

Sergey Gorinsky

Curriculum Vitae
(as of June 2008)

Department of Computer Science and Engineering
Washington University in St. Louis
One Brookings Drive, Campus Box 1045
St. Louis, MO 63130-4899, USA

Phone: +1-314-935-4838
Fax: +1-314-935-7302
Email: gorinsky@arl.wustl.edu
URL: <http://www.arl.wustl.edu/~gorinsky/>

RESEARCH INTERESTS

Computer networking and distributed systems

EDUCATION

- | | | |
|--------|---|-----------------|
| 8/2003 | Ph.D. in Computer Science
<i>University of Texas at Austin</i>
Dissertation: "Robust Congestion Control for IP Multicast"
Advisor: Dr. Harrick Vin | 4.00 / 4.00 GPA |
| 5/1999 | M.S. in Computer Science
<i>University of Texas at Austin</i> | 4.00 / 4.00 GPA |
| 2/1994 | Engineer in Computer Engineering
<i>Moscow Institute of Electronic Technology, Russia</i>
Thesis: "A Distributed Real-Time System for Control of a Knitting-Machine"
Advisor: Dr. Alexander Shishkevich | 5.00 / 5.00 GPA |

RESEARCH EXPERIENCE

- | | |
|------------------|---|
| 7/2005 – present | Assistant Professor (tenure track)
<i>Washington University in St. Louis, Department of Computer Science and Engineering</i>
<i>Network architecture; incentive-oriented design; delay-sensitive applications; fairness and security in network resource allocation; impact of network architectural properties on transport capabilities; theoretical foundations of network congestion control</i> |
| 9/2003 – 6/2005 | Visiting Assistant Professor
<i>Washington University in St. Louis, Department of Computer Science and Engineering</i>
<i>Robust congestion control for untrustworthy network environments; virtual networks; theoretical foundations of network congestion control; buffer sizing for Internet links</i> |
| 5/1999 – 8/1999 | Summer Manager
<i>AT&T Research Labs, Networking and Distributed Systems Research Center</i>
Mentors: Dr. K.K. Ramakrishnan, Dr. Matthias Grossglauser, and Dr. Nick Duffield
<i>Scalable, efficient, and fair layered multicast congestion control in heterogeneous networks</i> |
| 9/1998 – 8/2003 | Research Assistant
<i>University of Texas at Austin, Department of Computer Sciences</i>
Supervisor: Dr. Harrick Vin
<i>Lightweight techniques for fair network sharing in the presence of misbehaving parties; multicast protocols robust to receiver misbehavior; theoretical foundations of network congestion control</i> |
| 5/1998 – 8/1998 | Engineer
<i>Lucent Bell Labs, Network and Service Management Research Department</i>
Mentors: Dr. Binay Sugla, Dr. Ajita John, and Keith Vanderveen
<i>Network management with run-time specification of Management Information Bases (MIBs)</i> |

RESEARCH EXPERIENCE (continued)

- 6/1997 – 5/1998 **Research Assistant**
University of Texas at Austin, Department of Computer Sciences
Supervisor: Dr. Aloysius Mok
Algorithms and admission control for real-time scheduling of multimedia applications
- 9/1994 – 5/1997 **Faculty Assistant**
New Jersey Institute of Technology, Department of Computer and Information Science
Supervisors: Dr. Alex Stoyenko and Dr. Sanjoy Baruah
Efficient traffic characterization, traffic reshaping, and admission control for guaranteed-services networks
- 9/1990 – 2/1994 **Research Assistant**
Moscow Institute of Electronic Technology, Department of Computer Engineering
Supervisor: Dr. Alexander Shishkevich
Distributed real-time control for a knitting-machine; hardware components; local-area network protocols

HONORS

- 2008 **Best Paper Award** for “Effairness: Dealing with Time in Congestion Control Evaluation”
International Conference on Networking and Services (ICNS 2008)
- 2007 **Best Paper Award Nomination** for “Fair Efficiency, or Low Average Delay without Starvation”
International Conference on Computer Communications and Networks (ICCCN 2007)
- 9/1994 – 5/1996 **REAP Fellowship** (merit scholarship for graduate students from Russia and Eastern Europe)
Association of International Educators, NAFSA, USIA, USA
- 1994 **Diploma with Honors** (graduation with the highest honors)
Moscow Institute of Electronic Technology, Russia
- 1/1992 – 5/1993 **Moscow Mayor’s Fellowship** (merit scholarship for undergraduate students)
City of Moscow, Russia

JOURNAL PUBLICATIONS

- (7) **S. Gorinsky**, E.J. Friedman, S. Henderson, and C. Jechlitschek, “**Efficient Fair Algorithms for Message Communication**”, *Simulation Modelling Practice and Theory*, accepted
- (6) **S. Gorinsky**, M. Georg, M. Podlesny, and C. Jechlitschek, “**A Theory of Load Adjustments and its Implications for Congestion Control**”, *Journal of Internet Engineering*, 1(2), pp. 82-93, October 2007
- (5) **S. Gorinsky**, A. Kantawala, and J. Turner, “**Simulation Perspectives on Link Buffer Sizing**”, *Simulation: Transactions of the Society for Modeling and Simulation International* (special issue on New Challenges in Large-Scale Computer Systems and Network Modeling and Simulation), 83(3), pp. 245-257, March 2007
- (4) D.K. Blandford, S.A. Goldman, **S. Gorinsky**, Y. Zhou, and D.R. Dooly, “**Smartacking: Improving TCP Performance from the Receiving End**”, *Journal of Internet Engineering*, 1(1), pp. 6-21, January 2007
- (3) **S. Gorinsky**, S. Jain, H. Vin, and Y. Zhang, “**Design of Multicast Protocols Robust against Inflated Subscription**”, *IEEE/ACM Transactions on Networking*, 14(2), pp. 249-262, April 2006
- (2) S. Baruah, D. Chen, **S. Gorinsky**, and A. Mok, “**Generalized Multiframe Tasks**”, *Journal of Real-Time Systems*, 17(1), pp. 5-22, July 1999
- (1) P. Sinha, **S. Gorinsky**, P. Laplante, A. Stoyenko, and T. Marlowe, “**Classification and Overview of Research in Real-Time Imaging**”, *Journal of Electronic Imaging*, 5(4), pp. 466-478, October 1996

CONFERENCE AND WORKSHOP PUBLICATIONS

- (23) M. Podlesny and **S. Gorinsky**, “**RD Network Services: Differentiation through Performance Incentives**”, *Proceedings of ACM SIGCOMM 2008*, August 2008
- (22) **S. Gorinsky**, K.K. Ramakrishnan, and H. Vin, “**Addressing Heterogeneity, Scalability, and Privacy in Layered Multicast Congestion Control**”, *Proceedings of the International Conference on Computer Communications and Networks (ICCCN 2008)*, August 2008
- (21) **S. Gorinsky** and H. Vin, “**Effairness: Dealing with Time in Congestion Control Evaluation**”, *Proceedings of the International Conference on Networking and Services (ICNS 2008)*, pp. 40-45, March 2008 (**Best Paper Award**)
- (20) C. Wiseman, K. Wong, T. Wolf, and **S. Gorinsky**, “**Operational Experience with a Virtual Networking Laboratory**”, *Proceedings of ACM SIGCSE 2008*, pp. 427-431, March 2008
- (19) M. Podlesny and **S. Gorinsky**, “**Price of Asynchrony: Queuing Under Ideally Smooth Congestion Control**”, *Proceedings of IEEE International Conference on Network Protocols (ICNP 2007)*, pp. 332-333, October 2007
- (18) **S. Gorinsky** and C. Jechlitschek, “**Fair Efficiency, or Low Average Delay without Starvation**”, *Proceedings of the International Conference on Computer Communications and Networks (ICCCN 2007)*, pp. 424-429, August 2007 (**Best Paper Award Nomination**)
- (17) M. Podlesny and **S. Gorinsky**, “**MCP: Few Bits for Fairing and Small Queues in the Stable State**”, *Proceedings of IEEE Symposium on Computers and Communications (ISCC 2007)*, pp. 1079-1084, July 2007
- (16) M. Georg, C. Jechlitschek, and **S. Gorinsky**, “**Improving Individual Flow Performance with Multiple Queue Fair Queuing**”, *Proceedings of IEEE International Workshop on Quality of Service (IWQoS 2007)*, pp. 141-144, June 2007
- (15) **S. Gorinsky**, C. Jechlitschek, and N.S.V. Rao, “**A Network Architecture for Large-Scale Science**”, *Proceedings of IEEE High-Speed Networks (HSN 2007)*, pp. 1-5, May 2007
- (14) M. Podlesny and **S. Gorinsky**, “**Multimodal Congestion Control for Low Stable-State Queuing**”, *Proceedings of IEEE INFOCOM 2007*, pp. 2466-2470, May 2007
- (13) K. Wong, T. Wolf, **S. Gorinsky**, and J. Turner, “**Teaching Experiences with a Virtual Network Laboratory**”, *Proceedings of ACM SIGCSE 2007*, pp. 481-485, March 2007
- (12) **S. Gorinsky** and N.S.V. Rao, “**Dedicated Channels as an Optimal Network Support for Effective Transfer of Massive Data**”, *Proceedings of IEEE INFOCOM 2006*, pp. 1-5, April 2006
- (11) M. Georg and **S. Gorinsky**, “**Protecting TFRC from a Selfish Receiver**”, *Proceedings of the Joint International Conference on Autonomic and Autonomous Systems and International Conference on Networking and Services (ICAS/ICNS 2005)*, pp. 57-62, October 2005
- (10) **S. Gorinsky**, A. Kantawala, and J. Turner, “**Link Buffer Sizing: A New Look at the Old Problem**”, *Proceedings of IEEE Symposium on Computers and Communications (ISCC 2005)*, pp. 507-514, June 2005
- (9) **S. Gorinsky**, “**Feedback Modeling in Internet Congestion Control**”, *Proceedings of Next Generation Teletraffic and Wired/Wireless Advanced Networking (NEW2AN 2004)*, pp. 231-234, February 2004
- (8) **S. Gorinsky**, S. Jain, H. Vin, and Y. Zhang, “**Robustness to Inflated Subscription in Multicast Congestion Control**”, *Proceedings of ACM SIGCOMM 2003*, pp. 87-98, August 2003
- (7) **S. Gorinsky**, S. Jain, H. Vin, and Y. Zhang, “**Robustness of Multicast Congestion Control to Inflated Subscription**”, *Proceedings of ACM SIGMETRICS 2003*, pp. 312-313, June 2003
- (6) **S. Gorinsky**, S. Jain, and H. Vin, “**Multicast Congestion Control with Distrusted Receivers**”, *Proceedings of Networked Group Communication (NGC 2002)*, pp. 19-26, October 2002

CONFERENCE AND WORKSHOP PUBLICATIONS (continued)

- (5) **S. Gorinsky** and H. Vin, “**The Utility of Feedback in Layered Multicast Congestion Control**”, *Proceedings of Network and Operating Systems Support for Digital Audio and Video (NOSSDAV 2001)*, pp. 93-102, June 2001
- (4) S. Baruah, G. Buttazzo, **S. Gorinsky**, and G. Lipari, “**Scheduling Periodic Task Systems to Minimize Output Jitter**”, *Proceedings of Real-Time Computing Systems and Applications (RTCSA 1999)*, pp. 62-69, December 1999
- (3) **S. Gorinsky**, S. Baruah, and A. Stoyen, “**Boosting the Network Performance via Traffic Reshaping**”, *Proceedings of the International Conference on Computer Communications and Networks (ICCCN 1997)*, pp. 285-290, September 1997
- (2) **S. Gorinsky**, S. Baruah, T. Marlowe, and A. Stoyenko, “**Exact and Efficient Analysis of Schedulability in Fixed-Packet Networks: A Generic Approach**”, *Proceedings of IEEE INFOCOM 1997*, pp. 584-591, April 1997
- (1) **S. Gorinsky**, S. Baruah, and A. Stoyenko, “**Traffic Reshaping in Packet-Switched Virtual-Circuit Fixed-Packet Network**”, *Proceedings of Resource Allocation Problems in Multimedia Systems (RAPMS 1996)*, December 1996

RESEARCH FUNDING

- 9/2006 – 8/2009 “**An Architecture for a Diversified Internet**”
Co-PI (PI: Dr. Jonathan Turner)
U.S. National Science Foundation, NSF grant CNS-0626661, \$1,098,834
- 9/2006 – 8/2009 “**Technologies for Improving Laboratory Experiences in Advanced Technical Education**”
Co-PI (PI: Dr. Jonathan Turner)
U.S. National Science Foundation, NSF grant REC-0632580, \$439,620
- 9/2004 – 8/2005 “**Virtual Networking – Enabling Network Service Innovation**”
Co-PI (PI: Dr. Jonathan Turner)
U.S. National Science Foundation, NSF grant CNS-0435173, \$250,000
- 1/2004 – 12/2007 “**Technologies for Dynamically Extensible Networks**”
Project member (PI: Dr. Jonathan Turner)
U.S. National Science Foundation, NSF grant ANI-0325298, \$2,100,000
- 9/2000 – 8/2003 “**Multicast Congestion Control Protocols**”
Project member (PI: Dr. Harrick Vin)
U.S. National Science Foundation, NSF grant ANI-0082294, \$600,000

PROFESSIONAL ACTIVITIES

- 2006 – present **Service on Editorial Boards**
Journal of Internet Engineering
- 2007 – present **Chairmanship of Program Committees**
IEEE INFOCOM High-Speed Networks (HSN 2008), with Dr. Ashwin Gumaste
Symposium on *Future Internet Architectures and Protocols* at the *International Conference on Computer Communications and Networks (ICCCN 2008)*, with Dr. Tilman Wolf
- 2005 – present **Service on Program Committees**
INFOCOM 2009; INFOCOM 2008; INFOCOM 2007; INFOCOM 2006; ICNP 2008; COM-SNETS 2009; ICCCN 2008; ICCCN 2007; HSN 2008; HSN 2007; LANMAN 2008; ICT 2008; NEW2AN 2008; NEW2AN 2007; NEW2AN 2006; LCN 2005

PROFESSIONAL ACTIVITIES (continued)

- 2004 – present **Advising of Doctoral Students**
Maxim Podlesny, Washington University in St. Louis, expected graduation in 2009
- 2003 – present **Doctoral Dissertation Committees**
Dr. Ruibiao Qiu,
advisee of Dr. Jonathan Turner, Washington University in St. Louis, defended on 1/6/2006;
Dr. Edward Spitznagel,
advisee of Dr. Jonathan Turner, Washington University in St. Louis, defended on 6/21/2005;
Dr. Anshul Kantawala,
advisee of Dr. Jonathan Turner, Washington University in St. Louis, defended on 2/16/2005;
Dr. Prashanth Pappu,
advisee of Dr. Jonathan Turner, Washington University in St. Louis, defended on 7/27/2004
- 2006 – present **University Committees**
Undergraduate Council Study Group on Emerging Technologies and Teaching and Learning,
Washington University in St. Louis
- 1997 – present **Professional Society Memberships**
ACM and IEEE
- 1996 – present **Reviewing**
Books: *Addison Wesley, Prentice Hall, John Wiley & Sons*
Journals: *IEEE/ACM Transactions on Networking, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Multimedia, IEEE Transactions on Mobile Computing, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Journal on Selected Areas in Communications, IEEE Network, ACM Computer Communication Review, Wireless Networks, IEEE Communications Letters, Computer Networks, Journal of Internet Engineering, Journal of Computer and System Sciences, Simulation Modelling Practice and Theory, International Journal of Parallel Programming, Theoretical Computer Science*
Conferences and Workshops: *SIGCOMM, INFOCOM, ICNP, Multimedia, DSN, ICC, HSN, NOSSDAV, IWQoS, ICCCN, GLOBECOM, NEW2AN, ICDCS, ICT, LANMAN, RTAS, LCN, WIAPP, MMCN, ICECCS*
Research Proposals: *U.S. National Science Foundation*
- 1996 – present **Conference Organization**
Publications Chair (with Dr. Aleksandar Kuzmanovic) for *INFOCOM 2008*
Member of *SIGCOMM 2004* Posters Committee
Session Chair at *INFOCOM 2008, INFOCOM 2007, INFOCOM 2006, ICCCN 2008, ICCCN 2007, HSN 2008, HSN 2007, ISCC 2005*
Judge at the *Graduate Student Research Symposium 2004*, Washington University in St. Louis
Member of *ICECCS 1996* Organizing Committee
- 1995 – present **Conference Attendance**
SIGCOMM 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999; INFOCOM 2008, 2007, 2006, 2005, 2002, 2001, 1997; ICCCN 2007, 1997, 1996; IWQoS 2007; CCW 2007; HSN 2008, 2007, 2006; ICNP 2007, 1998; SIGMETRICS 2005; ISCC 2005, 1998; GLOBECOM 2005; ICSE 2005; ICNS 2008; ICAS/ICNS 2005; PERCOM 2005; NEW2AN 2004; PINS 2004; RTSS 2002, 1996; HotNets-I; NGC 2002; NOSSDAV 2001, 2000; RAPMS 1996; ICECCS 1996, 1995; RSP 1995

TEACHING EXPERIENCE

- 1/2008 – 5/2008 **“Protocols for Computer Networks”**, Washington University in St. Louis
Graduate networking course; experimental evaluation in the Open Network Laboratory (ONL); 12 (6 undergraduate and 6 graduate) students
- 9/2007 – 12/2007 **“Introduction to Computer Networks”**, Washington University in St. Louis
Undergraduate senior-level networking course; broad coverage of Internet designs; experimental assignments in the Open Network Laboratory (ONL); 16 (11 undergraduate and 5 graduate) students; 1 teaching assistant
- 9/2004 – 12/2007 **“Research Seminar on Networking”**, Washington University in St. Louis
Master of ceremonies: Dr. Jonathan Turner
Discussion of networking research publications
- 1/2007 – 5/2007 **“Protocols for Computer Networks”**, Washington University in St. Louis
Graduate networking course; experimental evaluation in the Open Network Laboratory (ONL); 21 (3 undergraduate and 18 graduate) students; 2 teaching assistants
- 9/2006 – 12/2006 **“Introduction to Computer Networks”**, Washington University in St. Louis
Undergraduate senior-level networking course; broad coverage of Internet designs; experimental assignments in the Open Network Laboratory (ONL); 18 (7 undergraduate and 11 graduate) students; 2 teaching assistants
- 1/2006 – 5/2006 **“Protocols for Computer Networks”**, Washington University in St. Louis
Graduate networking course; experimental evaluation in the Open Network Laboratory (ONL); 19 (3 undergraduate and 16 graduate) students; 1 teaching assistant
- 1/2005 – 5/2005 **“Protocols for Computer Networks”**, Washington University in St. Louis
Graduate networking course; experimental evaluation in PlanetLab; 20 (3 undergraduate and 17 graduate) students; 1 teaching assistant
- 9/2004 – 12/2004 **“Introduction to Computer Networks”**, Washington University in St. Louis
Undergraduate senior-level networking course; broad coverage of Internet designs; 51 (32 undergraduate and 19 graduate) students; 4 teaching assistants
- 1/2004 – 5/2004 **“Advanced Topics in Networking”**, Washington University in St. Louis
Graduate networking course; experimental evaluation in ns-2; 12 (6 undergraduate and 6 graduate) students
- 9/2003 – 12/2003 **“Introduction to Computer Networks”**, Washington University in St. Louis
Undergraduate senior-level networking course; broad coverage of Internet designs; 52 (37 undergraduate and 15 graduate) students; 4 teaching assistants
- 1/2002 – 5/2002 **“Current Topics in Computer Science”**, University of Texas at Austin
Supervisors: Dr. Lorenzo Alvisi, Dr. Michael Dahlin, and Dr. Bruce Porter
Graduate course in support of faculty hiring
- 6/1997 – 5/1998 **“Introduction to Computer Science”**, University of Texas at Austin
Supervisors: Dr. Bruce Porter and Dr. Roger Priebe
Undergraduate classroom and lab sessions covering new material
- 9/1995 – 5/1997 **“Data Communications”** and **“Introduction to Computability and Complexity”**, NJIT
Supervisors: Dr. Boris Verkhovsky and Dr. Alex Stoyenko
Undergraduate and graduate course material preparation and serving as a lecturer on call

SELECTED TALKS

- 3/17/2008 **“Effairness: Dealing with Time in Congestion Control Evaluation”**
ICNS 2008, Gosier, Guadeloupe, France
- 8/14/2007 **“Fair Efficiency, or Low Average Delay without Starvation”**
ICCCN 2007, Kahuku, Hawaii, USA
- 5/11/2007 **“A Network Architecture for Large-Scale Science”**
HSN 2007, Anchorage, Alaska, USA
- 2/5/2007 **“Fair Efficiency, or Low Average Delay without Starvation”** (invited talk)
IEEE Workshop on Computer Communications (CCW 2007), Pittsburgh, Pennsylvania, USA
- 11/8/2006 **“Bulk-Data Metanet: Virtualization by Example”**
NSF FIND kickoff meeting of Principal Investigators, Chantilly, Virginia, USA
- 4/24/2006 **“Dedicated Channels as an Optimal Network Support for Effective Transfer of Massive Data”**
INFOCOM HSN 2006, Barcelona, Spain
- 7/30/2005 **“Washington University in St. Louis: Graduate Studies and Beyond”**
U.S. Education Advising Center, Moscow, Russia
- 6/29/2005 **“Link Buffer Sizing: A New Look at the Old Problem”**
ISCC 2005, La Manga del Mar Menor, Spain
- 2/20/2004 **“Robust Congestion Control for IP Multicast”**
Systems Tea, University of North Carolina, Chapel Hill, North Carolina, USA
- 2/6/2004 **“Feedback Modeling in Internet Congestion Control”**
NEW2AN 2004, St. Petersburg, Russia
- 8/26/2003 **“Robustness to Inflated Subscription in Multicast Congestion Control”**
SIGCOMM 2003, Karlsruhe, Germany
- 8/6/2003 **“Robust Congestion Control for IP Multicast”**
Ph.D. defense, University of Texas at Austin, Austin, Texas, USA
- 2/2003 – 4/2003 **“Robust Congestion Control for Multicast Communications”**
Job interview talk, eleven universities in Canada and USA
- 10/24/2002 **“Multicast Congestion Control with Distrusted Receivers”**
NGC 2002, Boston, Massachusetts, USA
- 11/8/2001 **“Effairness: A Metric for Congestion Control Evaluation in Dynamic Networks”**
Stanford Networking Seminar, Stanford University, Stanford, California, USA
- 6/25/2001 **“The Utility of Feedback in Layered Multicast Congestion Control”**
NOSSDAV 2001, Port Jefferson, New York, USA
- 11/20/2000 **“Efficient and Scalable Multicast Congestion Control”**
Ph.D. proposal, University of Texas at Austin, Austin, Texas, USA
- 9/23/1997 **“Boosting the Network Performance via Traffic Reshaping”**
ICCCN 1997, Las Vegas, Nevada, USA
- 4/10/1997 **“Exact and Efficient Analysis of Schedulability in Fixed-Packet Networks”**
INFOCOM 1997, Kobe, Japan
- 12/3/1996 **“Traffic Reshaping in Packet-Switched Virtual-Circuit Fixed-Packet Network”**
RAPMS 1996, Washington, DC, USA

SELECTED TALKS (continued)

- 6/8/1995 **“Development of a Real-Time Motion Image Encoder Using Codesign Methodology”**
RSP 1995, Chapel Hill, North Carolina, USA

SELECTED TECHNICAL REPORTS

- (2) **S. Gorinsky** and H. Vin, **”Analysis of Binary Adjustment Policies in Fair Heterogeneous Networks”**, *Technical Report TR2000-32, Department of Computer Sciences, University of Texas at Austin*, <http://www.arl.wustl.edu/~gorinsky/pdf/tr2000-32.pdf>, November 2000
- (1) **S. Gorinsky** and H. Vin, **“Additive Increase Appears Inferior”**, *Technical Report TR2000-18, Department of Computer Sciences, University of Texas at Austin*, <http://www.arl.wustl.edu/~gorinsky/pdf/tr2000-18.pdf>, May 2000