

June Zhang

(Zhong-Ju Zhang)

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EDUCATION

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

Doctor of Philosophy (Ph.D.) in Electrical and Computer Engineering Aug 2010 – Dec 2015

- Thesis: Network Process: How Topology Impacts the Dynamics of Epidemics and Cascading Failures
- Adviser: José M.F. Moura
- Research areas: Network science, complex systems, stochastic process, signal processing

Stanford University, Stanford, California, USA

Master of Science (M.S.) in Electrical Engineering Sep 2005 – Jun 2008

Georgia Institute of Technology, Atlanta, Georgia, USA

Bachelor of Science (B.S.) in Electrical and Computer Engineering Aug 2002 – May 2005

- Graduated Summa Cum Laude

RESEARCH EXPERIENCE

Carnegie Mellon University

Graduate Student Researcher, Electrical and Computer Engineering Dept. Aug 2010 – Dec 2015

- Developed quantitative, stochastic dynamical model for analyzing robustness and resilience of large-scale networks to spread of virus, spread of rumors, and cascading failures
- Exactly identified vulnerable substructures in steady-state in large-scale networks (> 4000 nodes) using Maxflow-Mincut algorithm
- Model related subgraph density to susceptibility to infection/failure
- Thesis work used dynamical systems theory, stochastic process, graph theory, statistical mechanics, and discrete optimization

Tsinghua University

Visiting Researcher, Electronics Engineering Dept. Jan 2009 – Dec 2009

- Researched upper-body human pose detection from still photo using graph-cut skin detection algorithm
- Tutor and conference and journal papers editor

Stanford University

Graduate Student ME310: Team Based Design (w/ Audi AG) Sep 2006 – Jun 2007

- Collaborated with students from TU München to design and implement posture improvement device in Audi A6
- Multiple user testing to develop what it means to improve driver fitness

Stanford University

Graduate Student CS 294H: Integrating Physical and Digital Interaction Jan 2006 – Jun 2006

- Created interactive system using capacitive sensing table, camera, and projector to explore interactive, co-located multiple users visual design experience

San Jose Panasonic Research Laboratory

Part-time Consultant Apr 2007 – Sep 2007

- Developed multi-screen, touch-based interactive device
- Rapid prototyping through user feedback

Georgia Institute of Technology

Undergraduate Researcher, Electrical and Computer Engineering Dept. Aug 2004 – Aug 2005

- Built test-bed for measuring indoor wireless signal strength for studying multi-path fading

PUBLICATIONS

JOURNALS

- 5) J. Zhang, J.M.F. Moura, “Who is more susceptible in a heterogeneous network?,” *in preparation*.
- 4) J. Zhang, J.M.F. Moura, “Cascading edge failures: a dynamic network process,” *submitted*.
- 3) J. Zhang, J.M.F. Moura, “Contact process with exogenous infection and the scaled SIS process,” *submitted*.
- 2) J. Zhang, J.M.F. Moura, “Roles of subgraphs in network epidemics under the scaled SIS process,” *Journal of Complex Networks*, vol. 3, no. 4, pp. 330–352, Mar 2015.
- 1) J. Zhang, J.M.F. Moura, “Diffusion in social networks as SIS epidemics: beyond full mixing and complete graphs,” *IEEE Journal of Selected Topics Signal Processing on Social Networks*, vol. 12, no. 4, pp. 330–352, Jun 2014.

CONFERENCES & WORKSHOPS

- 10) J. Zhang, J.M.F. Moura, “Finding unique dense communities,” in *Proc. of the 41st International Conferences on Acoustics, Speech, and Signal Processing (ICASSP)*, Shanghai, China, to be published.
- 9) J. Mohammadi, J. Zhang, S. Kar, G. Hug, J.M.F. Moura, “Multilevel distributed approach for DC optimal power flow,” in *Proc. of the 3rd IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Orlando, USA, to be published.
- 8) J. Zhang, J.M.F. Moura, “Individual vs. network preferences,” in *Proc. of the 49th Asilomar Conference on Signals, Systems and Computers (Asilomar)*, Orange Grove, USA, Nov 2015.
- 7) J. Zhang, J.M.F. Moura, “Dynamic bond percolation in networks,” in *Proc. of the 2nd IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Atlanta, USA, Dec 2014.
- 6) J. Zhang, J.M.F. Moura, “Subgraph density and epidemics over networks,” in *Proc. of the 39th International Conferences on Acoustics, Speech, and Signal Processing (ICASSP)*, Florence, Italy, May 2014.
- 5) J. Zhang, J.M.F. Moura, “Threshold behavior of epidemics in regular networks,” in *Proc. of the 38th International Conferences on Acoustics, Speech, and Signal Processing (ICASSP)*, Vancouver, CA, May 2013.
- 4) J. Zhang, J.M.F. Moura, “Epidemic process on fixed networks,” in *1st IEEE/ACM Workshop on Signal Processing Advancement in Sensor Networks*, Philadelphia, CA, May 2013.
- 3) J. Zhang, J.M.F. Moura, “Accounting for topology in spreading contagion in non-complete networks,” in *37th Proc. of the IEEE International Conferences on Acoustics, Speech, and Signal Processing (ICASSP)*, Kyoto, Japan, Mar 2012.
- 2) J. Zhang, “LightCast: a tangible user interface creativity support tool for visual design,” in *Proc. of 2006 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, Orange County, USA, Mar 2006.
- 1) K U-Yen, M. Ahn, J. Zhang, J.S. Kenney, “Effects of microwave switch isolation on a butler matrix beamforming network in smart antenna systems,” in *Proc. of Radio and Wireless Conference (RAW)*, Atlanta, USA, Mar 2004.

ACADEMIC HONORS & AWARDS	Microsoft Azure Research Award	2015 – 2016
	CMU 3-Minute Thesis Competition Semifinal winner	2014
	National Science Foundation (NSF) Graduate Research Fellowship	2005 – 2008
	Georgia HOPE Scholarship	2001 – 2005
	Georgia Tech President’s Undergraduate Research Award	2004 – 2005
	IEEE Atlanta Chapter Scholarship	2003

INVITED TALKS	“Impact of Topology on Epidemics and Cascading Failures” Sandia National Laboratory , Albuquerque, USA	Jun 2015
	“Impact of Topology on Dynamical Processes on Networks: Connectivity and Competition Matters” Seminar Series, Santa Fe Institute , Santa Fe, USA	Apr 2015
	“Impact of Topology on Dynamical Processes on Networks” IS&T Seminar Speakers Series, Los Alamos National Laboratory , Los Alamos, USA	Apr 2015
	“Who are the Most Vulnerable Agents in a Network?” Georgia Tech Research Institute , Atlanta, USA	Dec 2014
	“Graph Structure and Vulnerable Agents in a Network” Business Technology Seminar, Tepper School of Business Carnegie Mellon University , Pittsburgh, USA	Nov 2014
	“Who are the Most Vulnerable Agents in a Network?” Energy and Information Systems Seminar, Carnegie Mellon University , Pittsburgh, USA	Oct 2014

“Who are the Most Vulnerable Agents in a Network?”
 Machine Learning and the Social Sciences Seminar, **Carnegie Mellon University** Sep 2014

“Topology and Network Diffusion Processes”
 Electrical and Computer Eng., **Instituto Superior Técnico**, Lisbon, Portugal May 2014

PROFESSIONAL AFFILIATIONS & ACTIVITIES **IEEE**, New York, USA
 Member 2010 – Present

IEEE Signal Processing Society, New York, USA
 Member 2010 – Present

TEACHING EXPERIENCES **Carnegie Mellon University** , Teaching Assistant
 18-202, Mathematical Foundations of Electrical Engineering Aug 2014 – Dec 2014

- Led recitation lectures for 60+ students to introduce mathematical theory such as set theory, complex analysis, differential equations to sophomore/junior undergraduates

Carnegie Mellon University , Graduate Mentor Aug 2014 – Dec 2014

- Mentored M.S. student for independent research project on visualization of large-scale networks

Carnegie Mellon University , Teaching Assistant
 18-290, Signals and Systems Jan 2011 – 2011

- Led recitation lectures, held office hours, made and graded exams for sophomore/junior level introduction class to linear systems, Fourier and Laplace transforms

North China University of Technology, Visiting Scholar Jan 2010 – Jun 2010

- Co-taught Introduction to Probabilistic Graphical Model to M.S. students

LEADERSHIP EXPERIENCES **Carnegie Mellon University**
 Energy and Information Systems (EIS) Seminar
 Student Coordinator/Webmaster Jan 2013 – Jan 2015

Carnegie Mellon University
 ECE Graduate Student Organization
 Treasurer Sep 2010 – Aug 2013

RESEARCH INTERESTS Network science, dynamic processes on networks, complex systems, network visualization, data science, machine learning, image processing, tangible user interface, design methodology

REFERENCES **Professor José M.F. Moura**
 Philip L. and Marsha Dowd University Professor
 Carnegie Mellon University
 Department of Electrical and Computer Engineering
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Professor Sharad Goel
 Assistant Professor
 Stanford University
 Department of Management Science & Engineering
 scgoel@stanford.edu • +1 (607) 339-9903

Professor Pulkit Grover
 Assistant Professor
 Carnegie Mellon University
 Department of Electrical and Computer Engineering
 pgrover@andrew.cmu.edu • +1 (412) 268-3644