Zhifeng (Austin) Sun

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Education

Northeastern University, Boston, Massachusetts, USA
College of Computer & Information Science
Ph.D., Computer Science, April 2012
Thesis: Enabling and Controlling Diffusion Processes in Networks
Research area: Approximation algorithms, algorithmic game theory, distributed computing

Northeastern University, Boston, Massachusetts, USA
College of Computer & Information Science
M.S., Computer Science, January 2008. GPA: 3.91/4.0

Harbin Institute of Technology, Harbin, China
Department of Software Engineering
B.S., Software Engineering, July 2006. GPA: 3.86/4.0. Ranking: 1 out of 150

Research Experiences

Brown University, Providence, RI, USA
Research Intern, July 2010 - August 2010

- Worked with Professor Pandurangan and Professor Peleg on designing efficient algorithms for hard distributed computing problems (e.g. resource discovery, network evolution, etc.).
- Developed and analyzed mathematical models for diffusion processes over dynamic networks.

Virginia Bioinformatics Institute, Network Dynamics and Simulation Science Laboratory, Blacksburg, VA, USA
Research Intern, April 2008 - August 2008

- Worked with Professor Vullikanti and Professor Marathe on epidemic modelings.
- Designed and analyzed good intervention strategies to control disease transmission over human contact networks.
- Develop comprehensive simulations to validate our models and algorithms. The simulations run on large scale synthetic networks of major US cities.
- Extend the functionalities of the simulation system (EpiFast).

Northeastern University, Theory and Networks Laboratory, Boston, MA, USA
Research Assistant, September 2006 - September 2011

- Worked with Professor Rajaraman and Professor Sundaram on various open problems in theoretical computer science.
- Designed approximation algorithms for key management in secure multicast networks.
- Designed good intervention strategies to prevent disease transmitting over human contact networks.
- Designed efficient algorithms for large scale distributed computing problems.
- Used game theory to analyze the impact of individual (risk) behaviors on mass vaccination programs.

Industry Experiences

Google, Inc. Google Display Network, Kirkland, WA, USA
Software Engineer, October 2012 - now

- Working on Media Mix project, which helps advertisers optimally allocate their budget across different Google advertising products.

Microsoft. Audience Intelligence, Online Service Department, Bellevue, WA, USA
Software Engineer, October 2011 - October 2012

- Maintaining and enhancing Metadata Service component, which is a critical component of Audience Intelligence advertising system.
- Designing and implimenting good targeting algorithms to provide users with better online advertisement.

Akamai Technologies, Inc. Mapping group, Cambridge, MA, USA
Software Development Intern, May 2009 - August 2009
- Wrote SQL queries to facilitate software deployment process in Mapping group.
- Built news group tool to help developers moniter component failures in Testnets, which has been helpful catching serveral top priority bugs.
- Built NSD tool to help visualize the output changes of NSD module.
- Worked on Normandy modules.

Bloomberg, LP. Research and Development Department, New York City, NY, USA
Software Development Intern, May 2007 - August 2007
- Built up the "call notes" searching system in Bloomberg terminal for sales department.
- Tried out different search engines (Lucene, Nutch, and Autonomy), and analyzed their pros and cons for this particular application in Bloomberg terminal.
- Experimented on different architectures (Web Service, Client/Server) to make communications between Bloomberg terminal application and back end searching service.
- Measured and analyzed the performance and quality of this searching system based on 100,000 call notes.

Autodesk, Inc. Research and Development Center, Shanghai, China
Software Development Intern, July 2005 - April 2006
- Built up an automation testing system for Autodesk Civil 3D COM API with other two teammates.
- Designed thousands of positive and negative testing cases compliance with design specifications.
- Wrote script tools to facilitate testing and results analysis.
- Joined COM API team and fixed more than ten COM API bugs at the end of internship.

Publications

Network effects of risk behavior change following prophylactic interventions
with V.S. Kumar, R. Rajaraman, and R. Sundaram. *PLOS ONE 2013.*

On the Complexity of Information Spreading in Dynamic Networks
with C. Dutta, G. Pandurangan, R. Rajaraman, and E. Viola. *In proceedings of SODA 2013.*

Discovery through Gossip
with B. Haeupler, G. Pandurangan, D. Peleg, and R. Rajaraman. *In proceedings of SPAA 2012.*

Existence Theorems and Approximation Algorithms for Generalized Network Security Games
with V.S. Kumar, R. Rajaraman, and R. Sundaram. *In proceedings of ICDCS 2010.*

Approximation Algorithms for Key Management in Secure Multicast
with A. Chan, R. Rajaraman, and F. Zhu. *In proceedings of COCOON 2009.*

Enabling and Controlling Diffusion Processes in Networks
Ph.D. dissertation.

Professional Services

Journal Reviewer:
- IEEE/ACM Transactions on Networking
- IEEE Transactions on Mobile Computing

Conference External Reviewer:
- IEEE International Conference on Computer Communications (INFOCOM) 2013
- ACM Symposium on Theory of Computing (STOC) 2011
- International Symposium on Distributed Computing (DISC) 2011
- ACM Symposium on Parallelism in Algorithms and Architectures (SPAA) 2011

- IEEE International Conference on Computer Communications (INFOCOM) 2009
- SIGACT-SIGOPS International Workshop on Foundation of Mobile Computing (DIALM-POMC) 2008
- IEEE International Conference on High Performance Computing (HiPC) 2008
- IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS) 2007

Teaching and Mentoring Experiences

Instructor of CSG113 Algorithms in Spring 2009

- Graduate level algorithm class. One of the core courses of master program in Northeastern University.
- Taught 3-hour lecture per week, held office hours, created homework assignments and exams.
- Rated as top instructors in both department and university feedback reports filled by students.

Teaching Assistant
- Algorithm class for master students.
- Logic and Computation for undergraduate students.

Awards and Honors

- IEEE ICDCS student travel award. (2010)
- COCOON student travel award. (2009)
- Northeastern University graduate school scholarship. (2006 - 2011)
- Outstanding undergraduate thesis award in Harbin Institute of Technology. (2006)
- Best Undergraduate Student award in Heilongjing Province. (2006)
- 1st prize Renmin scholarship (top 3% only). (six times from 2002 to 2005)
- The 9th National Physics Olympiad, top 50 in Liaoning Province. (2001)
- China National Mathematical Olympiad, top 20 in Liaoning Province. (1999)
- The 9th National "Hope" Mathematical Olympiad, top 10 in Liaoning Province. (1998)

Skills

- Proficient in C/C++ and Java programming languages.
- Proficient in object oriented analysis, design, and programming.
- Proficient in Emacs and Shell/Python programming under Linux environment.
- Familiar with C#, VBA, SQL, Scheme programming languages.
- Familiar with system (POSIX) and networking programming under Linux environment.
- Extensive knowledge of Internet architecture (TCP/IP protocol suite).

References

Available Upon Request.