Roman Chertov

Department of Computer Science
University of California
Santa Barbara, California 93106
US Citizen
(301) 471-3238
rchertov@cs.ucsb.edu
http://www.cs.uscb.edu/~rchertov

Education

Purdue University

- Ph.D. in Computer Science, May 2008.
  Thesis project: *A Device Independent Router Model: From Measurements to Simulations*, under Sonia Fahmy and Ness B. Shroff
- Master of Science in Computer Science, Spring 2004.

University of Maryland at College Park

- Bachelor of Science in Computer Science, Spring 2002
- Bachelor of Arts in Economics, Spring 2002

Research interests

High fidelity emulation and simulation, satellite link modeling, networking, network measurements

Honors

Graduate Assistance in Areas of National Need (GAANN) Fellowship, January 2007 – May 2008

Upsilon Pi Epsilon member

Graduated with departmental honours in computer science from Univ. of Maryland

Skills

C/C++, Perl, Visual Basic, Java, ML, Lisp, x86 assembly

ns-2 Simulator, concurrent programming, Linux kernel/device programming, IPv4/IPv6 networking, Cisco IOS, MATLAB

Linux/UNIX, Windows XP/2000/NT

Fluent spoken/written English, Russian

Work experience

Computer Scientist, Kelly Technology Group (July 2009–present)

- Patent analysis for litigation cases related computer technology
- Infringement/non-infringement expert witness reports

Senior Research Scientist, Santa Barbara Labs, LLC (May 2008–May 2009)

- Created a high-fidelity emulated testbed for researching IPv6 satellite networks
- Created layer 2 emulation tools to mimic satellite link behavior
- Directed, supervised, and presented team research projects
- Contributed to the Click modular router open source project

Visiting Researcher, University of California, Santa Barbara (May 2008–present)

- Provided technical assistance to graduate students in the Networking and Multimedia Systems Lab (NMSL)
- Wrote conference papers relating to satellite IP networking research

Research Assistant, Purdue University (Spring 2004–present)

- Reviewed papers for conferences (ICNP, INFOCOM, IWQoS, WWIC, ICDCS)

- Created a network emulation tool based on the ns-2 simulator, designed for conducting router measurements and traffic generation
- Created a set of tools to aid experiment automation on large testbeds like Emulab and DETER as part of the EMIST project
- Data analysis of large packet captures
- Current research involves exploring differences between simulations and emulations to create higher fidelity router models

Summer Intern, Information Science Institute (Summer 2005)

- Benchmarked the maximum networking performance of DETER nodes
- Compared performance of the Click modular router with my own Linux bridge modifications to create a software link monitor

Selected Publications

Refereed Conferences and Workshops

- **Roman Chertov** and Kevin Almeroth, "High-Fidelity Link Shaping," *In Proceedings of 5th International IEEE/CreateNet Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities* (**TridentCom**), (to appear).
- **Roman Chertov**, Sonia Fahmy, and Ness B. Shroff, "A Device-Independent Router Model," *In Proceedings of IEEE* **INFOCOM** *(the conference on computer communications)*, April 2008.
- **Roman Chertov**, Sonia Fahmy, and Ness B. Shroff, "A Black-box Router Profiler," *In Proceedings of the IEEE Global Internet Symposium* (**GI**), May 2007.
- **Roman Chertov** and Sonia Fahmy, "Optimistic Load Balancing in a Distributed Virtual Environment," *In Proceedings of the 16th ACM International Workshop on Network and Operating Systems Support for Digital Audio and Video* (**NOSSDAV**), pp. 74-79, May 2006.
- **Roman Chertov**, Sonia Fahmy, and Ness B. Shroff, "Emulation versus Simulation: A Case Study of TCP-Targeted Denial of Service Attacks," *In Proceedings of 2nd International IEEE/CreateNet Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities* (**TridentCom**), March 2006.

Refereed Journals

- **Roman Chertov** and Kevin Almeroth, "Qualitative Comparison of Link Shaping Techniques", *International Journal of Communication Networks and Distributed Systems (IJCNDS)*, To appear.
- **Roman Chertov**, Sonia Fahmy, and Ness B. Shroff, "Fidelity of Network Simulation and Emulation: A Case Study of TCP-Targeted Denial of Service Attacks", *Transactions on Modeling and Computer Simulation (TOMACS)* (to appear)

Technical Reports

- **Roman Chertov**, "Performance of a Software Link Monitor", *Information Science Institute*, 2006
- **Roman Chertov** and Sonia Fahmy, "Design and Validation of a Software Link Monitor", *Purdue University*, 2006

Software

Black Box Profiler, a traffic generation/measurement system based on ns-2 simulator, modified Linux network driver, and Click modular router. The system is capable of creating arbitrary traffic flow scenarios with multiple unique IPs, as well as measuring packet loss, corruption, and delay with microsecond precision. The tool is planned to be released in early 2008.

EMIST Tool suit, a collection of tools designed to control, measure, and analyze experiments on testbeds. The tools can be downloaded at http://www.cs.purdue.edu/homes/fahmy/software/emist/

References

Available on request.