

Dmitri Loguinov

Computer Science and Engineering
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- Research Interests** ◇ Peer-to-peer networks, larger-scale information retrieval, web crawling, Internet measurement, stochastic modeling of networks, congestion control, random graphs, topology analysis, bandwidth estimation, and video streaming.
- Education** ◇ 10/2002 PhD in Computer Science (GPA 4.0/4.0)
City University of New York, New York, NY 10016
Thesis: “Adaptive Scalable Internet Streaming”
Co-advisors: Hayder Radha and Kaliappa Ravindran
- ◇ 6/1995 BS (with honors) in Computer Science (GPA 4.85/5.0)
Moscow State University, Moscow, Russia 119991
Thesis: “Optimal Multi-Processor Scheduling Algorithms”
Advisor: Meran Furugian
- Experience** ◇ 9/2011– Professor
Director of Internet Research Lab (IRL)
Department of Computer Science and Engineering
Texas A&M University, College Station, TX 77843
- ◇ 9/2007–8/2011 Associate Professor
Director of Internet Research Lab (IRL)
Department of Computer Science and Engineering
Texas A&M University, College Station, TX 77843
- ◇ 9/2002–8/2007 Assistant Professor
Director of Internet Research Lab (IRL)
Department of Computer Science
Texas A&M University, College Station, TX 77843
- Publications** ◇ **Refereed Journal** († marks advised students)
- 2011 1. Z. Yao† and D. Loguinov, “Analysis of Link Lifetimes and Neighbor Selection in Switching DHTs,” *IEEE Trans. Parallel and Distributed Systems*, vol. 22, no. 11, pp. 1834–1841, Nov. 2011.
2. Z. Yao† and D. Loguinov, “Understanding Disconnection and Stabilization of Chord,” *IEEE Trans. Parallel and Distributed Systems*, vol. 22, no. 4, pp. 650–661, Apr. 2011.
- 2010 3. Y. Zhang† and D. Loguinov, “ABS: Adaptive Buffer Sizing for Heterogeneous Networks,” *Elsevier Computer Networks*, vol. 54, no. 14, pp. 2562–2574, Oct. 2010.
4. Y. Zhang†, Y. Xiong, S. Liu, and D. Loguinov, “Queuing Dynamics and Single-Link Stability of Delay-Based Window Congestion Control,” *Elsevier Computer Networks*, vol. 54, no. 10, pp. 1543–1553, Jul. 2010.
5. X. Wang† and D. Loguinov, “Understanding and Modeling the Internet Topology: Economics and Evolution Perspective,” *IEEE/ACM Trans. Networking*, vol. 18, no. 1, pp. 257–270, Feb. 2010.

- 2009
6. M. Dai[†], Y. Zhang[†], and D. Loguinov, "A Unified Traffic Model for MPEG-4 and H.264 Video Traces," *IEEE Trans. Multimedia*, vol. 11, no. 5, pp. 1010–1023, Aug. 2009.
 7. H.-T. Lee[†], D. Leonard[†], X. Wang[†], and D. Loguinov, "IRLbot: Scaling to 6 Billion Pages and Beyond," *ACM Trans. Web*, vol. 3, no. 3, pp. 1–33, Jun. 2009.
 8. X. Wang[†], Z. Yao[†], and D. Loguinov, "Residual-Based Estimation of Peer and Link Lifetimes in P2P Networks," *IEEE/ACM Trans. Networking*, vol. 17, no. 3, pp. 726–739, Jun. 2009.
 9. Y. Zhang[†] and D. Loguinov, "On Delay-Independent Diagonal Stability of Max-Min Congestion Control," *IEEE Trans. Automatic Control*, vol. 54, no. 5, pp. 1111–1116, May 2009.
 10. Y. Zhang[†], S. Jain[†], and D. Loguinov, "Towards Experimental Evaluation of Explicit Congestion Control," *Elsevier Computer Networks*, vol. 53, no. 7, pp. 1027–1039, May 2009.
 11. Z. Yao[†], X. Wang[†], D. Leonard[†], and D. Loguinov, "Node Isolation Model and Age-Based Neighbor Selection in Unstructured P2P Networks," *IEEE/ACM Trans. Networking*, vol. 17, no. 1, pp. 144–157, Feb. 2009.
- 2008
12. D. Leonard[†], Z. Yao[†], X. Wang[†], and D. Loguinov, "On Static and Dynamic Partitioning Behavior of Large-Scale P2P Networks," *IEEE/ACM Trans. Networking*, vol. 16, no. 6, pp. 1475–1488, Dec. 2008.
 13. Y. Zhang[†] and D. Loguinov, "Local and Global Stability of Delayed Congestion Control Systems," *IEEE Trans. Automatic Control*, vol. 53, no. 10, pp. 2356–2360, Nov. 2008.
 14. Y. Zhang[†], D. Leonard[†], and D. Loguinov, "JetMax: Scalable Max-Min Congestion Control for High-Speed Heterogeneous Networks," *Elsevier Computer Networks*, vol. 52, no. 6, pp. 1193–1219, Apr. 2008.
 15. X. Liu[†], K. Ravindran, and D. Loguinov, "A Stochastic Foundation of Available Bandwidth Estimation: Multi-Hop Analysis," *IEEE/ACM Trans. Networking*, vol. 16, no. 1, pp. 130–143, Feb. 2008.
- 2007
16. X. Liu[†], K. Ravindran, and D. Loguinov, "A Queuing-Theoretic Foundation of Available Bandwidth Estimation: Single-Hop Analysis," *IEEE/ACM Trans. Networking* vol. 15, no. 4, pp. 918–931, Aug. 2007.
 17. Y. Zhang[†], S.-R. Kang[†], and D. Loguinov, "Delay-Independent Stability and Performance of Distributed Congestion Control," *IEEE/ACM Trans. Networking*, vol. 15, no. 4, pp. 838–851, Aug. 2007.
 18. X. Wang[†] and D. Loguinov, "Load-Balancing Performance of Consistent Hashing: Asymptotic Analysis of Random Node Join," *IEEE/ACM Trans. Networking*, vol. 15, no. 4, pp. 892–905, Aug. 2007.
 19. D. Leonard[†], Z. Yao[†], V. Rai[†], and D. Loguinov, "On Lifetime-Based Node Failure and Stochastic Resilience of Decentralized Peer-to-Peer Networks," *IEEE/ACM Trans. Networking*, vol. 15, no. 3, pp. 644–656, Jun. 2007.
 20. S.-R. Kang[†] and D. Loguinov, "Modeling Best-Effort and FEC Streaming of Scalable Video in Lossy Network Channels," *IEEE/ACM Trans. Networking*, vol. 15, no. 1, pp. 187–200, Feb. 2007.
- 2006
21. M. Dai[†], D. Loguinov, and H. Radha, "Rate-Distortion Analysis and Quality Control in Scalable Internet Streaming," *IEEE Trans. Multimedia*, vol. 8, no. 6, pp. 1135–1146, Dec. 2006.

22. X. Liu[†], K. Ravindran, and D. Loguinov, "Towards a Generalized Stochastic Model of End-to-End Packet-Pair Sampling," *IEEE JSAC Special Issue on Sampling the Internet*, vol. 24, no. 12, pp. 2249–2262, Dec. 2006.
- 2005 23. D. Loguinov, J. Casas[†], and X. Wang[†], "Graph-Theoretic Analysis of Structured Peer-to-Peer Systems: Routing Distances and Fault Resilience," *IEEE/ACM Trans. Networking*, vol. 13, no. 5, pp. 1107–1120, Oct. 2005.
- 2004 24. M. Dai[†], C. Peng, A.K. Chan, and D. Loguinov, "Bayesian Wavelet Shrinkage with Edge Detection for SAR Image Despeckling," *IEEE Trans. Geoscience and Remote Sensing*, vol. 42, no. 8, pp. 1642–1648, Aug. 2004.
- 2003 25. S.A. Khayam, S. Karande, H. Radha, and D. Loguinov, "Performance Analysis and Modeling of Errors and Losses over 802.11b LANs for High-Bitrate Real-Time Multimedia," *Elsevier Signal Processing: Image Communication*, vol. 18, no. 7, pp. 575–595, Aug. 2003.
26. D. Loguinov and H. Radha, "End-to-End Rate-Based Congestion Control: Convergence Properties and Scalability Analysis," *IEEE/ACM Trans. Networking*, vol. 11, no. 4, pp. 564–577, Aug. 2003.
- 2002 27. D. Loguinov and H. Radha, "Retransmission Schemes for Streaming Internet Multimedia: Evaluation Model and Performance Analysis," *ACM SIGCOMM Computer Communication Review (CCR)*, vol. 32, no. 2, pp. 70–83, Apr. 2002.
28. D. Loguinov and H. Radha, "Large-Scale Experimental Study of Internet Performance Using Video Traffic," *ACM SIGCOMM Computer Communication Review (CCR)*, vol. 32, no. 1, pp. 7–19, Jan. 2002.
- ◇ **Refereed Conference and Workshop**
- 2012 29. D. Leonard[†], Z. Yao[†], X. Wang[†], and D. Loguinov, "Stochastic Analysis of Horizontal IP Scanning," *IEEE INFOCOM*, Mar. 2012 (18%).
30. Z. Yao[†], D.B.H. Cline, and D. Loguinov, "On Superposition of Heterogeneous Edge Processes in Dynamic Random Graphs," *IEEE INFOCOM Mini-Conference*, Mar. 2012 (25.7%).
- 2011 31. S. Sood[†] and D. Loguinov, "Probabilistic Near-Duplicate Detection Using Simhash," *ACM CIKM*, Oct. 2011 (15%).
32. C. Sparkman[†], H.-T. Lee[†], and D. Loguinov, "Agnostic Topology-Based Spam Avoidance in Large-Scale Web Crawls," *IEEE INFOCOM*, pp. 811–819, Apr. 2011 (16%).
33. X. Wang[†], X. Li[†], and D. Loguinov, "Modeling Residual-Geometric Flow Sampling," *IEEE INFOCOM*, pp. 1808–1816, Apr. 2011 (16%).
- 2010 34. D. Leonard[†] and D. Loguinov, "Demystifying Service Discovery: Implementing an Internet-Wide Scanner," *ACM IMC*, pp. 109–122, Nov. 2010 (22.2%).
35. Z. Yao[†], D.B.H. Cline, and D. Loguinov, "In-Degree Dynamics of Large-Scale P2P Systems," *ACM HotMetrics*, pp. 1–6, Jun. 2010 (37.5%).
36. S.-R. Kang[†] and D. Loguinov, "Characterizing Tight-Link Bandwidth of Multi-Hop Paths Using Probing Response Curves," *IEEE IWQoS*, pp. 1–9, Jun. 2010 (24.8%).
37. M. Smith[†] and D. Loguinov, "Enabling High-Performance Internet-Wide Measurements on Windows," *Passive and Active Measurement Conference (PAM)*, pp. 121–130, Apr. 2010 (29.1%).
- 2009 38. C. Reddy[†], D. Leonard[†], and D. Loguinov, "Optimizing Capacity-Heterogeneous Unstructured P2P Networks for Random-Walk Traffic," *IEEE P2P*, pp. 41–50, Sep. 2009 (**best paper award**) (19.8%).

39. X. Wang[†], Z. Yao[†], Y. Zhang[†], and D. Loguinov, "Robust Lifetime Measurement in Large-Scale P2P Systems with Non-Stationary Arrivals," *IEEE P2P*, pp. 101–110, Sep. 2009 (19.8%).
- 2008 40. Y. Zhang[†] and D. Loguinov, "ABS: Adaptive Buffer Sizing for Heterogeneous Networks," *IEEE IWQoS*, pp. 90–99, Jun. 2008 (36%).
41. S. Jain[†], Y. Zhang[†], and D. Loguinov, "Towards Experimental Evaluation of Explicit Congestion Control," *IEEE IWQoS*, pp. 121–130, Jun. 2008 (36%).
42. S.A. Khayam, H. Radha, and D. Loguinov, "Worm Detection at Network Endpoints Using Information-Theoretic Traffic Perturbations," *IEEE ICC*, pp. 1561–1565, May 2008 (36%).
43. H.-T. Lee[†], D. Leonard[†], X. Wang[†], and D. Loguinov, "IRLbot: Scaling to 6 Billion Pages and Beyond," *WWW*, pp. 427–436, Apr. 2008 (**best paper award**) (11%).
44. S.-R. Kang[†] and D. Loguinov, "IMR-Pathload: Robust Available Bandwidth Estimation under End-Host Interrupt Delay," *Passive and Active Measurement Conference (PAM)*, pp. 172–181, Apr. 2008 (32%).
45. X. Wang[†], X. Liu[†], and D. Loguinov, "Modeling the Evolution of Degree Correlation in Scale-Free Topology Generators," *IEEE INFOCOM*, pp. 1768–1776, Apr. 2008 (20.3%).
46. Z. Yao[†] and D. Loguinov, "Understanding Disconnection and Stabilization of Chord," *IEEE INFOCOM*, pp. 1723–1731, Apr. 2008 (20.3%).
47. Z. Yao[†] and D. Loguinov, "Link Lifetimes and Randomized Neighbor Selection in DHTs," *IEEE INFOCOM*, pp. 637–645, Apr. 2008 (20.3%).
48. D. Leonard[†] and D. Loguinov, "Turbo King: Framework for Large-Scale Internet Delay Measurements," *IEEE INFOCOM*, pp. 430–438, Apr. 2008 (20.3%).
- 2007 49. S. Bhandarkar, A.L.N. Reddy, Y. Zhang[†], and D. Loguinov, "Emulating AQM from End Hosts," *ACM SIGCOMM*, pp. 349–360, Aug. 2007 (13.6%).
50. S. Jain[†] and D. Loguinov, "PIQI-RCP: Design and Analysis of Rate-Based Explicit Congestion Control," *IEEE IWQoS*, pp. 10–20, Jun. 2007 (**nominated for the best student paper award**) (27%).
51. Z. Yao[†], X. Wang[†], D. Leonard[†], and D. Loguinov, "On Node Isolation under Churn in Unstructured P2P Networks with Heavy-Tailed Lifetimes," *IEEE INFOCOM*, pp. 2126–2134, May 2007 (18%).
52. X. Wang[†], Z. Yao[†], and D. Loguinov, "Residual-Based Measurement of Peer and Link Lifetimes in Gnutella Networks," *IEEE INFOCOM*, pp. 391–399, May 2007 (18%).
- 2006 53. Y. Zhang[†] and D. Loguinov, "On Delay-Independent Diagonal Stability of Max-Min Congestion Control," *IEEE CDC*, pp. 621–626, Dec. 2006 (64%).
54. Z. Yao[†], D. Leonard[†], X. Wang[†], and D. Loguinov, "Modeling Heterogeneous User Churn and Local Resilience of Unstructured P2P Networks," *IEEE ICNP*, pp. 32–41, Nov. 2006 (14.2%).
55. S.-R. Kang[†], X. Liu[†], A. Bhati[†], and D. Loguinov, "On Estimating Tight Link Bandwidth Characteristics over Multi-Hop Paths," *IEEE ICDCS*, pp. 1–10, Jul. 2006 (13.8%).
56. Y. Zhang[†], D. Leonard[†], and D. Loguinov, "JetMax: Scalable Max-Min Congestion Control for High-Speed Heterogeneous Networks," *IEEE INFOCOM*, pp. 1–13, Apr. 2006 (18%).
57. X. Wang[†] and D. Loguinov, "Wealth-Based Evolution Model for the Internet AS-Level Topology," *IEEE INFOCOM*, pp. 1–11, Apr. 2006 (18%).

58. X. Liu[†], K. Ravindran, and D. Loguinov, “Measuring Probing Response Curves over the RON Testbed,” *Passive and Active Measurement Conference (PAM)*, pp. 191–200, Mar. 2006 (25%).
- 2005 59. D. Leonard[†], Z. Yao[†], X. Wang[†], and D. Loguinov, “On Static and Dynamic Partitioning Behavior of Large-Scale Networks,” *IEEE ICNP*, pp. 345–357, Nov. 2005 (17%).
60. X. Liu[†], K. Ravindran, and D. Loguinov, “Multi-Hop Probing Asymptotics in Available Bandwidth Estimation: Stochastic Analysis,” *ACM/USENIX IMC*, pp. 173–186, Oct. 2005 (24.3%).
61. S.-R. Kang[†] and D. Loguinov, “Impact of FEC Overhead on Scalable Video Streaming,” *ACM NOSSDAV*, pp. 123–128, Jun. 2005 (38%).
62. D. Leonard[†], V. Rai[†], and D. Loguinov, “On Lifetime-Based Node Failure and Resilience of Decentralized Peer-to-Peer Networks,” *ACM SIGMETRICS*, pp. 26–37, Jun. 2005 (**nominated for the best student paper award**) (13.1%).
63. M. Dai[†] and D. Loguinov, “Analysis and Modeling of H.264 and MPEG-4 Multi-Layer Video Traffic,” *IEEE INFOCOM*, pp. 2257–2267, Mar. 2005 (17.2%).
64. X. Liu[†], K. Ravindran, and D. Loguinov, “What Signals Do Packet-Pair Dispersions Carry?” *IEEE INFOCOM*, pp. 281–292, Mar. 2005 (17.2%).
- 2004 65. M. Dai[†] and D. Loguinov, “Wavelet and Time-Domain Modeling of Multi-Layer VBR Video Traffic,” *Packet Video*, pp. 1–10, Dec. 2004 (50%).
66. Y. Zhang[†] and D. Loguinov, “Local and Global Stability of Symmetric Heterogeneously-Delayed Control Systems,” *IEEE CDC*, pp. 5004–5009, Dec. 2004 (50%).
67. X. Li[†], D. Leonard[†], and D. Loguinov, “On Reshaping of Clustering Coefficients in Degree-Based Topology Generators,” *Workshop on Algorithms and Models for the Web-Graph (WAW)*, pp. 68–79, Oct. 2004 (45%).
68. X. Liu[†], K. Ravindran, B. Liu, and D. Loguinov, “Single-Hop Probing Asymptotics in Available Bandwidth Estimation: Sample-Path Analysis,” *ACM IMC*, pp. 300–313, Oct. 2004 (19%).
69. S.-R. Kang[†], X. Liu[†], M. Dai[†], and D. Loguinov, “Packet Pair Bandwidth Estimation: Stochastic Analysis of a Single Congested Node,” *IEEE ICNP*, pp. 316–325, Oct. 2004 (15.5%).
70. M. Dai[†], D. Loguinov, and H. Radha, “Rate-Distortion Modeling of Scalable Video Coders,” *IEEE ICIP*, pp. 1093–1096, Oct. 2004 (46%).
71. M. Dai[†], D. Loguinov, and H. Radha, “A Hybrid Wavelet Framework for Modeling VBR Video Traffic,” *IEEE ICIP*, pp. 3125–3128, Oct. 2004 (46%).
72. X. Liu[†], K. Ravindran, and D. Loguinov, “Evaluating the Potential of Bandwidth Estimators,” *New York Metro Area Networking Workshop (NYMAN)*, pp. 1–4, Sep. 2004.
73. Y. Zhang[†], S.-R. Kang[†], and D. Loguinov, “Delayed Stability and Performance of Distributed Congestion Control,” *ACM SIGCOMM*, pp. 307–318, Aug. 2004 (9.1%).
74. Y. Zhang[†] and D. Loguinov, “Oscillations and Buffer Overflows in Video Streaming under Non-Negligible Delay,” *ACM NOSSDAV*, pp. 88–93, Jun. 2004 (25%).
75. X. Wang[†], Y. Zhang[†], X. Li[†], and D. Loguinov, “On Zone-Balancing of Peer-to-Peer Networks: Analysis of Random Node Join,” *ACM SIGMETRICS*, pp. 211–222, Jun. 2004 (12.4%).

76. S.-R. Kang[†], Y. Zhang[†], M. Dai[†], and D. Loguinov, “Multi-layer Active Queue Management and Congestion Control for Scalable Video Streaming,” *IEEE ICDCS*, pp. 768–777, Mar. 2004 (17.7%).
- 2003 77. M. Dai[†], D. Loguinov, and H. Radha, “Statistical Analysis and Distortion Modeling of MPEG-4 FGS,” *IEEE ICIP*, pp. 301–304, Sep. 2003 (44%).
78. D. Loguinov, A. Kumar[†], V. Rai[†], and S. Ganesh[†], “Graph-Theoretic Analysis of Structured Peer-to-Peer Systems: Routing Distances and Fault Resilience,” *ACM SIGCOMM*, pp. 395–406, Aug. 2003 (10.3%).
79. M. Dai[†] and D. Loguinov, “Analysis of Rate-Distortion Functions and Congestion Control in Scalable Internet Video Streaming,” *ACM NOSSDAV*, pp. 60–69, Jun. 2003 (30%).
- 2002 80. D. Loguinov and H. Radha, “Open-loop Rate Control for Real-time Video Streaming: Analysis of Binomial Algorithms,” *IEEE ICIP*, pp. 193–196, Sep. 2002 (55%).
81. D. Loguinov and H. Radha, “Video-Receiver Based Real-time Estimation of Channel Capacity,” *IEEE ICIP*, pp. 213–216, Sep. 2002 (55%).
82. D. Loguinov and H. Radha, “Effects of Channel Delays on Underflow Events of Compressed Video Over the Internet,” *IEEE ICIP*, pp. 205–208, Sep. 2002 (55%).
83. D. Loguinov and H. Radha, “End-to-End Internet Video Traffic Dynamics: Statistical Study and Analysis,” *IEEE INFOCOM*, pp. 723–732, Jun. 2002 (20.5%).
84. D. Loguinov and H. Radha, “Increase-Decrease Congestion Control for Real-time Streaming: Scalability,” *IEEE INFOCOM*, pp. 525–534, Jun. 2002 (20.5%).
- 2001 85. D. Loguinov and H. Radha, “Measurement Study of Low-bitrate Internet Video Streaming,” *ACM IMW*, pp. 281–293, Nov. 2001 (26.4%).
86. H. Radha and D. Loguinov, “Encoder Buffer Constraints for Video Transmission over Networks with No Quality-of-Service Guarantees,” *IEEE ISCC*, pp. 359–363, Jul. 2001 (55%).
87. K. Ravindran, D. Loguinov, K. Bhat, T.-J. Gong, and K. Gould, “Performance Engineering of End-Systems for High Bandwidth Multimedia Communications,” *SCS SPECTS*, Jul. 2001 (60%).
88. D. Loguinov and H. Radha, “On Retransmission Schemes for Real-time Streaming in the Internet,” *IEEE INFOCOM*, pp. 1310–1319, Apr. 2001 (23.1%).
89. K. Ravindran, A. Sabbir, D. Loguinov, and G. Bloom, “Cost Optimal Multicast Trees for Multi-Source Data Flows,” *IEEE INFOCOM*, pp. 966–975, Apr. 2001 (23.1%).
90. K. Ravindran, D. Loguinov, and T.-J. Gong, “Flow & QoS Based Routing Control for Multicast Protocols,” *SCS WMC*, Jan. 2001.
- 1998 91. K. Ravindran and D. Loguinov, “Incorporation of Flow and QoS Control in Multicast Routing Architectures,” *IEEE ICCCN*, pp. 312–320, Oct. 1998 (41%).

◇ **Invited Abstracts**

92. X. Wang[†] and D. Loguinov, “Modeling the Dynamics of the Internet AS-Level Structure: An Economic Perspective,” *ISMA Workshop on the Internet Topology (WIT)*, May 2006.
93. D. Loguinov, “What Does it Take to Disconnect a P2P Network?” *Allerton Conference on Communication, Control, and Computing*, Sep. 2005.

◇ **Book Chapters**

94. H. Radha and D. Loguinov, "Channel Modeling and Analysis for the Internet," *Multimedia over IP and Wireless Networks*, Eds. Mihaela van der Schaar and Philip Chou, Academic Press, pp. 229–270, Mar. 2007.

◇ **Technical Reports**

95. X. Wang, X. Li, and D. Loguinov, "Modeling Residual-Geometric Flow Sampling," *Texas A&M Technical Report 2010-12-2*, 14 pages, Dec. 2010.
96. X. Wang, Z. Yao, Y. Zhang, and D. Loguinov, "Robust Lifetime Measurement in Large-Scale P2P Systems with Non-Stationary Arrivals," *Texas A&M Technical Report 2009-6-2*, 15 pages, Jun. 2009.
97. M. Dai[†], Y. Zhang[†], and D. Loguinov, "A Unified Traffic Model for MPEG-4 and H.264 Video Traces," *Texas A&M Technical Report 2009-4-3*, 14 pages, Apr. 2009.
98. H.-T. Lee[†], D. Leonard[†], X. Wang[†], and D. Loguinov, "IRLbot: Scaling to 6 Billion Pages and Beyond," *Texas A&M Technical Report 2008-2-2*, 14 pages, Feb. 2008.
99. X. Wang[†], X. Liu[†], and D. Loguinov, "Modeling the Evolution of Degree Correlation in Scale-Free Topology Generators (extended version)," *Texas A&M Technical Report 2007-12-1*, 21 pages, Dec. 2007.
100. Z. Yao[†], D. Leonard[†], X. Wang[†], and D. Loguinov, "Modeling Heterogeneous User Churn and Local Resilience of Unstructured P2P Networks," *Texas A&M Technical Report 2006-8-1*, 17 pages, Aug. 2006.
101. X. Liu[†], K. Ravindran, and D. Loguinov, "Multi-Hop Probing Asymptotics in Available Bandwidth Estimation: Stochastic Analysis (extended version)," *CUNY Technical Report TR-2005010*, 18 pages, Aug. 2005.
102. X. Liu[†], K. Ravindran, B. Liu, and D. Loguinov, "Single-Hop Probing Asymptotics in Available Bandwidth Estimation: Sample-Path Analysis," *CUNY Technical Report TR-2004012*, 19 pages, Aug. 2004.

Funding

◇ **Research Grants**

1. D. Loguinov (PI), "Large-Scale Web Crawling and Spam Avoidance in Search-Engine Applications," *NSF CISE, Computer Systems Research (CNS-1017766)*, \$400,105, 2010-2013.
2. D. Loguinov (PI), "Bridging Analytical and Empirical Understanding of Churn in Decentralized P2P Networks," *NSF CISE, Computer Systems Research (CNS-0720571)*, \$318,990, 2007-2010.
3. D. Loguinov (PI), "Distributed Congestion Control for Heterogeneous Networks," *NSF CISE, Networking Research (CNS-0519442)*, \$300,000, 2005-2008.
4. D. Loguinov (PI), "Topology Models for Decentralized Random Graphs," *NSF CISE, Networking Research (CNS-0434940)*, \$335,541, 2004-2007.
5. D. Loguinov (PI), "Efficient Self-Organizing Content Distribution Network for Scalable Video Streaming Services," *NSF CISE, Information Technology Research (ANI-0312461)*, \$274,999, 2003-2006.
6. D. Loguinov (PI), "Optimal-Diameter Routing and Error Resilience in Peer-to-Peer Networks," *NSF CISE, Distributed Systems and Compilers (CCR-0306246)*, \$248,283, 2003-2006.

◇ **Research Experience for Undergrads (REU)**

7. D. Loguinov (PI), “REU: Large-Scale Web Crawling and Spam Avoidance in Search-Engine Applications,” *NSF CISE*, \$15,000, 2010-2013.
8. D. Loguinov (PI), “REU: Bridging Analytical and Empirical Understanding of Churn in Decentralized P2P Networks,” *NSF CISE*, \$12,000, 2007-2010.
9. D. Loguinov (PI), “REU: Efficient Self-Organizing Content Distribution Network for Scalable Video Streaming Services,” *NSF CISE*, \$6,000, 2003-2006.

Patents

◇ United States

1. D. Loguinov, “Method for Supporting Non-Linear, Highly Scalable Increase-Decrease Congestion Control Methods,” *U.S. Patent no. 7,206,285*, Issued: Apr. 17, 2007.
2. D. Loguinov, “Scheme for Supporting Real-Time Packetization and Retransmission in Rate-Based Streaming Applications,” *U.S. Patent no. 7,164,680*, Issued: Jan. 16, 2007.
3. D. Loguinov and H. Radha, “Method for Efficient Retransmission Timeout Estimation in NACK-based protocols,” *U.S. Patent no. 6,907,460*, Issued: Jun. 14, 2005.
4. H. Radha and D. Loguinov, “System and Method for Controlling the Delay Budget of a Decoder Buffer in a Streaming Data Receiver,” *U.S. Patent no. 6,700,893*, Issued: Mar. 2, 2004.

Awards

◇ Research

- *Best Paper Award* (among 25 accepted and 124 submitted), IEEE P2P 2009.
- *TEES Fellow*, Texas A&M University (for outstanding long-term research performance and commitment to excellence in engineering research initiatives in the Texas Engineering Experiment Station), 2008/2009.
- *Best Paper Award* (among 97 accepted and 880 submitted), WWW 2008.
- *TEES Select Young Faculty*, Texas A&M University (for outstanding research performance and commitment to excellence in engineering research initiatives in the Texas Engineering Experiment Station), 2005/2006.

◇ Undergraduate Mentoring

- *First-place award*, REU/USRG poster competition at Texas A&M University, Autumn Breese “Characterizing DNS Implementations and their Cache-Poisoning Vulnerabilities,” Aug. 2009.
- *First-place award*, REU/USRG poster competition at Texas A&M University, Drew Fisher “Efficient HTML Parsing for Web Crawlers,” Aug. 2008.

Professional Activities

◇ Societies

- IEEE: Student Member 1999-2002, Member 2003-2007, Senior Member 2008–
- ACM: Student Member 2000-2002, Member 2003-2007, Senior Member 2008–
- SIGCOMM: Member 2004-2008

◇ Technical Program Committees (TPC)

- ACM CIKM 2011
- WWW 2009, 2010
- IEEE BroadNets 2008, 2009
- ACM NOSSDAV 2008
- IEEE INFOCOM 2004, 2005, 2006

- IEEE ICIP 2004, 2005
- IEEE ICME 2003
- ◇ **Journal Reviewer**
 - IEEE Communications Letters
 - IEEE Journal of Selected Topics in Signal Processing
 - IEEE Journal on Selected Areas in Communications
 - IEEE Trans. on Automatic Control
 - IEEE Trans. on Circuits and Systems for Video Technology
 - IEEE Trans. on Circuits and Systems II
 - IEEE Trans. on Computers
 - IEEE Trans. on Control Systems Technology
 - IEEE Trans. on Multimedia
 - IEEE/ACM Trans. on Networking
 - IEEE Trans. on Parallel and Distributed Systems
 - IEEE Trans. on Vehicular Technology
 - IEEE Trans. on Wireless Communications
 - ACM SIGCOMM Computer Communication Review
 - ACM Trans. on Multimedia Computing, Comm., and Applications
 - Elsevier Computer Communications
 - Elsevier Computer Networks
 - Elsevier Journal of Visual Communications and Image Representation
 - Oxford Computer Journal
 - Springer VLDB Journal
- ◇ **Conference Reviewer (non-TPC)**
 - Packet Video 2007
 - ACC 2006
 - IEEE CDC 2005
 - IEEE ICC 2003
 - IEEE INFOCOM 1999
- ◇ **Session Chair**
 - IEEE ICME 2003
- ◇ **External Proposal Reviewer**
 - NSF panels: 2006, 2008, 2011
 - Research Foundation, City University of New York: 2004

**Students
Advised**

- ◇ **PhD Thesis**
 1. Derek Leonard, “Algorithms for Internet-Wide Delay Sampling and Service Discovery,” *PhD in Computer Science, Texas A&M University*, Dec. 2010.
 2. Xiaoming Wang, “Robust and Scalable Sampling Algorithms for Network Measurement,” *PhD in Computer Science, Texas A&M University*, Aug. 2009.
 3. Zhongmei Yao, “Understanding Churn in Decentralized Peer-to-Peer Networks,” *PhD in Computer Science, Texas A&M University*, Aug. 2009.

4. Seong-Ryong Kang, "Performance Analysis and Network Path Characterization for Scalable Internet Streaming," *PhD in Computer Science, Texas A&M University*, May 2008.
 5. Yueping Zhang, "Stable and Scalable Congestion Control for High-Speed Heterogeneous Networks," *PhD in Computer Engineering, Texas A&M University*, May 2008.
 6. Xiliang Liu, "A Stochastic Analysis of Available Bandwidth Estimation," *PhD in Computer Science, City University of New York*, May 2005 (unofficial advisor).
 7. Min Dai, "Rate-Distortion Analysis and Traffic Modeling for Scalable Video Coders," *PhD in Electrical Engineering, Texas A&M University*, Dec. 2004 (co-advised with Dr. Chan).
- ◇ **MS Thesis**
8. Xiaoxi Zhang, "Efficient Parallel Text Compression on GPUs," *MS in Computer Science, Texas A&M University*, Dec. 2011.
 9. Siddhartha Mathiharan, "Identifying Search Engine Spam Using DNS," *MS in Computer Science, Texas A&M University*, Dec. 2011.
 10. Sadhan Sood, "Probabilistic Simhash Matching," *MS in Computer Science, Texas A&M University*, Aug. 2011.
 11. Ankur Nandwani, "Snap: Robust Tool For Internet-Wide Operating System Fingerprinting," *MS in Computer Science, Texas A&M University*, Dec. 2010.
 12. Chandan Reddy, "Capacity-Proportional Unstructured Peer-To-Peer Networks," *MS in Computer Engineering, Texas A&M University*, Aug. 2009.
 13. Videsh Sadafal, "Measurement and Analysis of BitTorrent," *MS in Computer Science, Texas A&M University*, Aug. 2008.
 14. Hsin-Tsang Lee, "IRLbot: Design and Performance Analysis of a Large-Scale Web Crawler," *MS in Computer Science, Texas A&M University*, May 2008.
 15. Kunal Patel, "Dispatch: Distributed Peer-to-Peer Simulations," *MS in Computer Science, Texas A&M University*, Aug. 2007.
 16. Saurabh Jain, "Evaluation of Explicit Congestion Control for High-Speed Networks," *MS in Electrical Engineering, Texas A&M University*, May 2007 (co-advised with Dr. Reddy).
 17. Prasanth Nittala, "Deterministic Routing Algorithms in Large Scale Wireless Sensor Networks," *MS in Computer Science, Texas A&M University*, Dec. 2004.
 18. Amit Bhati, "Envelope: A Method to Estimate Bottleneck and Available Bandwidth over a Network Path with Multiple Congested Links," *MS in Computer Science, Texas A&M University*, Dec. 2004.
 19. Geetha Kakarlapudi, "Analysis of Beacon Triangulation in Random Graphs," *MS in Computer Science, Texas A&M University*, Dec. 2004.
 20. Bharat Iyer, "Capacity and Scale-Free Dynamics of Evolving Wireless Networks," *MS in Electrical Engineering, Texas A&M University*, Aug. 2003 (co-advised with Dr. Reddy).
 21. Sai Ganesh, "Nonlinear Continuous Feedback Controllers," *MS in Computer Science, Texas A&M University*, Aug. 2003.
- ◇ **Undergraduate Research**
22. Philip van Ruitenbeek, "Algorithms for Efficient Multi-Core Parallelization of Hash Tables," *Texas A&M University, NSF REU*, Summer 2011.

23. Rand Dusing, “High-Performance User-Space TCP Stack for Large-Scale Internet Measurements,” *Texas A&M University*, NSF REU, Spring 2010.
24. Patrick Webster, “Efficient Architecture for Scalable DNS Services,” *Texas A&M University*, NSF REU, Spring 2010.
25. Autumn Breese “Characterizing DNS Implementations and their Cache-Poisoning Vulnerabilities,” *Texas A&M University*, NSF Site REU, Summer 2009.
26. Drew Fisher, “Efficient HTML Parsing for Web Crawlers,” *Texas A&M University*, NSF Site REU, Summer 2008.
27. Matt Smith, “Mapping the Internet with Reverse Traceroute,” *Texas A&M University*, NSF REU, Spring 2008.
28. Robert Lychev, “Distributed Computing of Monte Carlo Simulations in Peer-to-Peer Networks,” *Texas A&M University*, NSF Site REU, Summer 2005.
29. Juan Casas, “Performance Analysis of Structured P2P Networks: Graph Diameter and Average Distance,” *Texas A&M University*, NSF Site REU, Summer 2004.

Service

◇ University

- University Grievance Committee (UGC): Elected Member 2010-2012

◇ College of Engineering

- Honors and Awards Committee (Research): Member 2010-2011

◇ Department

- Graduate Advisory Committee (GAC): Member 2007–
- Industrial Affiliates Program (IAP) Development: Member 2009–
- Department Advisory Committee (AdCom): Elected Member 2006-2007
- Undergraduate Curriculum & ABET Committee (UGCC): Member 2005-2007
- Space Committee: Member 2004-2005
- Graduate Admissions and Awards (GAAC): Member 2002-2004, 2007-2009
- Computing Services Advisory Committee (GSAC): Member 2002-2004

Student Committees

◇ PhD Thesis

1. Srikanth Sastry, “A Prescription for Partial Synchrony,” *PhD in Computer Engineering, Texas A&M University*, May 2011.
2. Hang Su, “Design and Analysis of Opportunistic MAC Protocols for Cognitive Radio Networks,” *PhD in Computer Engineering, Texas A&M University*, Dec. 2010.
3. Qinghe Du, “Adaptive Resource Allocation for Statistical QoS Provisioning in Mobile Wireless Communications and Networks,” *PhD in Computer Engineering, Texas A&M University*, Dec. 2010.
4. Ni Qin, “Algorithms, Protocols & System for Remote Observation Using Networked Robotic Cameras,” *PhD in Computer Science, Texas A&M University*, May 2008.
5. Qian Xu, “Layered Wyner-Ziv Video Coding: A New Approach to Video Compression and Delivery,” *PhD in Electrical and Computer Engineering, Texas A&M University*, Aug. 2007.
6. Zhixin Liu, “Slepian-Wolf Coded Nested Quantization for Wyner-Ziv Coding: High-Rate Performance Analysis, Code Design, and Application to Cooperative Networks,” *PhD in Electrical and Computer Engineering, Texas A&M University*, Aug. 2007.

7. Sumitha Bhandarkar, "Congestion Control Algorithms of TCP in Emerging Networks," *PhD in Electrical and Computer Engineering, Texas A&M University*, Aug. 2006.
8. Soohyun Cho, "Congestion Control Schemes for Single and Parallel TCP Flows in High Bandwidth-Delay Product Networks," *PhD in Computer Science, Texas A&M University*, Dec. 2005.
9. Xinwen Fu, "On Traffic Analysis Attacks and Countermeasures," *PhD in Computer Engineering, Texas A&M University*, Dec. 2005.
10. Eun-Sun Jung, "Energy Efficiency in Wireless Networks," *PhD in Computer Science, Texas A&M University*, Aug. 2005.
11. Yong Xiong, "Modeling and Control of Network Traffic for Performance and Secure Communications," *PhD in Computer Science, Texas A&M University*, Dec. 2004.

◇ **MS Thesis**

12. Saswat Mohanty, "Using Secure Real-Time Padding Protocol to Secure Voice-Over-IP from Traffic Analysis Attacks," *MS in Computer Science, Texas A&M University*, May 2011.
13. Zhiyuan Yin, "Performance of Early Retransmission Scheme and Delay Based Protocol in Video Streaming," *MS in Electrical Engineering, Texas A&M University*, Dec. 2010.
14. Prajjwal Devkota, "Performance of Quantized Congestion Notification in TCP Incast Scenarios of Data Centers," *MS in Computer Engineering, Texas A&M University*, May 2010.
15. Kiran Kotla, "Adapting A Delay Based Protocol To Heterogeneous Environments," *MS in Computer Engineering, Texas A&M University*, Aug. 2008.
16. Praveen Kota, "Rate-Adaptive H.264 for TCP/IP Networks," *MS in Electrical Engineering, Texas A&M University*, May 2006.
17. Mallik Kommaraju, "Predictor Development for Controlling Real-time Applications over the Internet," *MS in Mechanical Engineering, Texas A&M University*, Dec. 2005.
18. Qian Xu, "Layered Wyner-Ziv Video Coding for Noisy Channels," *MS in Electrical Engineering, Texas A&M University*, Jun. 2004.

**Invited
Talks**

◇ **University**

- Georgia Institute of Technology, "On the Partitioning Behavior of Churn-Based Peer-to-Peer Systems," *Networking and Telecommunications Seminar*, Mar. 2006.
- University of Illinois, Urbana-Champaign, "JetMax: Scalable Max-Min Congestion Control for High-Speed Heterogeneous Networks," *Computer Engineering Seminar*, Feb. 2006.
- Washington University in St. Louis, "JetMax: Scalable Max-Min Congestion Control for High-Speed Heterogeneous Networks," *Computer Science & Engineering Colloquium*, Jan. 2006.
- Texas A&M University, "On Lifetime-Based Node Failure and Stochastic Resilience of Decentralized Peer-to-Peer Networks," *Computer Science Colloquium*, Apr. 2005.
- Texas A&M University, "Routing in Structured P2P Networks: Diameter-Degree Tradeoffs," *Computer Science Colloquium*, Apr. 2004.

- Texas A&M University, “Adaptive Scalable Internet Streaming,” *Computer Science Colloquium*, Oct. 2002.
- ◇ **Conference**
- D. Loguinov, “What Does it Take to Disconnect a P2P Network?” *Allerton Conference on Communication, Control, and Computing*, Sep. 2005.
- Courses Taught**
- ◇ **Undergraduate**
- CSCE 313, “Introduction to Computer Systems,” Spring 2011, Fall 2011 (honors)
 - CSCE 463, “Networks and Distributed Processing,” Fall 2004, Fall 2005, Fall 2006, Fall 2007, Spring 2009, Fall 2009, Spring 2010, Fall 2010, Fall 2011
- ◇ **Graduate**
- CSCE 619, “Networks and Distributed Processing,” Spring 2004, Spring 2005, Spring 2006, Spring 2008, Spring 2010, Spring 2011
 - CSCE 662, “Distributed Systems,” Spring 2003
 - CSCE 689, “Special Topics in Overlay Networks,” Spring 2008, Spring 2009
 - CSCE 689, “Special Topics in Congestion Control,” Fall 2006
 - CSCE 689, “Special Topics in P2P Networks,” Spring 2005, Fall 2005
 - CSCE 689, “Special Topics in Networking,” Fall 2002, Fall 2003
- Other**
- ◇ **Student Travel Grants**
- ACM SIGCOMM, Aug. 2001
 - IEEE INFOCOM, Apr. 2001
- ◇ **Fellowships/Scholarships**
- Internet Video Project, Philips Research USA, 1998–2001
 - Computer Science Department, City University of New York, 1997–1999
- ◇ **Teaching Assistant**
- Computer Science, City College of New York, 1996–1998
 - Computer Science, Kansas State University, 1995–1996
- ◇ **Fun Stuff**
- Erdős number 3 (Paul Erdős → Stephan A. Burr → Gary S. Bloom → me)
 - Top score (out of 17 students) on the PhD qualifying exam, Computer Science Department, City University of New York, June 1998
 - Nine-way tie for top score (out of 1261 applicants) on the entrance exams, Department of Computer Science, Moscow State University, July 1991