking"

Speaker: Professor Jeannette Wing
President's Professor of Computer Science and
Head of Computer Science Department
Carnegie Mellon University

11:30 am – 12:00 nn Tea break

12:00 nn – 1:00 pm Keynote Speech

Topic: "Universal Swarms: the Future Internet?"

Speaker: Professor Don Towsley
Distinguished University Professor
Department of Computer Science
University of Massachusetts - Amherst

1:00 pm – 2:00 pm Lunch

(Afternoon Session)

2:00 pm - 6:00 pm Presentations on four strategic areas under Information Sciences:

	"Information Theory"	
2:00-2:20pm	Prof. Jianwei Huang	Overview of NCEL: Network Communications & Economics Lab
2:25-2:45pm	Prof. Sidharth Jaggi	Code designs for network information theory problems
2:50-3:10pm	Prof. Chandra Nair	Recent results on the broadcast channel
	"Bioinformatics"	
3:15-3:35pm	Prof. Kevin Yip	Bioinformatics: on advancing biological and medical research by computational methods
3:40-4:00pm	Prof. Chan Ting Fung	On new technologies and bioinformatics tools for genomic studies
4:00- 4:20pm	Tea break	
	"Theoretical Computer Science"	
4:20- 4:40pm	Prof. Andrej Bogdanov	Recent advances in parallel cryptography
4:45-5:05pm	Prof. Shengyu Zhang	Theoretical computer science in classical and quantum worlds
	"Security"	
5:10-5:30pm	Prof. Patrick Lee	Applied Research on Network Robustness

Profiles of Keynote Speakers

Speaker:
Professor Andrew YAO
Distinguished Professor-At-Large
The Chinese University of Hong Kong

Topic:
Quantum Computing: A Great Science in the Making

Abstract:
In recent years, the scientific world has seen much excitement over the development of quantum computing, and the ever increasing possibility of building real quantum computers. What's the advantage of quantum computing? What are the secrets in the atoms that could potentially unleash such enormous power, to be used for computing and information processing? In this talk, we will take a look at quantum computing, and make the case that we are witnessing a great science in the making.

Biography:
Andrew Chi-Chih Yao is currently Distinguished Professor-at-Large at the Chinese University of Hong Kong, and the Dean of the Institute for Interdisciplinary Information Sciences at Tsinghua University, Beijing. He received his BS in Physics from National Taiwan University (1967), PhD in Physics from Harvard University (1972), and PhD in Computer Science from the University of Illinois (1975). From 1975 onward, Yao served on the faculty at MIT, Stanford, UC Berkeley, and during 1986 – 2004, as William and Edna Macaleer Professor of Engineering and Applied Science at Princeton University. In 2004, he left Princeton to join Tsinghua Univeristy and the Chinese University of Hong Kong.

Yao's research interests are in the theory of computation and its applications to cryptography and quantum computing. He is recipient of the prestigious A.M. Turing Award in year 2000 for his contributions to the theory of computation, including pseudorandom number generation, cryptography, and communication complexity. He has received numerous other honors and awards, including the George Polya Prize, the Donald E. Knuth Prize, and honorary degrees from the Chinese University of Hong Kong, the City University of Hong Kong, the Hong Kong University of Science and Technology, and the University of Waterloo. He is a member of the US National Academy of Sciences, the American Academy of Arts and Sciences, and the Chinese Academy of Sciences.

Profiles of Keynote Speakers

Speaker:
Professor Jeannette M. WING
President's Professor of Computer Science
Computer Science Department
Carnegie Mellon University

Topic:
Computational Thinking

Abstract:
My vision for the 21st Century: Computational thinking will be a fundamental skill used by everyone in the world. To reading, writing, and arithmetic, we should add computational thinking to every child's analytical ability. Computational thinking involves solving problems, designing systems, and understanding human behavior by drawing on the concepts fundamental to computer science. Thinking like a computer scientist means more than being able to program a computer. It requires the ability to abstract and thus to think at multiple levels of abstraction. In this talk I will give many examples of computational thinking, argue that it has already influenced other disciplines, and promote the idea that teaching computational thinking can not only inspire future generations to enter the field of computer science but benefit people in all fields.

Biography:
Dr. Jeannette M. Wing is the President's Professor of Computer Science and Head of the Computer Science Department at Carnegie Mellon University. She received her S.B. and S.M. degrees in Electrical Engineering and Computer Science in 1979 and her Ph.D. degree in Computer Science in 1983, all from the Massachusetts Institute of Technology. From 2004-2007 she served as Department Head at Carnegie Mellon, and from 2007-2010 she was the Assistant Director of the Computer and Information Science and Engineering Directorate at the National Science Foundation.

Professor Wing's general research interests are in the areas of trustworthy computing, specification and verification, concurrent and distributed systems, programming languages, and software engineering. Her current interests are on the foundations of trustworthy computing, with a focus on reasoning about privacy.

Professor Wing was or is on the editorial board of twelve journals. She is a member of the Microsoft Trustworthy Computing Academic Advisory Board and has been a member of many other advisory boards, including: the Networking and Information

Technology (NITRD) Technical Advisory Group to the President's Council of Advisors on Science and Technology (PCAST), the National Academies of Sciences's Computer Science and Telecommunications Board, ACM Council, the DARPA Information Science and Technology (ISAT) Board, NSF's CISE Advisory Committee, the Intel Research Pittsburgh's Advisory Board, and the Sloan Research Fellowships Program Committee. She served as co-chair of NITRD from 2007-2010. She is a member of Sigma Xi, Phi Beta Kappa,Tau Beta Pi, and Eta Kappa Nu. She is a Fellow of the American Academy of Arts and Sciences, American Association for the Advancement of Science, the Association for Computing Machinery (ACM), and the Institute of Electrical and Electronic Engineers (IEEE).

Profiles of Keynote Speakers

Speaker:
Professor Don TOWSLEY
Distinguished University Professor
Department of Computer Science
University of Massachusetts - Amherst

Topic:
Universal Swarms: the Future Internet?

Abstract:
The current Internet consists of tens of thousand different interconnected autonomous networks. In many cases these networks have negotiated cumbersome bilateral and multilateral agreements that constrain how data flows from source to destination. These agreements generally impose a loose hierarchy on the Internet with respect to the flow of data and information. The recent development of peer-to-peer file sharing technology, however, has turned these arrangements upside down, resulting in a "flattening" of the Internet. Moreover, the content replication by providers has accelerated this development. In this talk we examine the implications of this on the future Internet. In particular, we see an evolution to "universal swarms", where all end hosts belong to one or another loosely cooperative groups that both serve content to each other and users and help each other to locate this content. We examine the effects of such a paradigm on network management and control. We also focus on content search, the economics of providing content, and the placement of services within the Internet.

Last, we present a research agenda on how to make this happen.

Biography:
Don Towsley received a B.A. degree in physics and a Ph.D. degree in computer science, both from University of Texas. He is currently a Distinguished University Professor in the Department of Computer Science at the University of Massachusetts - Amherst. Professor Towsley has been a Visiting Scientist at AT&T Labs - Research, IBM Research, INRIA , Microsoft Research Cambridge, and the University of Paris 6.

Dr. Towsley's research interests include network measurement, modeling, and analysis. He serves on the editorial boards of Journal of the ACM and IEEE Journalof Selected Areas in Communications, and has served as Editor-in-Chief of the IEEE/ACM Transactions on Networking and on numerous editorial boards including

those of IEEE Transactions on Communications and Performance Evaluation. He has been active on the program committees for numerous conferences including IEEE Infocom, ACM SIGCOMM, ACM SIGMETRICS, and IFIP Performance conferences for many years, and has served as Technical Program Co-Chair for ACM SIGMETRICS and IEEE INFOCOM, and IFIP Performance conferences. He has also served as Chair of the IFIP Working Group 7.3 on computer performance measurement, modeling, and analysis, and as an officer or advisor of ACM SIGMETRICS and ACM SIGCOMM. He is one of the founders of the Computer Performance Foundation.

Dr. Towsley has received the 2007 IEEE Koji Kobayashi Computer and Communications Award , the 2007 ACM SIGMETRICS Achievement Award, the 2008 ACM SIGCOMM Award, the 1999 IEEE Communications Society William Bennett Award, and several conference and workshop best paper awards. He is also the recipient of the UMass Award for Outstanding Accomplishments in Research and Creative Activity, the University of Massachusetts Chancellor's Medal and an Outstanding Research Award from the College of Natural Science and Mathematics at the University of Massachusetts. He has twice received IBM Faculty Fellowship Awards, and is a Fellow of the IEEE and the ACM.

Profiles of Speakers (Information Theory)

Speaker:

Professor Jianwei HUANG
Assistant Professor
Department of Information Engineering
Faculty of Engineering

Topic:

Overview of NCEL: Network Communications & Economics Lab

Biography:

Prof. HUANG is leading the Network Communications and Economics Lab (NCEL) in the Department of Information Engineering at the Chinese University of Hong Kong. He obtained his Ph.D. and M.S. degrees in Electrical & Computer Engineering from Northwestern University in 2005 and 2003, respectively. He worked as a Postdoc Research Associate in the Department of Electrical Engineering at Princeton University during 2005-2007.

His main research interests are in the area of nonlinear optimization and game theoretical analysis of communication networks, with current focus on network economics, cognitive radio networks, broadband communication networks, and multimedia over wireless. He received the IEEE ComSoc Asia-Pacific Outstanding Young Researcher Award of 2009, the Best Paper Award in the 2009 Asia-Pacific Conference on Communications, and the Best Paper Award in the 2010 IEEE GLOBECOM.

Profiles of Speakers (Information Theory)

Speaker:

Professor Sidharth JAGGI
Assistant Professor
Department of Information Engineering
Faculty of Engineering

Topic:

Code designs for network information theory problems

Biography:

Prof. JAGGI received his Bachelor of Technology degree from the Indian Institute of Technology in 2000, and his Master of Science and Ph.D. degrees from the California institute of Technology in 2001 and 2006 respectively, all in electrical engineering. He was awarded the Caltech Division of Engineering Fellowship 2001-'02, and the Microsoft Research Fellowship for the years 2002-'04. He interned at Microsoft Research, (Redmond, WA, USA) in the summers of 2002-'03 and engaged in research on network coding. He spent 2006 as a Postdoctoral Associate at the Laboratory of Information and Decision Systems at the Massachusetts Institute of Technology. He joined the Department of Information Engineering, the Chinese University of Hong Kong in 2007.

His research interests lie at the intersection of information theory, algorithms, and networking. He is currently particularly interested in the field of network coding http://www.ifp.uiuc.edu/~koetter/NWC/index.html which neatly merges practice and theory in all three of these fields. However, his interests are eclectic (above all, he likes a good challenge) and he has dabbled in communication complexity, quantum computation, coding theory, random matrix theory, and signal processing for vision. His name (liberally) translated from Sanskrit means "one who proves theorems", and he intends to keep trying to live up to it.

Profiles of Speakers (Information Theory)

Speaker:

Professor NAIR Chandra
Assistant Professor
Department of Information Engineering
Faculty of Engineering

Topic:

Recent results on the broadcast channel

Biography:

Prof. NAIR did his undergraduate studies at the Indian Institue of Technology (IIT), Madras in electrical engineering graduating in 1999. Concurrently, he also completed the four year nurture programme in Mathematics at the Institute of Mathematical Sciences (IMSc) under the auspices of the National Board of Higher Mathematics (NBHM).

He received a Master (2002) and PhD (2005) in electrical engineering from Stanford University. Following postdoctoral position at the theory group in Microsoft Research, he joined the IE department faculty in CUHK.

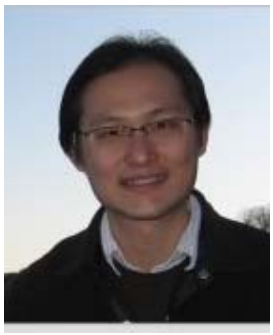
Since Fall 2007 he has been an assistant professor in the Information Engineering department at the Chinese University of Hong Kong. From Fall 2008 he is also serving as an assistant director of the Institute of Theoretical Computer Science and Communication (ITCSC).

From Summer 2005-Summer 2007 he spent two years in Redmond as a post-doc with the theory group at Microsoft Research. It was during this period that he changed his research focus from Combinatorial Optimization problems to Network Information Theory.

Profiles of Speakers (Bioinformatics)

Speaker:

Prof. YIP Yuk Lap, Kevin
Assistant Professor
Department of Computer Science and Engineering
Faculty of Engineering



Topic:

Bioinformatics: on advancing biological and medical research by computational methods

Biography:

Prof. YIP received his Bachelor of Engineering in Computer Engineering from the University of Hong Kong (HKU) in 1999. From 2002 – 2003, he studied Master of Philosophy in Computer Science and worked as Research Fellow in HKU. He obtained his Doctor of Philosophy in Computer Science from Yale University, after that, he has been a Postdoctoral Associate of Gerstein Lab, Department of Molecular Biophysics and Biochemistry, Yale University in 2009 – 2010.

Participating Research Groups:

- Gerstein lab, Yale University
- Semantic web research group, Yale Center for Medical Informatics (YCMI)
- Database research group, Department of Computer Science, The University of Hong Kong

Research interest: computational biology and bioinformatics (CBB)

Profiles of Speakers (Bioinformatics)

Speaker:
Prof. CHAN Ting Fung
Assistant Professor
Biochemistry programme
School of Life Sciences
Faculty of Science

Topic:
On new technologies and bioinformatics tools for genomic studies

Biography:
Dr. TF Chan is an Assistant Professor at the Chinese University of Hong Kong. He received his BS degree from the University of Wisconsin – Madison, majoring in computer sciences and molecular biology. He pursued postgraduate training and obtained a PhD at the Washington University School of Medicine. His doctoral thesis was to develop a chemical genomics approach to probe into the global cellular functions of the drug target of Sirolimus, which has been used for managing graft rejection in patients received kidney transplantation, and as a new therapeutic for treating cancer. He received his postdoctoral training at the University of California – San Francisco, in the laboratory of Dr. Pui-Yan Kwok, and co-developed the single DNA molecule imaging platform for various applications in genome analysis. Dr. Chan current research interests include genomics and bioinformatics of microbial and human genome variations. His research works are currently supported by the Hong Kong Research Grant Council.

Profiles of Speakers (Theoretical Computer Science)

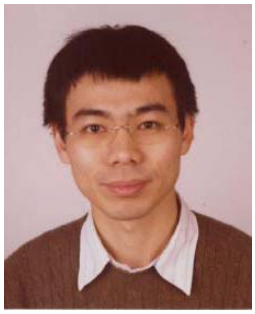
Speaker:
Prof. BOGDANOV Andrej
Assistant Professor
Department of Computer Science and Engineering
Faculty of Engineering

Topic:
Recent advances in parallel cryptography

Biography:
Prof. BOGDANOV obtained his B. Sc. in Mathematics from Massachusetts Institute of Technology in 2000; B. Sc. and M. Eng. in Computer Science and Engineering from Massachusetts Institute of Technology in 2001; Ph. D. in Computer Science from University of California, Berkeley. in 2005. From 2005 – 2006, he has been a Postdoctoral researcher in the School of Mathematics of Institute for Advanced Study, Princeton. Then, he has been a Postdoctoral researcher in Computer Science of DIMACS, Rutgers University and ITCS, Tsinghua University respectively.

He has taught the lectures about Formal languages and automata theory, Theory of computational complexity, etc.

Profiles of Speakers (Theoretical Computer Science)



Speaker:
Prof. ZHANG Shengyu
Assistant Professor
Department of Computer Science and Engineering
Faculty of Engineering

Topic:
Theoretical computer science in classical and quantum worlds

Biography:
Prof. ZHANG obtained his B.S. from Fudan University in mathematics in 1999, M.S. from Tsinghua University in computer science in 2002, and Ph.D. from Princeton University in computer science in 2006. After that, he worked in NEC Laboratories America for a summer, then moved to California Institute of Technology for a two-year postdoc in Computer Science Department and Institute for Quantum Information.

He is now an Assistant Professor in Department of Computer Science and Engineering (CSE) at The Chinese University of Hong Kong (CUHK). He is also a member in Institute of Theoretical Computer Science and Communications (ITCSC).

Research interest centers on theoretical computer science, which basically studies the fundamental power and limitation of computation in various settings. Specifically, he works on areas such as:

Quantum computing, esp. quantum algorithm design, quantum lower bounds, and various quantum complexity theories.

Computational complexity, esp. query complexity and communication complexity.

Algorithm design, esp. on problems arising from practical networks.

Profiles of Speakers (Security)

Speaker:
Prof. LEE Pak Ching, Patrick
Assistant Professor
Department of Computer Science and Engineering
Faculty of Engineering

Topic:
Applied Research on Network Robustness

Biography:
Prof. LEE received the B.Eng. degree (first-class honors) in Information Engineering from the Chinese University of Hong Kong in 2001, the M.Phil. degree in Computer Science and Engineering from the Chinese University of Hong Kong in 2003, and the Ph.D. degree in Computer Science from Columbia University in 2008. He was a postdoctoral researcher at University of Massachusetts, Amherst in 2008-09. He is now an assistant professor of the Department of Computer Science and Engineering at the Chinese University of Hong Kong. He currently heads the Advanced Networking and System Research Laboratory and is working with a group of graduate students on various applied and theoretical topics in computer networks. He has also been working with Alcatel-Lucent on network management solutions for 3G wireless networks since April 2007.

His research interests are in (i) network resilience and security, (ii) network management, monitoring, and measurement, and (iii) overlays, wireline/wireless networks. His research focuses on implementing practical systems and analyzing research ideas with theoretical models. He is a co-recipient of the best paper award in ACM CoNEXT 2008.