

Yilin Shen

PhD Candidate

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Education

- 2008 – Present **PhD student in Computer Science**, *University of Florida*, GPA: 3.85/4.0.
Thesis Topic: *The Exploitation of Power-Law Networks: Robustness, Optimization and Its Impact on Social Behaviors*
Supervisor: Dr. My T. Thai
- 2001 – 2005 **Bachelor in Applied Mathematics**, *Donghua University*, Ranking: 3/78.
Thesis: *A Hamiltonian Approach to the Stabilization of Nonholonomic Mechanical Systems with Affine Constraints*
Supervisor: Dr. Jianling Kang
- 2002 – 2005 **Minor Major in Computer Science**, *Donghua University*.

Research Interests

Complex Networks: Vulnerability Assessment and Optimization
Social Networks: Information Propagation, Privacy, Community Structure Detection
Wireless Networks: Security, Scheduling and Coverage
Theory, Approximation Algorithms, Complexity Theory

Honors and Awards

- 2011 MILCOM Student Travel Grant, 2011
2011 CISE Department Student Travel Award, University of Florida, 2011
2010-Present Research and Teaching Scholarship, University of Florida
2008 Achievement Award, University of Florida
2005 Honor of Excellent Graduate Student in college (for top 5% graduate students of every specialty)
2004,2005 Successful Participant in Mathematical Contest in Modeling (MCM) in USA
2004 "Qian Zhiguang" Social Scholarship for excellent students (annual scholarship for top 2% students of every specialty selected from those who get first-class comprehensive scholarship this year)
2004 First-class Comprehensive Scholarship for excellent students (annual scholarship for top 3% students of every specialty)
2004 The 1st Prize in Mathematical Contest in Modeling (MCM) in college
2004 The 3rd Prize in Advanced Mathematics Contest of Institute
2003,2004 The 2nd Prize in China Undergraduate Mathematical Contest in Modeling (CUMCM), The 1st Prize in CUMCM in Shanghai District

- 2003 The 3rd Prize in ACM Programming Contest of Institute
- 2003 Honor of Excellent Student in study (annual scholarship for top 10% students of every specialty)

Book Chapters

- [1] Y. Shen, D. T. Nguyen, and M. T. Thai. Hardness Complexity of Optimal Substructure Problems on Power-Law Graphs. *Handbook of Optimization in Complex Networks: Theory and Applications*, (M. T. Thai and P. Pardalos eds), Springer Publisher, 2011.
- [2] M. T. Thai, T. N. Dinh, and Y. Shen. Hardness and Approximation of Network Vulnerability. *Handbook of Combinatorial Optimization*, (P. Pardalos, D.-Z. Du, and R. Graham eds), Springer Publisher, 2010.

Journal Articles

- [1] Y. Shen, N. P. Nguyen, Y. Xuan, and M. T. Thai. On the Discovery of Critical Nodes and Links for Assessing Network Vulnerability. *IEEE/ACM Transactions on Networking (ToN)*, accepted with revision.
- [2] Y. Xuan, Y. Shen, N. P. Nguyen, and M. T. Thai. Efficient Multi-Link Failure Localization in All-Optical Networks. *IEEE Transactions on Communications (TCOM)*, accepted with revision.
- [3] Y. Xuan, Y. Shen, N. P. Nguyen, and M. T. Thai. A Trigger Identification Service for Defending Reactive Jammers in WSN. *IEEE Transactions on Mobile Computing (TMC)*, vol.11, no.5, pp.793-806, May 2012.
- [4] Y. Shen, D. T. Nguyen, Y. Xuan, M. T. Thai. New Techniques for Approximating Optimal Substructure Problems in Power-Law Graphs. *Theoretical Computer Science (TCS)*, to appear, 2011.
- [5] I. Shin, Y. Shen, Y. Xuan, M. T. Thai, and T. Znati. A Novel Approach Against Reactive Jamming Attacks. *Ad Hoc & Sensor Wireless Network*, Vol. 12, Nr. 1-2, p. 125-149, 2011.
- [6] I. Shin, Y. Shen, and M. T. Thai. On Approximation of Dominating Tree in Wireless Sensor Networks. *Optimization Letter*, vol. 4, no. 3, pp. 393-403.

Conference Papers

- [1] Y. Shen, Y-S. Syu, D. T. Nguyen, and M. T. Thai. Maximizing Circle of Trust in Online Social Networks. *Proceedings of ACM Conference on Hypertext and Social Media (Hypertext)*, 2012.
- [2] Y. Shen, Y. Xuan, and M. T. Thai. On Local Approximation of Minimum-Latency Broadcast Scheduling in 3D MANETs. *Proceedings of the IEEE Military Communications Conference (MILCOM)*, 2011.
- [3] Y. Shen, N. P. Nguyen, and M. T. Thai. Exploiting the Robustness on Power-Law Networks. *Proceedings of the 17th Int Computing and Combinatorics Conference (COCOON)*, 2011.
- [4] Y. Shen, D. T. Nguyen, and M. T. Thai. On the Hardness and Inapproximability of Optimization Problems on Power Law Graphs. *Proceedings of the Int Conference on Combinatorial Optimization and Applications (COCOA)*, 2010.
- [5] Y. Xuan, Y. Shen, and M. T. Thai. A Graph-theoretic QoS-aware Vulnerability Assessment for Network Topologies. *Proceedings of the IEEE Global Communication Conference (GLOBECOM)*, 2010.
- [6] Y. Xuan, Y. Shen, I. Shin, and M. T. Thai. On Trigger Detection Against Reactive Jamming Attacks: A Clique-Independent Set Based Approach. *Proceedings of the 28th IEEE International Performance Computing and Communications Conference (IPCCC)*, 2009.

- [7] I. Shin, Y. Shen, Y. Xuan, M. T. Thai, and T. Znati. Reactive Jamming Attacks in Multi-Radio Wireless Sensor Networks: An Efficient Mitigating Measure by Identifying Trigger Nodes. *Proceedings of ACM International Workshop on Foundations of Wireless Ad Hoc and Sensor Networking and Computing (FOWANC)*, in conjunction with MobiHoc, 2009.

Under Submission

- [1] Y. Shen, T. N. Dinh*, and M. T. Thai. Someone Hearing Your Secrets: Smartly Sharing Your Information in Online Social Networks. submitted to, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2012. (* Co-first authors)
- [2] Y. Shen, T. N. Dinh, Y. Xuan, and M. T. Thai. Minimizing the Time Latency of Broadcast Scheduling in 3D MANETs, *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, under review.
- [3] Y. Shen, N. P. Nguyen, and M. T. Thai. The Robustness of Power-Law Networks: Its Assessment and Optimization, *IEEE Transactions on Reliability (ToR)*, under review.
- [4] Y. Shen, D. T. Nguyen*, and M. T. Thai. Detecting Critical Nodes in Interdependent Power Networks for Vulnerability Assessment, *IEEE Transactions on Smart Grid (ToSG)*, under review. (* Co-first authors)
- [5] N. P. Nguyen, Y. Shen, T. N. Dinh, and M. T. Thai. On the evolution of overlapping communities in dynamic mobile networks, *IEEE Transactions on Mobile Computing (TMC)*, under review.
- [6] T. N. Dinh, Y. Shen, D. T. Nguyen, M. T. Thai. On the Approximability of Positive Influence Dominating Set in Social Networks, *Journal of Combinatorial Optimization (JOCO)*, under review.
- [7] Y. Shen, T. N. Dinh, M. T. Thai. Adaptive Algorithms for Detecting Critical Links and Nodes in Dynamic Networks, submitted to, *Proceedings of the IEEE Military Communications Conference (MILCOM)*, 2012.
- [8] T. N. Dinh, Y. Shen, M. T. Thai. New Spectral Bounds for Link Vulnerability Assessment, submitted to, *Proceedings of the IEEE Military Communications Conference (MILCOM)*, 2012.
- [9] Y. Shen, T. N. Dinh, M. T. Thai. How to Protect your Secrets in Online Social Networks?, *IEEE/ACM Transactions on Networking (ToN)*, under review.
- [10] T. N. Dinh, Y. Shen, M. T. Thai. Cost-effective Viral Marketing for Time-critical Campaigns in Large-scale Social Networks, *IEEE/ACM Transactions on Networking (ToN)*, under review.
- [11] N. P. Nguyen, T. N. Dinh, Y. Shen, M. T. Thai. On Detection and Applications of Community Structures in Dynamic Social Networks, *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, under review.
- [12] Y-S. Syu, H. Zhang, Y. Shen, M. T. Thai. How do User Behaviors Affect Information Propagation in Twitter?, submitted to, *ACM Internet Measurement Conference (IMC)*, 2012.

Talks

- [1] *On Local Approximation of Minimum-Latency Broadcast Scheduling in 3D MANETs*, In the IEEE Military Communications Conference (MILCOM), Baltimore, MD, Fall 2011.
- [2] *Exploiting the Robustness on Power-Law Networks*, In the 17th International Computing & Combinatorics Conference (COCOON), Dallas, TX, Summer 2011.
- [3] *Exploiting Power-Law Distribution on Complex Network Vulnerability*, In The 3rd International Conference on the Dynamics of Information Systems (DIS), Gainesville, FL, Spring 2011.

Academic Papers in Mathematical Modeling

- [1] H. Chen, Y. Shen, W. Ji, J. Chen. $M/M/s - T$: A New Queueing Model for Analyzing the Flow of Vehicles at the Toll Plaza. *MCM*, 2005.
- [2] Y. Shen, B. Zhu, W. Ji, Z. Guo. Fingerprint Identification Using Cluster Approach. *MCM*, 2005.
- [3] Y. Shen, J. Zhang, W. Ji, Z. Guo. Supermarket Location Designs for Beking 2008 Olympic Games. *CUMCM*, 2005. (In Chinese)
- [4] Y. Shen, J. Zhang, W. Ji, Z. Guo. The Mathematical Modeling of SARS Transmission and Analysis of Economic Problems caused by SARS. *CUMCM*, 2004. (In Chinese)

Working Experience

- 2008 – Present **Research Assistant**, *Optima Network Science Laboratory, CISE Department, University of Florida*, Gainesville, FL.
Complex Network Theory: Vulnerability and Optimization
Social Networks: Information Propagation, Privacy, and Community Structure Detection
Wireless Networks: Security, Scheduling and Coverage
- 2010 – Present **Teaching Assistant**, *CISE Department, University of Florida*, Gainesville, FL.
CNT6107: Advanced Computer Networks, COP3530: Data Structures and Algorithm, COT5442: Approximation Algorithm, COP5615: Operating Systems
- 2007 – 2008 **Linux Software Engineer**, *Linpus Technologies, Inc.*, Shanghai, China.
UNIX / Linux operating system development
GNU software development using Gtk+ and QT
Linux system maintenance using UNIX shell and Perl
- 2005 – 2007 **ERP Software Developer & System Administrator**, *Alchip Technologies, Inc.*, Shanghai, China.
Internal ERP system development
Discuss with ERP vendors about systems, including evaluating and testing
Establishment and Maintenance of the whole company's UNIX system and Networking System

Professional Activities

- Publicity chair ISSPIT 2012
- Reviewer CCNET, IEEE TPDS, Journal of Combinatorial Optimization
- External Reviewer IEEE ToN, IEEE TMC, INFOCOM, COCOON, COCOA, CCNET, SIMPLEX

Courses and Other Skills

- Courses Analysis of Algorithms, Approximation Algorithms, Computer Architecture Principles, Computer Networks, Computational Molecular Biology, PCPS and Inapproximability, Operating System Principles, Mobile Networking, Optimization in Adaptive Complex Systems & Social Networks, Computational Geometry, Machine Learning, Advanced Machine Learning, Advanced Data Structures, Statistical Methods in Social Research
- VLSI Design Basic digital circuit, VHDL
- Actuary Passed Exam P (Probability) and Exam FM (Finance Mathematics)