TRISHA BISWAS

Aruba Networks, HP Enterprise
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Research Interests

Interested in full-time research and development positions in computer networking and security. Specific areas of interest are in wireless network protocol design, SDN, modeling multihop networks and named data networks.

Education

North Carolina State University, Raleigh NC, USA May '11 - May '14
PhD in Computer Science, specializing in Computer Networking
Thesis: *Redundancy-based Approaches in Wireless Multihop Network Design*

North Carolina State University, Raleigh NC, USA Aug '08 - May '11
Master of Science in Computer Science

West Bengal University of Technology, India Aug '04 - May '08
Bachelor of Technology in Computer Science

Industry Experience

Software Engineer, Aruba, HPE, Sunnyvale CA June '14 - Present

- Design and implement intelligent flow routing for SDN controllers
- Build data reporting pipeline to monitor and visualize controller operations
- Develop scripts to support major version upgrades for ArubaOS controllers
- Language/Tools used: C, Python, XML, MongoDB, Splunk

Intern, Huawei Research Center, Santa Clara CA May '12 - Aug '12

- Design a policy-based routing protocol for content centric networks (CCN)
- Implement automated neighbor discovery protocol over CCN framework
- Language/Tools used: C, Virtual Box, Bash scripts

Intern, Extreme Networks, Raleigh NC May '10 - Aug '10

- Enhance CLI commands related to Multiprotocol Label Switching
- Languages used: C, Tcl/Tk

Research

Research Assistant, North Carolina State University Aug '10 - May '14
Designed a multipath routing protocol called Petal Routing, for ad hoc networks to increase end-to-end reliability while reducing wireless transmissions. Tested with OPNET simulations, validated with field experiments. Studied latency and stability of closed-loop sensing-based security systems using hybrid control theory.

Teaching

Instructor, North Carolina State University May '11 - Aug '11
Instructor for undergraduate course: "Introduction to Computing - Java". Designed course material, assignments and delivered lectures for the summer semester.

Teaching Assistant, North Carolina State University Aug '08 - May '10
Courses TA-ed: Programming Concepts with Java, Computer Networks, Computer and Network Security and Operating Systems and Principles

Developer Skills

Languages:	Java, C, C++, Python, C#, Proto-C, nesC, Tcl/Tk
Tools:	Splunk, OPNET, Omnet++, ns-2, R, Matlab, C-PLEX
Platforms:	Linux, Android, TinyOS, Embedded systems
Web Technologies:	HTML/CSS, JavaScript, JSP, XML, IBM WebSphere

Professional Activities & Services

- Taught summer camp on Video Game Design for middle school girls (July 2013)
- Conducted multiple paper reviews for Photonic Network Communications, Springer Journals (July 2013 - Present)
- Member of STARS group, which aims at broadening participation in computing. Served as co-ordinator for "Undergraduate Tutoring" project (2010 - 2014)
- Member of WiCS (Women in CS) at NCSU. Attended Gracehopper Celebration (2012), Gracehopper Celebration India (2011), CRA-W Grad Cohort (2009)
- Volunteer work and conference organizing: ACM SIGCSE 2012; STARS Celebration 2011; Computer Science PhD recruiting, NCSU (March 2012)

Select Publications

Biswas, T.; Dutta, R., "**Reliability Prediction of Diffused Pathset Routing in Wireless Multihop Networks**," In *Proceedings of IEEE Global Communications Conference (GLOBECOM 2014), IEEE*, Austin TX, USA, December 2014

Biswas, T.; Lesser, K.; Dutta, R.; Oishi, M., "**Using Linear System Reliability to Obtain Theoretical Understanding of Wireless Routing**," In *Proceedings of IEEE GLOBECOM 2014*, Austin TX, USA, December 2014

Biswas, T.; Chakraborti, A.; Ravindran, R.; Zhang, X.; Wang, G., "**Contextualized Information-Centric Home Network**," In *Proceedings of the ACM SIGCOMM Conference (SIGCOMM 2013), ACM*, pp. 461-462, Hong Kong, 12-15 August 2013, doi: 10.1145/2486001.2491691

Biswas, T.; Dutta, R., "**Spatially Diffuse Pathsets for Robust Routing in Ad Hoc Networks**," In *Proceedings of the IEEE Global Telecommunications Conference (GLOBECOM 2011), IEEE*, vol., no., pp.1-6, Houston TX, USA, 5-9 Dec. 2011, doi: 10.1109/GLOCOM.2011.6133499

Patents

Ravindran, R.; Wang, G.; Zhang, X.; Chakraborti, A.; Biswas, T., "**Method and Apparatus for Policy Based Routing in Information Centric Networking Based Home Networks**", United States US20140173076 A1

Research Talks

- "Studying Closed-loop Security Systems using Hybrid Control Theory", Science of Security Lablet Industry Meet, NCSU, March 2013
- "Introduction to Programming with Android Phones", Conducted workshop at STARS Celebration 2012, Hampton VA, August 2012
- "Reliable Routing in Wireless Multihop Networks", Indian Institute of Technology, Kharagpur, India, January 2012 and Gracehopper Celebration of Women in Computing India, Bangalore, India, December 2011
- "Introduction to Typesetting using LaTeX", Conducted workshop at STARS Celebration 2011, Raleigh NC, August 2011