

DEPARTMENT OF COMPUTER SCIENCE

www.kent.edu/cs

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CHAIR: Javed I. Khan, PhD

Faculty

Maha Allouzi, MA

Arvind Bansal, PhD

Younghun Chae, PhD (Stark)

Feodor Dragan, PhD

Dianne Foreback, PhD

Kambiz Ghazinour, PhD

Qiang Guan, PhD

Angela Guercio, PhD (Stark)

Ruoming Jin, PhD

Jong-Hoon Kim, PhD

Xiang Lian, PhD

C.C. Lu, PhD, - Assist. Chair

Jonathan Maletic, PhD

Austin Melton, PhD

Mikhail Nesterenko, PhD

Hassan Peyravi, PhD

Arden Ruttan, PhD

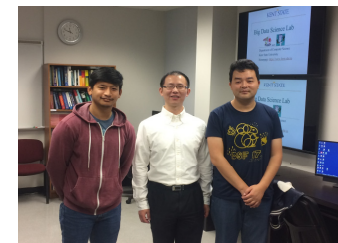
Gus Samba, PhD

Gokarna Sharma, PhD

Gwenn Volkert, PhD

Robert Walker, PhD

Ye Zhao, PhD



Computer Science Research Day 2018

KSU Student Center

Room 310ABC

8:50 a.m.—12:30 p.m.

2:00 p.m.—7:30 p.m.

Emeriti Faculty

Johnnie Baker, PhD

Ken Batcher, PhD

Paul Farrell, PhD

Michael Rothstein, PhD

Paul Wang, PhD

Systems Engineers:

Jeff Bailey

Roy Heath

Jason Rozen

Admin. Staff:

Marcy Curtiss

Jan Kotila

Jeanne Tan

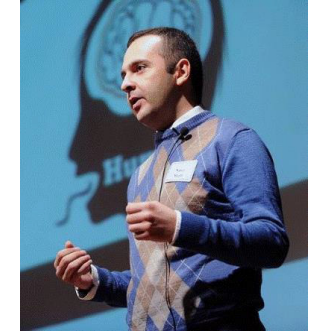
Nathan Thomas

Kent State University
College of Arts & Sciences
Department of Computer Science

**Congratulations to the 2018
Outstanding Doctoral Research Award Recipients
Shamal Al-Dohuki and Naser Al-Madi.**



Shamal Al-Dohuki, a PhD candidate in the Department of Computer Science at Kent State University, is working with Dr. Ye Zhao with research interests in implementing visual analytics of big urban data. Al-Dohuki is from the Kurdistan Region of Iraq and received his Bachelor of Science and Master of Science degrees in Computer Science from the University of Duhok in 2005 and 2008. He joined Kent State University's Computer Science program in 2013 and is a teaching assistant in the department. He has been working on image processing and pattern recognition for 6 years.



Coming from Amman, Jordan, **Naser Al Madi** is a PhD candidate and a teaching assistant in the Department of Computer Science. He received his bachelor's degree from the University of Jordan in 2011, and his Master's degree from Kent State University in 2014. His research goal is to use the tools of computer science to discover the human brain and build systems that imitate it. Al Madi was awarded the distinguished poster award in the graduate research symposium in 2016. Also, he was a finalist in the 3 Minute Thesis competition in 2015, and he was a winner of the business concept competition in 2013.

CS Research Day

Friday, February 2, 2018

Student Center 310ABC 8:50 AM—12:30 p.m. and 2:00 PM—7:30 PM

Co-Organizers: Dr. Ruoming Jin and Dr. Austin Melton

8:50 a.m. Welcome Chair Javed Khan

9:00 a.m. Keynote Speaker:
Blockchains and the Future of Distributed Computing
Dr. Maurice Herlihy, Brown University

10:00 a.m. Technical Session
Jonathan Maletic *Explore, Analyze and Manipulate Source Code Using srcML*
Feodor Dragan *Negative Curvature in Complex Networks*
Gokarna Sharma *Transaction Scheduling in Distributed Systems*
Xiang Lian *Inferring and Querying Hidden Data in Biological Databases*
Jong-Hoon Kim *Future of Telepresence*

2:00 p.m. Inferring Urban Air Quality Based on Social Media
Dr. Xinyue Ye, Dept. of Geography, KSU

3:00 p.m. Panel Session: Moderator, Javed Khan
What's Next After Big Data
Maurice Herlihy
Kambiz Ghazinour
Qiang Guan
Bob Walker
Jonathan Maletic
Xinyue Ye

4:00 p.m. Student Research Presentations

Corey Bryant
Irvin Steve Cardenas
Tamim Md Iftakharul Islam
Do-Yeon Kim
Fatema Nafa
Pavan Poudel
Paul Loveman
Abdulhakeem Mohammed
Aditi Singh
Michael Lovell

5:10 p.m. Presentation of Doctoral Research Excellence Award
Presented by Austin Melton

Shamal Al-Dohuki
Naser Al-Madi

5:30 p.m. Poster Sessions: CS Graduate Students
to 7:30 p.m.

The **Advanced Tele-Robotics Lab (ATL)** has a new permanent space in MSB 236. It will be completed this month. Stop by, there are windows on the hallway so we can view the interesting research and innovations which will be going on in there under Dr. Jong-Hoon Kim's supervision!

Keynote Presentation:

Blockchains and the Future of Distributed Computing

Dr. Maurice Herlihy, Brown University

ABSTRACT:

There has been a recent explosion of interest in blockchain-based distributed ledger systems such as Bitcoin, Ethereum, and many others. Much of this work originated outside the distributed computing community, but the questions raised, such as consensus, replication, fault-tolerance, privacy, and security, and so on, are all issues familiar to our community. This talk surveys the theory and practice of blockchain-based distributed systems from the point of view of classical distributed computing, along with reckless speculation about promising future research directions for our community.

Guest Speaker Presentation:

Inferring Urban Air Quality Based on Social Media

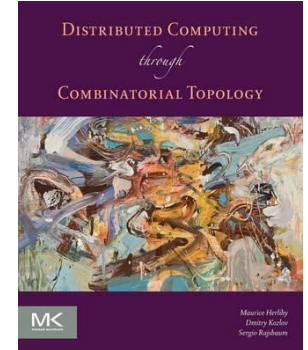
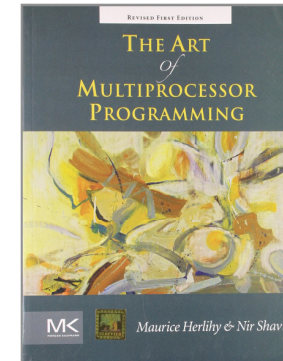
Dr. Xinyue Ye, Dept. of Geography, KSU

ABSTRACT:

Outdoor air pollution is a serious environmental problem in many developing countries; obtaining timely and accurate information about urban air quality is a first step toward air pollution control. Many developing countries however, do not have any monitoring stations and therefore the means to measure air quality. We address this problem by using social media to collect urban air quality information and propose a method for inferring urban air quality in Chinese cities based on China's largest social media platform, Sina Weibo combined with other meteorological data. Our method includes a data crawler to locate and acquire air-quality associated historical Weibo data, a procedure for extracting indicators from these Weibo and factors from meteorological data, a model to infer air quality index (AQI) of a city based on the extracted Weibo indicators supported by meteorological factors. We implemented the proposed method in case studies at Beijing, Shanghai, and Wuhan, China. The results show that based the Weibo indicators and meteorological factors we extracted, this method can infer the air quality conditions of a city within narrow margins of error. The method presented in this article can aid air quality assessment in cities with few or even no air quality monitoring stations.

KSU—Computer Science *Welcomes*

Dr. Maurice Herlihy



A graduate of Harvard and MIT, Dr. Herlihy currently serves as the “An Wang Professor of Computer Science” at Brown University. Dr. Herlihy has also taught for Carnegie Mellon University and has served on the staff of the DEC Cambridge Research Lab. He is the recipient of the 2003 Dijkstra Prize in Distributed Computing, the 2004 Godel Prize in Theoretical Computer Science, the 2008 ISCA Influential Paper Award, the 2012 Edsger W. Dijkstra Prize, and the 2013 Wallace McDowell Award. He received a 2012 Fulbright Distinguished Chair in the National Sciences and Engineering Lecturing Fellowship and he is a fellow of the ACM, a fellow of the National Academy of Inventors, the National Academy of Engineering and the National Academy of Arts and Sciences.