Sachin Shetty

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Education

- Ph.D., Modeling and Simulation, August 2007, Old Dominion University
- M.S., Computer Science, August 2002, University of Toledo
- B.E., Computer Engineering, August 1998, University of Mumbai, Mumbai, India.

Current Areas of Research Interest

- *Cybersecurity* – Stochastic based modeling to implement IP Geolocation, Intrusion Detection Systems and wireless channel estimation based secure key generation

- *Cognitive Radio Networking* – Dynamic and opportunistic spectrum access protocols for cognitive spectrum management.

- *Distributed Data Mining* – Supervised and Unsupervised Machine Learning techniques to perform data mining on distributed and disparate data sets

- *Research based education* – Developing innovative and pedagogical approaches in education that employ research and project based learning

Industrial/Academic Experience

- **Assistant Professor**, Department of Electrical and Computer Engineering, Tennessee State University, August 2009 – Present
- **Assistant Professor**, Department of Electrical and Computer Engineering, Rowan University, August 2008-July 2009
- **Visiting Assistant Professor**, Department of Electrical and Computer Engineering, Old Dominion University, August 2007- July 2008
- **Graduate Research Assistant**, Wireless Communications and Networking Lab, Old Dominion University, August 2002- July 2007
- **Graduate Research Assistant**, Ohio Computing and Communications ATM Research Network Lab, University of Toledo, August 2000 – July 2002
- **Software Developer**, Tata Infotech Limited, Mumbai, India, August 1998 – July 2000

Journal Publications

- Gayathri Shivaraj, Min Song and Sachin S. Shetty, "Using Hidden Markov Models to detect Rogue Access Points", *Security and Communication Networks*, Volume 3, Issue 5, pages 394–407, October 2010.

- Sachin S. Shetty, Ying Tang and William Collani, "A Cross-Layer Packet Loss Identification Scheme to Improve TCP Veno Performance", *International Journal of Computer Networks*, Volume 1, Issue 1, pages 36-45, November 2009
- Sachin Shetty, Min Song, Youjun Yang, and Mary Mathews, "Learning Bayesian Network over Distributed Databases Using Majority-based Method", *Journa*l *o*f *Computationa*l *Method*s *i*n *Scienc*e *a*nd *engineerin*g , Volume 9 Issue 1,Pages 53-68, April 2009.
- Mary Mathews, Min Song, Sachin Shetty, and Rick McKenzie, "Detecting Compromised Nodes in Wireless Sensor Networks", *Internationa*l *Journa*l *o*f *Computer a*nd *Informatio*n *Scienc*e *(IJCIS)*, vol. 9, no. 1, Jan 2008.
- Min Song, Sachin Shetty, and Deepthi Gopalpet, "Coexistence of 802.11b and Bluetooth: An Integrated Performance Analysis", *Mobile Networks and Applications* vol. 12, Issue 5, Pages 450-459 Dec 2007.

Conference Proceedings and Book Chapters

- Y. Tang, Sachin Shetty, "Adaptive Virtual Reality Game System for Personalized Problem Based Learning," 2011 IEEE International Conference on Networking, Sensing and Control, April 11-13, 2011, Delft, Netherlands.
- McKenzie McNeal III, Wei Chen, Sachin Shetty, Stanley Aungst, "Security-Oriented Robust Networking Architecture and Key Management for Heterogeneous Wireless Sensor Networks"**,** 2011 International Conference on Wireless Networks,July 18-21, 2011, Las Vegas, USA
- Y. Tang, Sachin Shetty, J. Kauser, S.K.Hargrove, and J. Henry, "Virtual Reality Games in Promoting Metacognition for Science and Engineering Design in Context," ASEE Annual Conference, June 26-29, 2011, Vancouver, BC, Canada
- Saleh Zein-Sabatto, Abduliqadir Khoshnaw, Sachin Shetty, Mohan Malkani, Atindra K. Mitra, "Cross layers decision fusion model in layered sensing systems," Proc. of SPIE, Apr 2011
- Tang, Y., Sachin Shetty, and Chen, X. F, "Empowering Students with Engineering Literacy and Problem-solving through Interactive Virtual Reality Games," 2nd International IEEE Consumer Electronics Society Games Innovation Conference, Hong Kong, Dec. 21-23, 2010.
- Sachin Shetty, Ying Tang, William Collani, "TCP Venoplus - A cross-layer approach to improve TCP Performance in wired-cum-wireless networks using signal strength", Proc. of IEEE Networking, Sensing and Control, June 2010.
- Sachin Shetty and Ravi Ramachandran, "Blind Channel Estimation Based Robust Physical Layer Key Generation in MIMO Networks", *IEEE Int. Symp. On Circuits and Systems*, Paris, France, June 2010.
- Chunsheng Xin, Min Song, Liangping Ma, Sachin Shetty, and C.C. Shen, "Control-Free Dynamic Spectrum Access for Cognitive Radio Networks," *Proc. of IEEE ICC*, May 2010.
- Gang Zhou, Sachin Shetty, George Simms, Min Song, "PLL Based Time Synchronization in Wireless Sensor Networks", IEEE International Conference on Embedded and Real- Time Computing Systems and Applications (RTCSA) (short paper), Beijing, China, August 2009
- Manish Wadhwa, Min Song, Sachin Shetty, "The Impact of Antenna Orientation on Wireless Sensor Network Performance", IEEE International Conference on Computer Science and Information Technology(ICCST 2009), Beijing, China, August 8-11 2009

- Sachin Shetty, Min Song, Jun Wang, "Distributed Adaptive Protocols for Information Dissemination in Large-Scale Communication Systems", to appear Proc. of Multimedia and Ubiquitous Engineering (MUE 2009), Qingdao, China, June 4-6 2009
- Sachin Shetty, Min Song, Chunsheng Xin, "A Learning-based Multiuser Opportunistic Spectrum Access Approach in Unslotted Primary Networks", IEEE INFOCOM, April 2009
- M. Rali, M. Song, Sachin Shetty, "Virtual Wired Transmission Scheme using Directional Antennas to Improve Energy E±ciency in Wireless Mobile Ad-hoc Networks", Proc. of Military Communications Conference, San Francisco, California, Nov 2008.
- Sachin Shetty, Min Song, Youhan Yang, Mary Mathews, "Learning Bayesian Network over Distributed Databases Using Majority-based Method", Proc. of International Conference on Software Engineering and Data Engineering, Los Angeles, California, Jul 2008
- Sachin Shetty, Min Song, Liran Ma, "Rogue Access Point Detection by analyzing network traffic characteristics," *Proc. of the 2007 Military Communications Conference*, October 2007, Orlando, Florida.
- Sachin Shetty, Min Song, R. Ash, E. Ancel, and K. Bone, "Wireless sensor payload design for sounding rocket," *Proc. of the ISCA 22nd International Conference Computers and their Applications*, March 2007.
- Sachin Shetty, Min Song, and M. Alam, "Data Mining of Bayesian Network Structure Using a Semantic Genetic Algorithm-Based Approach," *Bayesian Network Technologies: Applications and Graphical Models*, Idea Group, Inc., 2007.
- Min Song, and Sachin Shetty, "Modeling Scale-Free Networks with Heterogeneous Nodes," *Proc. of the 18th IASTED International Conference on Parallel and Distributed Computing Systems*, Dallas, TX, , November 13-15, 2006.
- Min Song, Sachin Shetty, Wu Li, "Fair and Smooth Scheduling for Virtual Output Queuing Switches Achieving 100% Throughput," Lecture Notes in Computer Science, Volume 3619, Sep 2005.
- Sachin Shetty, Min Song; "Accurate learning of Bayesian networks using Genetic Algorithms", *Proc. of 3rd International Conference on Information Technology: Research and Education*, June 2005, Hsinchu, Taiwan.
- Min Song, Sachin Shetty, Mansoor Alam, and H.J. Yang, "A New Multicast Queuing Mechanism for High-Speed Packet Switches," *Proc. of the 17th International Conference on Parallel and Distributed Computing Systems*, September 15-17, 2004, San Francisco.
- Min Song, Sachin Shetty, Weiying Zhu; "Evolutionary Programming in a Distributed Scheduler Architecture", *Proc. of 16th International Conference on Computer Applications in Industry and Engineering*, Las Vegas, November, 2003.

RECENT STUDENT PUBLICATIONS, PRESENTATIONS, GRANTS AND THESES:

Paul Moore and Ashia Coleman. "Design of a Power Efficient Wireless Body Sensor Network"; First Prize, Undergraduate Oral presentation at the 32nd Research Symposium at Tennessee State University, 2011 and First Prize, Annual Meeting of the Tennessee Academy of Science, Belmont University, TN, April 2011

Meena Thanu, "Development of Optimal Defense against Jamming Attacks in Cognitive Radio Networks" First Prize, Graduate Oral presentation at the 32nd Research Symposium at Tennessee State University, 2011

RESEARCH AWARDS

1. Prepare Minority Scholars to Protect the Nation's Critical Infrastructure and Key Assets through an Integrative Education, Research and Professional Development at Tennessee State University
   Award Allotment: $301,659; *Duration:* 5 years (2011-2016)
   Sponsoring Agency: DHS; *Role:* PI

2. Control Theoretic and Supervised Machine Learning Based Approach for Intrusion Detection in Mobile Wireless Networks
   Award Allotment: $25,000; Duration: 1 year (2010)
   Sponsoring Agency: AFOSR; Role: Co-PI

3. Targeted Infusion Grant: Development of a Virtual and Augmented Reality Laboratory for Research and Education at Tennessee State University
   Award Allotment: $299,575; Duration: 3 years (2010-2013)
   Sponsoring Agency: NSF; Role: Co-PI

4. CI-TEAM Demonstration: Interactive and Collaborative Learning Environment using Virtual Reality Games Promoting Metacognition for Science and Engineering Design in Context"
   Award Allotment: $250,000; Duration: 3 years (2010-2013)
   Sponsoring Agency: NSF; Role: Co-PI

5. Tennessee Rising Stars
   Award Allotment: $125,000; Duration: 3 years (2010-2013)
   Sponsoring Agency: TBR; Role: Co-PI

6. Empowering Students with Engineering Literacy and Systematic Problem Solving through Interactive and Cost-Effective Games
   Award Allotment: $199,986; Duration: 3 years (2009-2012)
   Sponsoring Agency: NSF; Role: Co-PI

TEACHING EXPERIENCE

Tennessee State University

- Graduate Courses
  - Data Communication and Computer Networks
  - Network Security
- Undergraduate Courses
  - Engineering Programming
  - Advanced Programming Laboratory

Rowan University

- Graduate Courses
  - Introduction to Computer Networks
  - Wireless Networks
- Undergraduate Courses
  - Networks II
  - Electronics I

Old Dominion University

- Graduate Courses
  - Engineering Systems Modeling
  - Introduction to Modeling and Simulation
- Undergraduate Courses
  - Introduction to Computer Networks and Data Communications
  - Network Engineering and Design

Invited Talks

- **"**Opportunistic Networking via Dynamic Spectrum Access", LANS Informal Seminar, Argonne National Laboratory, Jul 7 2010.
- **"**Opportunistic Access in Cognitive Radio Networks**",** Department of Electrical and Computer Engineering, Old Dominion University, Oct 3, 2008.
- "Wireless Spacecraft Bus", Department of Electrical and Computer Engineering, Old Dominion University, Oct 28, 2007.
- "Wireless Spacecraft Research", Salisbury University, May 9, 2007.
- "Wireless Spacecraft Communications" 6th Integrated Communications, Navigation, and Surveillance (ICNS), Baltimore, Maryland, May 1-3 2006.
- "Weighted Fair Queuing Algorithm", Gigabit Kits Workshop hosted by Washington University Sponsored by the National Science Foundation, June 2002.

Awards

- 2011 Ida McClain Fortitude Award
- 2010 NSF/DoE FaST (Faculty Student Team) Fellowship
- Outstanding Teaching Instructor for College of Engineering, Old Dominion University, 2007.
- First place poster at the joint Old Dominion University, Eastern Virginia Medical School and Norfolk State University Research Exposition Poster Presentation, March 2006.
- Dean's Award for Outstanding Research, College of Engineering, Old Dominion University, March 2006.

Services

Reviewer - International Journal of Biometrics and BioInformatics, Journal of Security and Communication Networks, IEEE Transactions on parallel and distributed computing, IEEE Trans on Evolutionary Computation ; IEEE Transactions on Wireless Communications; IEEE ICC'08 '09'10; ChinaCOM'07; IEEE GLOBECOM'08, ITRE'05; IEEE HPSR '08 '06, '05 ITRE '05, GC '07 '08, INFOCOM '09 '10

Program Committee: CNS 2009,HPSR 2008, ACTICS 2011

Session Chair: IEEE SECON 2011

Guest Editor: SI on Information Dissemination and New Services in P2P Systems

Associate Editor-in-Chief: International Journal of Computer Networks, CSC Press, 2009–present.

Publications/Web Chair: IEEE Workshop on High Performance Switching and Routing, 2008.