**2018 Graduate Forum**

Time: July 22

Conference Room: Qingdao Campus of Shandong University N3-332

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| July 22 |
| 9:00-9:45 | Daniel Cohen-or  |
| 9:45-10:30 | Ding-Zhu Du |
| 10:30-10:40 | Break |
| 10:40-11:25 | James D. Foley |
| 11:25-12:10 | Tao Xie |
| Break |  |
| 14:30-15:15 | 宗子良 |
| 15:15-16:00 | 杨波 |
| 16:00-16:10 | Break |
| 16:10-16:55 | 胡京通 |

1. Daniel Cohen-or：



Title: Clustering for Graphical Applications

Abstract: In recent years, computer graphics has been enjoyed and benefited from advances in machine learning, and more and more graphics techniques are based on learning techniques. In this talk, I will present three novel graphical methods that are based on non-parametric clustering technique: Collection distilling, Data-driven morphing, and weak Convexity Shape Decomposition.

Bio：Daniel Cohen-or是以色列特拉维夫大学教授，在纽约州立大学石溪分校获计算机博士学位。主要的研究兴趣是计算机图形学，视觉计算和几何建模，具体包括绘制和建模技术、形状分析、形状创建和编辑、三维重建、图像处理、压缩和流媒体技术、能见度、点集表示等。Daniel Cohen-Or教授是首批中央“外专千人计划”专家，中国“政府友谊奖”获得者。曾任CGF, IEEE TVCG, 和ACM TOG等国际知名期刊的编辑，也多次担任大型国际会议程序委员会委员，为在顶级期刊ACM TOG上发表文章最多的学者。于2005年获得欧洲图形学会议杰出贡献奖。

1. Ding-Zhu Du：



Title: Set Function Optimization

Abstract: The set function optimization is an important subarea of nonlinear combinatorial optimization, with many applications in wireless networks, social computing and machine learning. This talk introduce recent developments, especially on nonsubmodular optimizations.

Bio：Ding-Zhu Du现为美国德克萨斯大学达拉斯分校计算机系教授，在美国加州大学圣巴巴拉分校获博士学位。

堵丁柱教授主要研究方向为组合优化，近似算法的设计分析以及在计算机和网络通讯（包括光纤网和无线网）中的应用。先后发表180篇期刊论文和10余本专著。 任Journal of Combinatorial Optimization（组合优化期刊), Discrete Mathematics, Algorithms and Applications (离散数学,算法和应用期刊) 以及Computational Social Networks (计算社会网络期刊)主编。

1. James D. Foley：



Title: Visualization: Fundamentals + Research Directions

Abstract: Information Visualization (InfoVis) helps us explore and gain insights about data – big data, little data, financial data, demographic data, political data, internet of things data – any kind of data. Fundamentals will be discussed by:

• Demonstrating a compelling InfoVis example

• Categorizing several basic ways to interact with InfoVis’s

• Defining several basic types of information and showing ways in which they can be visualized

BUT creating an InfoVis requires understanding all these ideas, plus the GUI or programming tools needed to put the ideas into practice – to choose appropriate visualizations and interaction methods.

An important research direction is developing tools that allow a user to more directly develop insights. Two approaches to this will be discussed:

• Speech (or text)-based interaction

• Insight suggestion

Bio：Jim Foley is a professor emeritus in the College of Computing at Georgia Tech. He co-authored four computer graphics texts, is a Member of the National Academy of Engineering and a Fellow of AAAS, ACM and IEEE. He received ACM/SIGGRAPH's Lifetime Achievement Award for contributions to computer graphics and ACM/SIGCHI’s Lifetime Achievement Award for contributions to human-computer interaction. He directed Mitsubishi Electric’s US research labs (1996-1999) and was chair (2001-2005) of the Computing Research Association - an organization of over 250 North American computer science and computer engineering university departments, professional societies and research labs.

1. Tao Xie：



Title：Intelligent Software Engineering: Synergy between AI and Software Engineering

Abstract: Research and practice on leveraging or adapting AI technologies for addressing software engineering tasks especially on tool automation have been around for decades. Recent efforts from the research community have been on addressing a series of questions, e.g., how to define or determine levels of intelligence in software engineering tools, how to bring high levels of intelligence in software engineering tools, how to synergically integrate machine intelligence and human intelligence (e.g., domain knowledge or insight) to effectively tackle challenging software engineering tasks. On the other hand, given the increasing importance and popularity of AI software in the society, recent efforts from the research community have been also on exploring software engineering solutions to improve the productivity of developing AI software and the dependability of AI software. The emerging field of intelligent software engineering is to focus on two directions: (1) instilling intelligence in solutions for software engineering tasks; (2) providing software engineering solutions for AI software. This talk will share perspectives on intelligent software engineering along with some example research on the two directions in intelligent software engineering.

Bio：Tao Xie是美国伊利诺伊大学香槟分校计算机科学系副教授，博士就读于华盛顿大学计算机科学系。主要研究兴趣是软件工程领域，集中在软件测试、调试和分析、软件分析、软件安全、移动/互联网计算软件工程,软件工程教育。他是伊利诺伊自动化软件工程研究小组的负责人， ACM杰出讲座人，IEEE计算机协会杰出访问学者。曾于2009年获得美国自然科学基金会杰出青年教授奖（CAREER），2011年获得微软软件工程创新基金奖（SEIF），2007年及2013年获得微软研究奖以及其他多种奖项。曾担任2009年IEEE ICSM会议，2011及2012年MSR会议的程序委员会共同主席，以及其他国际知名会议如ICSE, ISSTA, OOPSLA, ASE和 WWW等的程序委员会委员。

1. 宗子良



Title：管理超大规模卫星图像处理分发系统面临的挑战

Abstract: 自1972年以来, 美国宇航局和地质勘测局通过发射多枚地球观测卫星搜集了Petabytes的地球地表卫星数据，成为世界上最大规模的卫星图像管理系统。这个系统与传统的大数据系统有着很多的不同：1）这个系统处理和存贮的数据与其他商业的大数据有着本质的不同; 2) 绝大多数存储的卫星数据并不会被频繁访问但在需要访问时却要求能够尽快提取；3）使用这个系统的用户群是独特的因而对采用数据挖掘和数据分析技术来提高系统性能提出了新的挑战；4）这个系统的运行受到政府政策的影响比较大；本报告将讨论在管理这样一个超大规模系统中所面临的各种挑战以及如何通过系统架构创新和基于数据分析以及数据挖掘的存取技术来克服这些挑战。

Bio：宗子良, 美国得克萨斯州立大学计算机系终身副教授, 于2002年和2005年在山东大学计算机与软件工程学院取得学士和硕士学位，2008年在美国阿拉巴马州奥本大学计算机与软件工程系取得博士学位并获杰出博士论文奖 。宗子良博士目前的研究方向主要包括高性能计算，节能型软件设计，虚拟现实和人工智能在移动设备上的高能效实现，大数据与智慧城市 。他在高水平专业期刊和国际学术会议上发表论文70余篇，出版专著章节两部，现担任“节能及可持续计算”（SCI）期刊副总编并多次受邀担任国际高水平会议程序委员会评审委员和美国自然科学基金委员会（NSF）项目评委。宗博士领导并参与了多个由美国自然科学基金委员会和工业界资助的科研项目并于2015年被授予得克萨斯州立大学杰出科研贡献和创新奖。

1. 杨波



Title：Content-Aware Caching and Tracking of Big Stream Data in Mobile Clouds

Abstract: This presentation is a brief combination of two portions of earlier research work, including a semantic-aware caching scheme and a watermarking method using implication graph for finite state machine decomposition. The amount of potentially useful information in big stream data has recently attracted researchers’ attention, and an important aspect is how to locate and retrieve stream data based on their contents. The research aims to provide a cost-efficient solution to retrieval and tracking of stream data at the edge of a mobile cloud, which includes cell phones and other devices supported by backbone base stations. The general concepts of proposed schemes will be introduced in the presentation, followed by detailed explanation of caching and tracking schemes.

Bio: 杨波，山东大学计算机科学系1997届本科，2000届硕士。2007年在Pennsylvania State University获得博士学位，现在是Maryland State Universities System副教授，在Bowie State University和University of Maryland University College任教。科研方向包括big data analytics，machine learning，cybersecurity，cloud computing等。在知名国际会议和杂志发表论文40余篇，并作为导师指导多名博士生完成研究论文。科研工作包括主持建立和负责NSA/DHS Center of Academic Excellence in Cyber Defense，并主持多项科研项目，包括目前在研NASA Planetary Database of Small Bodies的数据分析和检索。

1. Jingtong



Title: Nonvolatile Processor Based Computing: Towards Ubiquitous Smart Low-Power Computing

Abstract: The vision of Internet of Things (IoT) is to connect “things” embedded with electronics to improved social/economic benefits and overall human well-being. It is estimated that the IoT will consist of almost 50 billion objects by 2020. While the vision is promising and exciting, power these 50 billion embedded devices with traditional battery or cable power will be challenging since in many cases it is inconvenient, costly, or even dangerous to replace or service them. Emerging Nonvolatile Memories (NVMs), such as PCM, STT-RAM, and RRAM, not only help reducing power consumption as memory and storage,but also enable new computing paradigms. With their non-volatility, NVMs enable accumulative computing over intermittently harvested energy,which realizes a new class of devices that can run for decades with little maintenance. In this talk, challenges and solutions to apply NVMs in embedded computing systems, such as wearable systems and sensor applications, to reduce energy consumption and enable energy harvesting powering IoT will be presented. Specifically, the design and optimization for Non-volatile Processor based computing systems which can survive ambient intermittent power supply will be covered.

Bio: Jingtong Hu is currently an Assistant Professor with the Department of Electrical and Computer Engineering, University of Pittsburgh, Pittsburgh, PA, USA. He received his B.E. degree from the School of Computer Science and Technology, Shandong University, Jinan, China, in 2007, and the M.S. and Ph.D. degrees in Computer Science from the University of Texas at Dallas, Richardson, TX, USA, in 2010 and 2013, respectively. His current research interests include embedded systems, FPGA, and nonvolatile memory.