Curriculum Vitae
Bobby Bhattacharjee

Department of Computer Science
The University of Maryland
College Park

1 Personal Information

Professor,
Computer Science Department and
the Institute for Advanced Computer Studies,
University of Maryland
Appointed Fall, 1999.

Affiliate Professor,
Department of Electrial and Computer Engineering,
University of Maryland.

Alfred P. Sloan Research Fellow (2004–2006).

1.1 Education

- Ph.D. in Computer Science
  Georgia Institute of Technology, Atlanta, Georgia, Summer 1999
  Dissertation title: Active Networking: Architectures, Composition, and Applications
  Advisors: Kenneth L. Calvert and Ellen W. Zegura
- Bachelor of Science in Mathematics and Computer Science
  Georgia College and State University, Milledgeville, Georgia, Spring 1994
  Graduated *Summa Cum Laude* and Outstanding Department Major

1.2 Employment

Summer 2009 to present	Professor University of Maryland, College Park, Maryland
Summer 2005 to present	Associate Professor University of Maryland, College Park, Maryland
Fall 2006	Visiting Professor Max Planck Institüt für Software Systems, Saarbrücken, Germany
Spring, Summer 2007	Visiting Researcher

Google Exhibit 1004
Google v. VirtaMove

Oracle Ex. 1004
Oracle v. VirtaMove, IPR2025-00965

	AT&T Labs, Florham Park, New Jersey
Fall 1999 to Spring 2005	Assistant Professor University of Maryland, College Park, Maryland
Fall 1995 to Summer 1999	Research Assistant Georgia Institute of Technology, Atlanta, Georgia
Summer 1998	Instructor Georgia Institute of Technology, Atlanta, Georgia
Summer 1997	Member of Technical Staff AT&T Labs, Florham Park, New Jersey
Summer 1995	Member of Technical Staff GTE Labs, Waltham, Massachusetts
Fall 1994 to Spring 1995	Teaching Assistant Georgia Institute of Technology, Atlanta, Georgia

2 Research, Scholarly, and Creative Activities

2.1 Chapters in Books

1. Gisli Hjálmtýsson and Samrat Bhattacharjee. "Control on Demand", In *Proceedings of the First International Working Conference on Active Networks* volume 1653 of *Lecture Notes in Computer Science (Stefan Covaci, editor)*, pages 315-329, Springer-Verlag, June 1999.

2. Pete Keleher, Samrat Bhattacharjee, and Bujor Silaghi. "Are Virtualized Overlay Networks Too Much of a Good Thing?", *Peer-to-Peer Systems First International Workshop, Lecture Notes in Computer Science*, Vol. 2429, (Peter Druschel et. al. Editors) pages 225–231, Springer-Verlag, 2002.

3. Bobby Bhattacharjee, Sudarshan S. Chawathe, Vijay Gopalakrishnan, Peter J. Keleher, and Bujor D. Silaghi. "Efficient Peer-To-Peer Searches Using Result-Caching", *Peer-to-Peer Systems II, Second International Workshop, IPTPS 2003, Lecture Notes in Computer Science*, Vol. 2735, (M. Frans Kaashoek and Ion Stoica, Editors), pages 225–236, Springer-Verlag, 2003.

4. Paolo Massaand Bobby Bhattacharjee. "Using Trust in Recommender Systems: an Experimental Analysis", In *Second International Conference, iTrust 2004, Lecture Notes in Computer Science, Vol. 2995 Jensen, Christian; Poslad, Stefan; Dimitrakos, Theo (Eds.)*, pages 221-235, Springer-Verlag, 2004.

5. Cristian Lumezanu, Neil Spring, and Bobby Bhattacharjee. "Decentralized Message Ordering for Publish/Subscribe Systems", *ACM/IFIP/Usenix 7th International Middleware Conference, Lecture Notes in Computer Science*, Vol. 4290 (Maarten van Steen and Michi Henning, Editors), pages 162–179, Springer-Verlag, 2006.

6. Misha Rabinovich and Bobby Bhattacharjee. "Overlay Networks and Resiliency", in *Guide to Reliable Internet Services and Applications* , Charles R Kalmanek, Sudip Misra, and Y. Richard Yang (Editors). Springer-Verlag, 2010.

2.2 Articles in Refereed Journals

1. Kenneth L. Calvert, Samrat Bhattacharjee, Ellen W. Zegura, and James Sterbenz. "Directions in Active Networks", *IEEE Communications Magazine*, No. 10, pages 72-78, 1998.

2. Samrat Bhattacharjee, Ellen W. Zegura, and Kenneth L. Calvert. "Active Networking and End-to-End Arguments", *IEEE Network Magazine*, No. 3, pages 66-71, 1998.

3. Gisli Hjálmtýsson and Samrat Bhattacharjee. "Control on Demand - An Efficient Approach to Router Programmability", *IEEE Journal on Selected Areas in Communications, JSAC*, Vol. 17, No. 9, pages 1549-1562, September 1999.

4. S. Bhattacharjee, W. C. Cheng, C.-F. Chou, L. Golubchik, and S. Khuller. "Bistro: a Platform for Building Scalable Wide-Area Upload Applications", *ACM SIGMETRICS Performance Evaluation Review*, Vol. 28, No. 2, pages 29-35, September 2000.

5. Ellen W. Zegura, Mostafa Ammar, Zongming Fei, and Samrat Bhattacharjee. "Application-Layer Anycasting: A Server Selection Architecture and Use in Replicated Web Service", *Transactions on Networking*, Vol. 8, Issue 4, pages 455-466, August 2000.

6. Suman Banerjeeand Samrat Bhattacharjee. "Scalable Secure Group Communications over IP-multicast", *IEEE Journal of Selected Areas in Communications, JSAC*, Vol. 20, No. 8, pages 1511 - 1527, October 2002.

7. U. Cetintemel, P. J. Keleher, B. Bhattacharjee, and M. J. Franklin. "Deno: A Decentralized, Peer-to-Peer Object-Replication System for Weakly-Connected Environments", *IEEE Transactions on Computers*, Vol. 52, No. 7, pages 943–959, July 2003.

8. Suman Banerjee, Christopher Kommareddy, and Bobby Bhattacharjee. "Efficient Peer Location on the Internet", *Computer Networks Journal*, Vol. 5:1, pages 5-17, 2004.

9. Rob Sherwood, Bobby Bhattacharjee, and Aravind Srinivasan. "P5: A Protocol for Scalable Anonymous Communications", *Journal of Computer Security*, Vol 13:6, pages 839-876, 2005.

10. Suman Banerjee, Christopher Kommareddy, Koushik Kar, Bobby Bhattacharjee, and Samir Khuller. "OMNI: An Efficient Overlay Multicast Infrastructure for Real-time Applications", *Special Issue of Computer Networks on Overlay Distribution Structures and their Applications*, Vol 50:6, pages 826-842, 2005.

11. Rob Sherwood, Seungjoon Lee, and Bobby Bhattcharjee. "Cooperative Peer Groups in NICE", *Computer Networks Journal, Special Issue on Management in P2P systems: Trust, Reputation and Security*, Vol 50:4, pages 523-544, 2006.

12. Tuna Guven, Chris Kommareddy, Richard J. La, Mark A. Shayman, and Bobby Bhattacharjee. "Measurement-Based Optimal Routing on Overlay Architectures for Unicast Sessions", *Computer Networks Journal: Special issue on Network Modeling and Simulation*, Vol. 50, No. 12, pages 1938–1951, August 2006.

13. Suman Banerjee, Seungjoon Lee, Bobby Bhattacharjee, and Aravind Srinivasan. "Resilient Multicast using Overlays", *IEEE/ACM Transactions of Networking*, Vol. 14, No. 2, pages 237–248, April 2006.

14. Ruggero Morselli, Bobby Bhattacharjee, Michael A. Marsh, and Aravind Srinivasan. "Efficient Lookup on Unstructured Topologies", *IEEE Journal on Selected Areas in Communications (J-SAC), Special Issue on Peer-to-Peer Communications and Applications*, pages 62-72, 2007.

15. Jik-Soo Kim, Beomseok Nam, Peter Keleher, Michael Marsh, Bobby Bhattacharjee, and Alan Sussman. "Trade-offs in Matching Jobs and Balancing Load for Distributed Desktop Grids", *Future Generation Computer Systems – International Journal of Grid Computing: Theory, Methods & Applications*, Vol. 25, No. 5, pages 415–424, 2008.

16. Seungjoon Lee, Bobby Bhattacharjee, Aravind Srinivasan, and Samir Khuller. "Efficient and Resilient Backbones for Multihop Wireless Networks", *IEEE Transactions on Mobile Computing*, Vol 7:11, 2008.

17. T. Guven, R. La, M. Shayman, and B. Bhattacharjee. "A Unified Framework for Multipath Routing for Unicast and Multicast", *IEEE/ACM Transactions on Networking*, Vol. 6:5, 2008.

18. Seungjoon Lee, Bobby Bhattacharjee, Suman Banerjee, Bo Han. "A Generic Framework for Efficient Geographic Routing in Wireless Networks", Elsevier Computer Networks, Vol 54:5, 2010.

19. Bo Han, Lusheng Ji, Seungjoon Lee, Bobby Bhattacharjee, and Robert R. Miller. "Are All Bits Equal? – Experimental Study of IEEE 802.11 Communication Bit Errors". *IEEE/ACM Transactions on Networking*, Vol. 20, No. 6, 2012.

20. V. Singh, M. Lentz, B. Bhattacharjee, R. J. La and M. A. Shayman. "Dynamic frequency resource allocation in heterogeneous cellular networks". IEEE Trans. on Mobile Computing (TMC). 2016.

21. Wagner, Justin and Paulson, Joseph N. and Wang, Xiao and Bhattacharjee, Bobby and Bravo, Hector Corrada, Privacy-Preserving Microbiome Analysis Using Secure Computation, Bioinformatics, 2016.

22. Suman Banerjee, Bobby Bhattacharjee, and Christopher Kommareddy. "Scalable Application Layer Multicast", *Transactions on Networking*, Under revision, Submitted in 2002.

2.3 Articles in Refereed Conferences and Workshops

1. Ellen W. Zegura, Kenneth L. Calvert, and Bobby Bhattacharjee. "How to Model an Internetwork", In *Proceedings of INFOCOM'96*, pages 594–602, 1996.

2. Bobby Bhattacharjee, Mostafa Ammar, Ellen Zegura, Viren Shah, and Zongming Fei. "Application-Layer Anycasting", In *Proceedings of INFOCOM'97*, pages 1388–1396, Kobe, Japan, 1997.

3. Bobby Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "Active Networking and the End-to-End Argument", In *Proceedings of ICNP'97*, pages 220–228, 1997.

4. Bobby Bhattacharjee, Kenneth. L. Calvert, and Ellen W. Zegura. "An Architecture for Active Networking", In *Proceedings of IFIP TC6 Seventh International Conference on High Performance Networking'97*, pages 265–279, 1997.

5. Bobby Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "Self-Organizing Wide Area Network Caches", In *Proceedings of INFOCOM'98*, pages 600–608, 1998.

6. Bobby Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "Reasoning about Active Networks", In *Proceedings of ICNP'98*, pages 31–41, 1998.

7. Zongming Fei, Bobby Bhattacharjee, Ellen W. Zegura, and Mostafa Ammar. "A Novel Server Selection Technique for Improving the Response Time of a Replicated Service", In *Proceedings of INFOCOM'98*, pages 783–791, San Francisco, CA, 1998.

8. Samrat Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "Congestion Control and Caching in CANEs", In *Proceedings of ICC'98, Workshop on Active Networks and Programmable Networks*, 1998.

9. Samrat Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "LIANE — Composition for Active Networks", *Computer Communications Workshop*, 1998.

10. Gisli Hjálmtýsson and Samrat Bhattacharjee. "Control on Demand", *Proceedings of International Workshop on Active Networking*, Berlin, pages 315–329, 1999.

11. S. Merugu, S. Bhattacharjee, E. Zegura, and K. Calvert. "Bowman: A Node OS for Active Networks". *Proceedings of IEEE Infocom*, pages 1127–1136, 2000.

12. Y. Chae, S. Merugu, E. Zegura, and S. Bhattacharjee. "Exposing the Network: Support for Topology Sensitive Applications", *Proceedings of IEEE OpenArch*, pages 65–74, 2000.

13. Samrat Bhattacharjee, William Cheng, Chen-Fu Chou, Leana Golubchik, and Samir Khuller. "Bistro: A Platform for Building Scalable Wide-Area Upload Applications", *Proceedings of PAWS Workshop*, 2000.

14. R. Jaegar, S. Bhattacharjee, J. K. Hollingsworth, R. Duncan, T. Lavian, and F. Travostino. "Integrating Active Networking and Commercial-Grade Routing Platforms", *Usenix 2000 Workshop on Intelligence at the Edge*, 2000.

15. Suman Banerjeeand Bobby Bhattacharjee. "Scalable Group Communication over IP Multicast", In *Proceedings of the International Conference on Network Protocols*, pages 261–271, 2001.

16. Narendar Shankar, Christopher Komareddy, and Bobby Bhattacharjee. "Finding Close Friends over the Internet", In *Proceedings of the International Conference on Network Protocols*, pages 301–311, 2001.

17. Matt Sanders, Ken Calvert, Bobby Bhattacharjee, Stephen Zabele, Mark Keaton, and Ellen Zegura. "Active Reliable Multicast on CANEs: A Case Study", *IEEE OpenArch*, pages 49–62, 2001.

18. Suman Banerjeeand Samrat Bhattacharjee. "Scalable Application-Layer Multicast for Content Distribution", *Computer Communciations Workshop*, 2001.

19. Suman Banerjee, Bobby Bhattacharjee, and Christopher Komareddy. "Scalable Application-Layer Multicast", *Proceedings of ACM SIGCOMM*, pages 205–217, 2002.

20. Bobby Bhattacharjee, Matt Sanders, Shashidhar Merugu, Ken Calvert, and Ellen Zegura. "CANEs: An Execution Environment for Composable Services", In *DARPA Active Networks Conference and Exposition (DANCE 2002)*, pages 255–267, 2002.

21. Laura Bright, Samrat Bhattacharjee, and Louiqa Raschid. "Supporting Diverse Mobile Applications with Client Profiles", In *Proceedings of ACM Workshop on Wireless Mobile Multimedia (WoWMoM)*, pages 88–95, 2002.

22. Suman Banerjee, Christopher Kommareddy, and Bobby Bhattacharjee. "Scalable Peer-Finding on the Internet", *Proceedings of Globecom 2002*, pages 2217–2221, 2002.

23. Rob Sherwood, Bobby Bhattacharjee, and Aravind Srinivasan. "P5: A Protocol for Scalable Anonymous Communications", In *Proceedings of the IEEE Symposium on Security and Privacy*, pages 58–70, 2002.

24. Pete Keleher, Samrat Bhattacharjee, and Bujor Silaghi. "Are Virtualized Overlay Networks Too Much of a Good Thing?", *First International Workshop on Peer-to-Peer Systems (IPTPS'02)*, 2002.

25. Bujor Silaghi, Bobby Bhattacharjee, and Pete Keleher. "Routing in the TerraDir Directory Service", *Proceedings of SPIE/ITCom 2002*, Vol. 4868-30, pages 42–53, 2002.

26. Suman Banerjee, Seungjoon Lee, Bobby Bhattacharjee, and Aravind Srinivasan. "Scalable Resilient Multicast", *Proceedings of ACM SIGMETRICS*, pages 102–113, 2003.

27. K-T Kuo, S. Phuvoravan, B. Bhattacharjee, R. J. La, M. Shayman, and H. S. Chang. "On the Use of Flow Migration for Handling Short-term Overloads", *IEEE Globecom*, pages 3108–3112, 2003.

28. Suman Banerjee, Christopher Kommareddy, Koushik Kar, Bobby Bhattacharjee, and Samir Khuller. "Construction of an Efficient Overlay Multicast Infrastructure for Real-time Applications", *Proceedings of IEEE Infocom*, pages 1521–1531, 2003.

29. Seungjoon Lee, Rob Sherwood, and Bobby Bhattacharjee. "Cooperative Peer Groups in NICE", *Proceedings of IEEE Infocom*, pages 1272–1282, April 2003.

30. K-T Kuo, S. Phuvoravan, T. Guven, L. Sudarsan, H. S. Chang, S. Bhattacharjee, and M. A. Shayman. "Fast Timescale Control for MPLS Traffic Engineering", *Proceedings of Globecom 2003*, pages 3108–3114, 2003.

31. Bobby Bhattacharjee, Sudarshan Chawathe, Vijay Gopalakrishnan, Pete Keleher, and Bujor Silaghi. "Efficient Peer-To-Peer Searches Using Result-Caching", *Second International Workshop on Peer-to-Peer Systems (IPTPS'03)*, 2003.

32. Ruggero Morselli, Jonathan Katz, and Bobby Bhattacharjee. "A Game-Theoretic Framework for Analyzing Trust-Inference Protocols", *In the Proceedings of the Second Workshop on the Economics of Peer-to-Peer Systems*, June 2004.

33. Bujor Silaghi, Pete Keleher, and Bobby Bhattacharjee. "Multi-Dimensional Quorum Sets for Read-Few Write-Many Replica Control Protocols", In *Proceedings of the IEEE/ACM CCGRID, 4th Fourth International Workshop on Global and Peer-to-Peer Computing (GP2PC)*, April 2004.

34. Suman Banerjee, Seungjoon Lee, Ryan Braud, Bobby Bhattacharjee, and Aravind Srinivasan. "Scalable Resilient Media Streaming", In *Proceedings of ACM NOSSDAV'04*, pages 4–9, 2004.

35. Seungjoon Lee, Suman Banerjee, and Bobby Bhattacharjee. "The Case for a Multi-hop Wireless Local Area Network", In *Proceedings of IEEE Infocom*, pages 894–905, 2004.

36. T.Guven, C. Kommareddy, R.J. La, M.A. Shayman, and B. Bhattacharjee. "Measurement Based Optimal Multi-path Routing", In *Proceedings of IEEE Infocom*, pages 187–196, March 2004.

37. Ruggero Morselli, Bobby Bhattacharjee, Jonathan Katz, and Pete Keleher. "Trust-Preserving Set Operations", In *Proceedings of IEEE Infocom*, pages 2231–2241, March 2004.

38. Rob Sherwood, Ryan Braud, and Bobby Bhattacharjee. "Slurpie: A Cooperative Bulk Data Transfer Protocol", In *Proceedings of IEEE Infocom*, pages 941–951, March 2004.

39. V. Gopalakrishnan, B. Silaghi, B. Bhattacharjee, and P. Keleher. "Adaptive Replication in Peer-to-Peer Systems", In *Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 360–369, March 2004.

40. David Hovemeyer, Jeff Hollingsworth, and Bobby Bhattacharjee. "Running on the Bare Metal with GeekOS", In *Proceedings of the Technical Symposium on Computer Science Education (SIGCSE)*, pages 315–319, March 2004.

41. Bujor Silaghi, Vijay Gopalakrishnan, Bobby Bhattacharjee, and Pete Keleher. "Hierarchical Routing with Soft-State Replicas in TerraDir", *In Proceedings of the 18th IPDPS Conference*, pages 48–57, April 2004.

42. Rob Sherwood, Bobby Bhattacharjee, and Ryan Braud. "Misbehaving TCP Receivers Can Cause Internet-Wide Congestion Collapse", Proceedings of *Computer and Communications Security (CCS)*, pages 383–392, 2005.

43. Ruggero Morselli, Bobby Bhattacharjee, Michael A. Marsh, and Aravind Srinivasan. "Efficient Lookup on Unstructured Topologies", *Principles of Distributed Computing*, pages 77–86, 2005.

44. Seungjoon Lee, Bobby Bhattacharjee, and Suman Banerjee. "Efficient Geographic Routing in Multihop Wireless Networks", *ACM MobiHoc 2005*, pages 230–241, 2005.

45. T. Guven, R. J. La, M. Shayman, and B. Bhattacharjee. "Measurement-based Multipath Multicast," *In IEEE Global Internet Symposium,* pages 2803–2808, 2005.

46. Vahid Tabatabaee, Bobby Bhattacharjee, Richard La, and Mark Shayman. "Differentiated Traffic Engineering for QoS Provisioning", *In the Proceedings of INFOCOM'05*, pages 2349–2359, 2005.

47. J. S. Kim, B. Nam, P. Keleher, M. Marsh, B. Bhattacharjee, and A. Sussman. "Resource Discovery Techniques in Distributed Desktop Grid Environments", *Proceedings of the 7th IEEE/ACM International Conference on Grid Computing - GRID 2006*, pages 9–16, September 2006. *Best paper award*.

48. Cristian Lumezanu, Neil Spring, and Bobby Bhattacharjee. "Decentralized Message Ordering for Publish/Subscribe Systems", *ACM/IFIP/Usenix 7th International Middleware Conference*, 2006.

49. Abhishek Kashyap, Samrat Bhattacharjee, Richard La, Mark Shayman, and Vahid Tabatabaee. "Single-Path Routing of Time-varying Traffic", In the *Proceedings of Globecom*, 2006.

50. Vasile Gaburici, Peter Keleher, and Bobby Bhattacharjee. "File System Support for Collaboration in the Wide Area", *Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 26–36, 2006.

51. J. H. Li, M. Yu, R. Levy, and B. Bhattacharjee. "A Scalable Key Management and Clustering Scheme for Ad Hoc Networks", *Proceedings of InfoScale*, pages 28–38, Hong Kong, 2006.

52. Vijay Gopalakrishnan, Bobby Bhattacharjee, and Peter Keleher. "Distributing Google", In *2nd IEEE International Workshop on Networking Meets Databases (NetDB' 06)*, pages 33–39, April 2006.

53. Dave Levin, Rob Sherwood, and Bobby Bhattacharjee. "Fair File Swarming with FOX", *Proceedings of the International Workshop on Peer-to-Peer Systems (IPTPS'06)*, 2006.

54. Alan Mislove, Massimiliano Marcon, Krishna Gummadi, Peter Druschel, and Bobby Bhattacharjee. "Measurement and Analysis of Online Social Networks", In *Proceedings of the ACM/Usenix Internet Measurement Conference (IMC 2007)*, pages 29–42, 2007.

55. Jik-Soo Kim, Peter Keleher, Michael Marsh, Bobby Bhattacharjee, and Alan Sussman. "Using Content-Addressable Networks for Load Balancing in Desktop Grids", *In Sixteenth IEEE International Symposium on High-Performance Distributed Computing (HPDC)*, pages 189–198, 2007.

56. Vijay Gopalakrishnan, Ruggero Morselli, Bobby Bhattacharjee, Peter J. Keleher, and Aravind Srinivasan. "Distributed Ranked Search", *14th Annual IEEE International Conference on High Performance Computing (HiPC)*, pages 7–20, 2007. *Best paper award*.

57. Animesh Nandi, Aditya Ganjam, Peter Druschel, T. S. Eugene Ng, Ion Stoica, Hui Zhang, and Bobby Bhattacharjee. "A Shared Control Plane for Overlay Multicast", *Fourth Usenix Symposium on Networked Systems Design and Implementation (NSDI 2007)*, 2007.

58. Seungjoon Lee, Dave Levin, Vijay Gopalakrishnan, and Bobby Bhattacharjee. "Backbone Construction in Selfish Wireless Networks", *Proceedings of SIGMETRICS*, pages 121–132, 2007.

59. Jik-Soo Kim, Beomseok Nam, Michael A. Marsh, Peter J. Keleher, Bobby Bhattacharjee, Derek Richardson, Dennis Wellnitz, and Alan Sussman. "Creating a Robust Desktop Grid using Peer-to-Peer Services", *Proceedings of NSF Next Generation Software Workshop (NSFNGS)* (Appears with proceedings of IPDPS 2007), pages 1–7, 2007.

60. Vahid Tabatabaee, Abhishek Kashyap, Bobby Bhattacharjee, Richard La, and M. Shayman. "Robust Routing with Unknown Traffic Matrices", *IEEE INFOCOM Minisymposiums*, pages 2336–2440, 2007.

61. Adam Bender, Neil Spring, Dave Levin, and Bobby Bhattacharjee. "Accountability as a Service", *USENIX Workshop on Steps to Reducing Unwanted Traffic on the Internet (SRUTI)*, 2007.

62. Dave Levin, Adam Bender, Cristian Lumezanu, Neil Spring, and Bobby Bhattacharjee. "Boycotting and Extorting Nodes in an Internetwork", *Workshop on the Economics of Networked Systems and Incentive-Based Computing*, 2007.

63. B. Bhattacharjee, R. Rodrigues, and P. Kouznetsov. "Secure Lookup without (Constrained) Flooding", *Workshop on Recent Advances on Intrusion-Tolerant Systems (WRAITS)*, 2007.

64. R. Rodrigues, P. Kouznetsov, and B. Bhattacharjee. "Large-Scale Byzantine Fault Tolerance: Safe but Not Always Live", *In the Third Workshop on Hot Topics in System Dependability (HotDep'07)*, 2007.

65. Ruggero Morselli, Bobby Bhattacharjee, Jonathan Katz and Michael Marsh. "Exploiting Approximate Transitivity of Trust", In *Fourth International Conference on Broadband Communications, Networks, and Systems, 2007 (BroadNets 2007)*, pages 515–524, 2007.

66. Jik-Soo Kim, Beomseok Nam, Michael Marsh, Peter Keleher, Bobby Bhattacharjee, and Alan Sussman. "Integrating Categorical Resource Types into a P2P Desktop Grid System", *In Proceedings of the 9th IEEE/ACM International Conference on Grid Computing (Grid 2008)*, 2008.

67. Dave Levin, Katrina LaCurts, Neil Spring, and Bobby Bhattacharjee. "BitTorrent is an Auction: Analyzing and Improving BitTorrent's Incentives", *In Proceedings of Sigcomm*, 2008.

68. Alan Mislove, Hema Swetha Koppula, Krishna P. Gummadi, Peter Druschel, and Bobby Bhattacharjee. "Growth of the Flickr social network", *In Proceedings of the 1st ACM SIGCOMM Workshop on Social Networks (WOSN'08)*, Seattle, WA, 2008.

69. Dave Levin, Randolph Baden, Cristian Lumezanu, Neil Spring, and Bobby Bhattacharjee. "Motivating Participation in Internet Routing Overlays", *In NetEcon 2008 (Workshop on the Economics of Networks, Systems, and Computation)*, 2008.

70. Bo Han, Lusheng Ji, Seungjoon Lee, Bobby Bhattacharjee, Robert R. Miller. "All Bits Are Not Equal – A Study of IEEE 802.11 Communication Bit Errors", INFOCOM 2009.

71. Bo Han, Lusheng Ji, Seungjoon Lee, Robert R. Miller, Bobby Bhattacharjee. "Channel Access Throttling for Overlapping BSS Management". IEEE ICC, June 2009.

72. Vijay Gopalakrishnan, Bobby Bhattacharjee, K. K. Ramakrishnan, Rittwik Jana, Divesh Srivastava. "CPM: Adaptive Video-on-Demand with Cooperative Peer Assists and Multicast." IEEE INFOCOM 2009.

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74. Cristian Lumezanu and Randy Baden and Dave Levin and Neil Spring and Bobby Bhattacharjee, "Symbiotic Relationships in Internet Routing Overlays", Usenix-NSDI, 2009.

75. Cristian Lumezanu and Randy Baden and Neil Spring and Bobby Bhattacharjee, "Triangle Inequality and Routing Policy Violations in the Internet", Passive and Active Measurement Conference (PAM), 2009.

76. Randy Baden, Adam Bender, Neil Spring, Bobby Bhattacharjee, Daniel Starin, "Persona: An Online Social Network with User-Defined Privacy", Proceedings of SIGCOMM, August 2009

77. Cristian Lumezanu, Randolph Baden, Neil Spring, Bobby Bhattacharjee "Triangle Inequality Variations in the Internet", Proceedings of IMC, November 2009

78. Randy Baden, Neil Spring, Bobby Bhattacharjee "Identifying close friends on the Internet", The Workshop on Hot Topics in Networks (ACM Hotnets), 2009

79. Adam Bender, Rob Sherwood, Derek Monner, Nate Goergen, Neil Spring, Bobby Bhattacharjee, "Fighting Spam with the NeighborhoodWatch DHT", Proceedings of IEEE INFOCOM, April 2009

80. Cristian Lumezanu, Randolph Baden, Dave Levin, Neil Spring, Bobby Bhattacharjee, "Symbiotic Relationships in Internet Routing Overlays", Proceedings of USENIX NSDI, April 2009

81. Animesh Nandi, Bobby Bhattacharjee, Peter Druschel, "What a mesh: understanding the design tradeoffs for streaming multicast", Extended Abstract, ACM SIGMETRICS Performance Evaluation, 2009.

82. Bo Han, Aaron Schulman, Francesco Gringoli, Neil Spring, Bobby Bhattacharjee, Lorenzo Nava, Lusheng Ji, Seungjoon Lee, and Robert Miller, "Maranello: Practical partial packet recovery for 802.11", Proceedings of USENIX NSDI 2010.

83. Cristian Lumezanu, Dave Levin, Bo Han, Neil Spring, and Bobby Bhattacharjee, "Don't love thy nearest neighbor", International Workshop on Peer-to-Peer Systems (IPTPS), April 2010.

84. Cristian Lumezanu, Katherine Guo, Neil Spring, Bobby Bhattacharjee, "The Effect of Packet Loss on Redundancy Elimination in Cellular Wireless Networks", ACM Sigcomm Internet Measurement Conference (IMC), 2010.

85. Satinder Pal Singh, Randolph Baden, Choon Lee, Bobby Bhattacharjee, Richard J. La, Mark Shayman, "IP Geolocation in Metropolitan Areas", Extended Abstract, Proceedings of ACM Sigmetrics, 2011.

86. Matthew Lentz, Dave Levin, Jason Castonguay, Neil Spring, Bobby Bhattacharjee, D-mystifying the D-root address change, IMC (International Measurement Conference), 2013.

87. Lentz, Matthew and Erdélyi, Viktor and Aditya, Paarijaat and Shi, Elaine and Druschel, Peter and Bhattacharjee, Bobby, "SDDR: Light-Weight, Secure Mobile Encounters", USENIX Security Symposium, 2014.

88. Aditya, Paarijaat and Erdélyi, Viktor and Lentz, Matthew and Shi, Elaine and Bhattacharjee, Bobby and Druschel, Peter, "EnCore: Private, Context-based Communication for Mobile Social Apps", International Conference on Mobile Systems, Applications, and Services (MobiSys), 2014.

89. Aditya, Paarijaat and Bhattacharjee, Bobby and Druschel, Peter and Erdélyi, Viktor and Lentz, Matthew, Brave New World: Privacy Risks for Mobile Users, Workshop on Security and Privacy Aspects of Mobile Environments (SPME), 2014.

90. Dave Levin, Youndo Lee, Luke Valenta, Zhihao Li, Victoria Lai, Cristian Lumezanu, Neil Spring, Bobby Bhattacharjee "Alibi Routing" Proceedigs of ACM SIGCOMM, 2015.

91. Matthew Lentz, James Litton, Bobby Bhattacharjee "Drowsy Power Management" Proceedings of Symposium on Operating Systems Principles (SOSP), 2015.

92. Raul Herbster, Scott DellaTorre, Peter Druschel, Bobby Bhattacharjee. "Privacy Capsules: Preventing Information Leaks by Mobile Apps" Proceedings of Mobisys, 2016.

93. Paarijaat Aditya, Rijurekha Sen, Seong Joon Oh, Rodrigo Benenson, Bobby Bhattacharjee, Peter Druschel, Tongtong Wu, Mario Fritz, Bernt Schiele. "I-Pic: A Platform for Privacy-Compliant Image Capture" Proceedings of Mobisys, 2016.

94. Vaibhav Singh, Matthew Lentz, Bobby Bhattacharjee, Richard La, Mark Shayman. "Dynamic Frequency Resource Allocation in Heterogeneous Cellular Networks" Proceedings of IEEE TMC 2016 (IEEE Transactions on Mobile Computing)

95. James Litton, Anjo Vahldiek-Oberwagner, Eslam Elnikety, Deepak Garg, Bobby Bhattacharjee, Peter Druschel "Light-weight Contexts: An OS Abstraction for Safety and Performance" Proceedings of OSDI, 2016.

96. Zhihao Li, Dave Levin, Neil Spring, Bobby Bhattacharjee profile imageBobby Bhattacharjee. "Internet anycast: performance, problems, and potential" Proceedings of SIGCOMM, 2018.

97. Matthew Lentz, Rijurekha Sen, Peter Druschel, Bobby Bhattacharjee. "SeCloak: ARM TrustZone-based Mobile Peripheral Control" Proceedings of Mobisys 2018 (Conference on Mobile Systems, Applications, and Services)

98. Viktor Erdelyi, Trung-Kien Le, Bobby Bhattacharjee, Peter Druschel, Nobutaka Ono. "Sonoloc: Scalable positioning of commodity mobile devices." In Proceedings of the Sixteenth International Conference on Mobile Systems, Applications, and Services (MobiSys 2018).

99. Lillian Tsai, Roberta De Viti, Matthew Lentz, Stefan Saroiu, Peter Druschel, Bobby Bhattacharjee. "enClosure: Group Communication via Encounter Closures" Proceedings of Mobisys 2019

100. James Litton, Deepak Garg, Peter Druschel, Bobby Bhattacharjee " Composing Abstractions using the null-Kernel" HotOS, 2019

101. Sergi Delgado-Segura, Surya Bakshi, Cristina Perez-Sola, James Litton, Andrew Pachulski Andrew Miller, Bobby Bhattacharjee "TxProbe: Discovering Bitcoin's Network Topology Using Orphan Transactions" Financal Crypto, 2019

102. Venkat Arun, Aniket Kate, Deepak Garg, Peter Druschel, Bobby Bhattacharjee. "Finding Safety in Numbers with Secure Allegation Escrows" NDSS 2020

103. Connor Clayton, Xiaodi Wu, Bobby Bhattacharjee. "Efficient Routing on Quantum Networks using Adaptive Clustering" ICNP 2025.

2.4 Technical Reports and Invited Papers

1. Ellen W. Zegura, Kenneth. L. Calvert, and Samrat Bhattacharjee. "Tera-op networking: Local adaptation to congestion", In *Gigabit Networking Workshop*, 1996.

2. Samrat Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "Network Support for Multicast Video Distribution", Technical Report GIT-CC-98-16, College of Computing, Georgia Institute of Technology, 1996.

3. Samrat Bhattacharjee. "Self-Organizing Wide-Area Network Caches", Technical Report GIT-CC-97-31, College of Computing, Georgia Institute of Technology, 1996.

4. Zongming Fei, Samrat Bhattacharjee, Ellen W. Zegura, and Mostafa H. Ammar. "A Novel Server Selection Technique for Improving the Response Time of a Replicated Service", Technical Report GIT-CC-97-24, College of Computing, Georgia Institute of Technology, 1996.

5. Samrat Bhattacharjee, Mostafa Ammar, Ellen Zegura, Viren Shah, and Zongming Fei. "Application-Layer Anycasting", Technical Report GIT-CC-96-25, College of Computing, Georgia Institute of Technology, 1996.

6. Samrat Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "An Architecture for Active Networking", Technical Report GIT-CC-96-20, College of Computing, Georgia Institute of Technology, 1996.

7. Samrat Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "On Active Networking and Congestion", Technical Report GIT-CC-96-02, College of Computing, Georgia Institute of Technology, 1996.

8. Samrat Bhattacharjee, Ellen W. Zegura, and Kenneth L. Calvert. "High Performance Web: An Application for Wide Area Caching", In *Gigabit Networking Workshop*, 1997.

9. Samrat Bhattacharjee and Gısli Hjalmtysson. "Control-on-Demand: A Flow Oriented Approach towards Active Netwoking", *AT&T Labs Technical Memorandum*, 1997.

10. Samrat Bhattacharjee, Kenneth L. Calvert, and Ellen W. Zegura. "Improving the Quality of Best Effort Service", Technical Report GIT-CC-98-31, College of Computing, Georgia Institute of Technology, 1998.

11. S. Bhattacharjee and M. W. McKinnon. "Performance of Application-Specific Buffering Schemes for Active Networks", Technical Report GIT-CC-98-17, College of Computing, Georgia Institute of Technology, 1998.

12. S. Merugu, S. Bhattacharjee, Y. Chae, M. Sanders, K. Calvert, and E. Zegura. "Bowman and CANEs: Implementation of an Active Network", *Proceedings of the Thirty-Seventh Annual Allerton Conference on Communication, Control and Computing*, Monticello, Illinois, September 1999 (invited paper).

13. Ugur Cetintemel, Peter J. Keleher, and Bobby Bhattacharjee. "A Security Infrastructure for Mobile Transactional Systems", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4171, 2000.

14. Peter J. Keleher, Bobby Bhattacharjee, Kuo Kuo-Tung, and Ugur Cetintemel. "A Security Infrastructure for Mobile Transactional Systems", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4077, 2000.

15. Suman Banerjee and Bobby Bhattacharjee. "Scalable Secure Group Communication over IP Multicast", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4252, 2001.

16. Suman Banerjee and Samrat Bhattacharjee. "Spatial Clustering for IP Multicast: Algorithms and an Application", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4177, 2001.

17. Suman Banerjee and Bobby Bhattacharjee. "Analysis of the NICE Application Layer Multicast Protocol", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4380, 2002.

18. K-T Kuo, S. Phuvoravan, T. Guven, L. Sudarsan, S. Bhattacharjee, and M. A. Shayman. "Fast Time Scale Control for MPLS Traffic Engineering", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4351, 2002.

19. Suman Banerjee, Bobby Bhattacharjee, and Christopher Kommareddy. "Scalable Application Layer Multicast", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4373, 2002.

20. Bobby Bhattacharjee, Pete Keleher, and Bujor Silaghi. "The Design of TerraDir", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4299, 2002.

21. Suman Banerjee, Bobby Bhattacharjee, and Srinivasan Parthasarathy. "A Protocol for Scalable Application Layer Multicast", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4278, 2002.

22. Vijay Gopalakrishnan, Bujor Silaghi, Bobby Bhattacharjee, and Pete Keleher. "Adaptive Replication in Peer-to-Peer Systems", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4515, 2003.

23. Seungjoon Lee, Suman Banerjee, and Bobby Bhattacharjee. "The Case for a Multi-hop Wireless Local Area Network", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4504, 2003.

24. Christopher Kommareddy, Tuna Guven, Bobby Bhattacharjee, Richard La, and Mark Shayman. "Intradomain Overlays: Architecture and Applications", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4501, 2003.

25. Tuna Guven, Chris Kommareddy, Richard J. La, Mark A. Shayman, and Bobby Bhattacharjee. "Measurement Based Optimal Multi-path Routing", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4500, 2003.

26. Ruggero Morselli, Bobby Bhattacharjee, Jonathan Katz, and Pete Keleher. "Trust-Preserving Set Operations", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4499, 2003.

27. Suman Banerjee, Ryan Braud, Seungjoon Lee, Bobby Bhattacharjee, and Aravind Srinivasan. "Scalable Resilient Media Streaming", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4482, 2003.

28. Bujor Silaghi, Pete Keleher, and Bobby Bhattacharjee. "Multi-dimensional Quorum Sets for Read-Few Write-Many Replica Control Protocols", University of Maryland, Dept. of Computer Science Technical Report, CS-TR-4440, 2003.

29. Tuna Guven, Richard La, Mark Shayman, and Bobby Bhattacharjee. "Measurement-based Multicast on an Overlay Architecture", University of Maryland, Dept. of Computer Technical Report, CS-TR-4603, 2004.

30. Vijay Gopalakrishnan, Bobby Bhattacharjee, Sudarshan Chawathe, and Pete Keleher. "Efficient Peer-to-Peer Namespace Searches", University of Maryland, Dept. of Computer Technical Report, CS-TR-4568, 2004.

31. Rob Sherwood, Bobby Bhattacharjee, and Ryan Braud. "Misbehaving TCP Receivers Can Cause Internet-Wide Congestion Collapse", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4737, 2005.

32. Jik-Soo Kim, Bobby Bhattacharjee, Peter Keleher, and Alan Sussman. "Matching Jobs to Resources in Distributed Desktop Grid Environments", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4791, 2006.

33. Ruggero Morselli, Bobby Bhattacharjee, Jonathan Katz, and Michael Marsh. "KeyChains: A Decentralized Public-Key Infrastructure", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4788, 2006.

34. Ruggero Morselli, Bobby Bhattacharjee, Michael Marsh, and Aravind Srinivasan. "Efficient Lookup on Unstructured Topologies", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4772, 2006.

35. Seungjoon Lee, Bobby Bhattacharjee, and Suman Banerjee. "Efficient Geographic Routing in Multihop Wireless Networks", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4625, 2006.

36. Vijay Gopalakrishnan, Ruggero Morselli, Bobby Bhattacharjee, Peter Keleher, and Aravind Srinivasan. "Ranking Search Results in Peer-to-Peer Systems", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4779, 2006.

37. Randy Baden, Adam Bender, Dave Levin, Rob Sherwood, Neil Spring, and Bobby Bhattacharjee. "A Secure DHT via the Pigeonhole Principle", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4884, 2007.

38. Jik-Soo Kim, Peter Keleher, Michael Marsh, Bobby Bhattacharjee, and Alan Sussman. "Using Content-Addressable Networks for Load Balancing in Desktop Grids", University of Maryland, Dept. of Computer Science Technical Report CS-TR-4863, 2007.

2.5 Tutorials, Talks, Abstracts, and Other Professional Papers Presented

- *Privacy by Design*, NEC Labs, Princeton, November 2012.
- *Systems without Cooperation*, South China University of Technology, October 2008.
- *Systems without Cooperation*, Sichuan University, October 2008.
- *Systems without Cooperation*, University of Maryland, September 2008.

- *Decentralized Applications on the Internet*, University of Lisbon, Portugal, July 2006.
- *Decentralized Applications on the Internet*, Bell Labs, January 2006, Murray Hill, New Jersey.
- *An Overview of Decentalized Applications*, at the *Algorithms in Networking* Workshop, FSCCTS 2005, Hyderabad, India.
- *Security Architectures for Peer-to-Peer Applications*, at the Marconi Foundation Video P2P Conference, Columbia University, 2004, New York City, NY.
- *Replication and Search in Distributed Namespaces*, at IBM Research, 2004, Hawthorne, NY.
- Invited Panelist, *Network Security: How Good Does it Have to Be?* at IEEE INFOCOM, 2003, San Francisco, CA.
- *P5: A Protocol for Scalable Anonymous Communications*, at IEEE S&P, 2002, Oakland, CA.
- *Cooperative Peer Groups in NICE*, at IEEE INFOCOM, April 2003, San Francisco, CA.
- *Overlay and P2P Systems: Protocols, Applications, and Analysis*, Tutorial (with Dan Rubenstein) at Networking Group Communications (NGC '02), October 2002, Boston, MA.
- *Cooperative Peer Groups in NICE*, Invited talk at BBN Technologies, Cambridge, MA, October 2002.
- *Finding Close Friends over the Internet*, at the International Conference on Network Protocols (ICNP), 2001, Riverside, CA.
- *Adaptive Network Processing*, at the Washington University Gigabit Switch Seminar, Washington University at St. Louis, St. Louis, January, 2001.
- *Active Networks: A Possible Future for the Internet?*, Invited Talk to the Washington DC/Northern VA Chapter for the IEEE/Microwave Theory and Techniques Society, April 2000.
- Invited Panelist at Gigabit Networking Workshop, San Francisco, CA, 1998 and International Communications Conference, Atlanta, GA 1998.
- *LIANE - Composition for Active Networks*, at IEEE Computer Communications Workshop, September 1998, Oxford, MS.
- *Self-Organizing Wide Area Network Caches*, at IEEE INFOCOM 1998, San Francisco, CA.
- *Reasoning about Active Networks*, at ICNP 1998, Austin, TX.
- *Finding the Best Server within the Application-Layer Anycasting Architecture*, at IEEE INFOCOM 98, San Francisco, CA.

- *High Speed Web: An Application for Active Caching.* Presented at Gigabit Networking Workshop '97, March 1997, Kobe, Japan.
- *Application-Layer Anycasting*, at IEEE INFOCOM 1997, Kobe, Japan.
- *Active Networking and the End-to-End Argument*, at IEEE ICNP'97, Atlanta, GA.
- *Tera-Op Networking: Local Adaptation to Congestion.* Presented at Gigabit Networking Workshop '96, March 1996, San Francisco, CA.

2.6 Patents

1. *Scalable wide-area upload system and method*, Leana Golubchik, William C. Cheng, Samir Khuller, Samrat Bhattacharjee, and Cheng-Fu Chou. United States Patent # 7,181,623. Granted: February 20, 2007.
2. *Method for encoding frame data*, Lusheng Ji, Samrat Bhattacharjee, Bo Han, Seungjoon Lee, Robert Miller. United States Patent # 7,940,850. Granted: May 10, 2011.
3. *Detection of distributed denial of service attacks in autonomous system domains*, Chris Kommareddy, Samrat Bhattacharjee, Mark Shayman, Richard La. United States Patent # 8,397,284. Granted: March 12, 2013.

2.7 Contracts and Grants

1. "EAGER: Decomposing Operating Systems for Better Control over Policy and Privacy", *National Science Foundation*, PI,
2. "LTS - Securing Critical Networking Infrastructure: DNS Root Servers", *Department of Defense*, PI, (Co-PIs: Neil Spring and David Levin), 2014-2015, $199,799.00
3. "Interference Management in Heterogeneous Networks", *Air Force Research Laboratory*, Co-PI, (PI: Mark Shayman), 2012-2013, $358,054.
4. "University Partnership with the Laboratory for Telecommunications Science", *Department of Defense*, Co-PI, 2010-2013, (PI: Joseph Jaja) $896,814.
5. "University Partnership with the Laboratory for Telecommunications Science", *Department of Defense*, Co-PI, 2010-2013, (PI: Joseph Jaja) $496,228.
6. "Privacy Preserving Social Systems", *National Science Foundation*, PI, Co-PIs: Neil Spring, Jonathan Katz, 2010 – 2013, $880,000.
7. "Greed Resistant Protocols", *National Science Foundation*, Co-PI, (PI: Neil Spring), 2009 – 2012, $499,344.
8. "An Integrated Approach to Computing Capacity and Developing Efficient Cross-Layer Protocols for Wireless Networks", *National Science Foundation*, Co-PI, (Principal Investigator: Aravind Srinivasan), September 2006 – September 2009, $365,000.

9. "A Postmodern Internetwork Architecture", *National Science Foundation*, Co-PI, Principal Investigator: Neil T. Spring, September 2006 – September 2009, $400,000.

10. "Robust Grid Computing using Peer-to-Peer Services", *NASA*, Co-PI. Principal Investigator: Alan Sussman. Other co-PIs: P. Keleher, D. Richardson, February 2006 – February 2009, $1,008,251.

11. "A Wide-Area Event Notification System for MENTER", *Laboratory for Telecommunication Sciences, National Security Agency*, January 2001 – August 2008, $625,000.

12. "Employing Peer-to-Peer Services for Robust Grid Computing", Co-PI. Principal Investigator: Alan Sussman. Other co-PIs: P. Keleher, D. Richardson, September 2005 – August 2006, $60,000.

13. "Resilient Storage and Querying in Decentralized Networks", *National Science Foundation*, Principal Investigator (Co-PI: Aravind Srinivasan, Sudarshan Chawathe, Jonathan Katz, Michael Marsh), Fall 2004 – Fall 2007, $720,000.

14. Alfred P. Sloan Jr. Fellowship, September 2004 – September 2007, $40,000.

15. "Distributed Trust Computations for Decentralized Systems", *National Science Foundation*, Principal Investigator (Co-PI: Jonathan Katz), Fall 2003 – Fall 2006, $375,000.

16. "CAREER: Adaptive Network Processing", *National Science Foundation CAREER Award*, Fall 2001 – Spring 2006, $500,000.

17. "Decentralized Directories for the Internet", *National Science Foundation*, Principal Investigator (Co-PI: P. Keleher), Fall 2001 – Spring 2004, $710,000.

18. "Parametric Design of Embedded Real-Time Systems", *National Science Foundation*, Principal Investigator, Summer 2002 – Summer 2003. (Original PI: Richard Gerber, Fall 1998 – Summer 2002), $200,154.

19. *Washington University Gigabit Switch Kit.* NSF, Washington University at St. Louis, Fall 1999 (Equipment only).

2.8 Fellowships, Prizes and Awards

1. ACM SIGCOMM Test of Time Paper Award, 2018.

2. Department of Computer Science Faculty Award for Teaching Excellence, 2012.

3. Department of Computer Science Faculty Award for Teaching Excellence, 2008.

4. Best paper award, 14th Annual IEEE International Conference on High Performance Computing (HiPC), 2007; paper co-authored with Vijay Gopalakrishnan, Ruggero Morselli, Peter J. Keleher, and Aravind Srinivasan.

5. Best paper award, 7th IEEE/ACM Conference on Grid Computing, 2006; paper co-authored with Jiksoo Kim, Byomsuk Nam, Peter Keleher, Michael Marsh, and Alan Sussman.

6. Alfred P. Sloan Jr. Fellowship, 2004.

7. Department of Computer Science Faculty Award for Teaching Excellence, 2004.

8. NSF CAREER award, 2001.

9. Recipient of Distinguished Teaching Assistant award from College of Computing, Georgia Tech, Spring 1997.

2.9 Editorial Boards and Reviewing Activities for Learned Publications

Reviewer for

ACM/IEEE Transactions on Networking

IEEE Journal on Selected Areas in Communications

Computer Communications Journal (Special Issue on Network Security)

ACM Transactions on Computer Systems

Performance Evaluation Journal

Computer Communications Review

European Transactions on Telecommunications

IEEE Transactions on Parallel and Distributed Systems

ACM Transactions on Internet Technology

Virtually all conferences in Networking and Systems including SOSP, OSDI, SIGCOMM, Sigmetrics, INFOCOM, SCW, DISC (formerly WDAG), Global Internet Conference, Infocom, IC3N, ICDCS, ICNP, ICPP, ICS, OpenArch, and WWW.

2.10 Research Software

1. *Odyssey: An active networking platform.* This distribution includes complete source and documentation for the Bowman Node OS and the CANEs Execution Environment. Released on the Internet, Summer 1999.

2. *NICE protocol simulator.* This distribution includes source for simulators of the NICE multicast protocols and complete implementation of the NICE protocols for video multicast. Released on the Internet, 2002.

3. *Slurpie.* This distribution includes the entire source code for a file-swarming system. Released on the Internet, 2004.

4. *OptAck Random Segment skip patch.* This software fixes a protocol fault (for Linux kernel versions 2.4 and 2.6). The fault exists in all known versions of TCP. Released on the Internet, 2005.

5. *Local Minima Search (LMS).* LMS is a protocol for unstructured search using virtual namespaces in distributed environments. Released on the Internet, 2006.

6. *KeyChains PKI.* KeyChains is a web-of-trust public key distribution/discovery system; it is built based on LMS local minima search algorithm, and uses CODEX libraries (from Cornell). Released on the Internet, 2006.

7. *Distributed Grid Software* The Distributed Grid software implements a complete distributed job matching system. The software suite is currently being field tested by researchers in Astronomy, and is available upon request, 2007.

8. *Cryptographic library for Chit-based access.* Developed cryptographic library for "chit"-based security. Library is used for different chit-based applications, including a filesystem and a distributed calendar application. Code available upon request, 2007.

9. *CPM on-demand video service.* The CPM software includes a novel video server and associated client software (and other supporting code) for implementing Cooperative Peer-Assisted Multicasting. Co-implemented the full software suite at AT&T Research. Code available upon request, 2007.

10. *IBOBSP.* IBOBSP is an in-network platform targeted towards reducing latency in interactive applications (in particular, games). The software distribution includes the in-network server pieces, and several graphical test applications and games. Co-implemented the full IBOBSP suite at AT&T Research. Code available upon request, 2007.

3 Teaching

3.1 Teaching Awards and Other Special Recognition

1. Teaching Excellence Award for Faculty, Department of Computer Science, Spring 2008.
2. Teaching Excellence Award for Faculty, Department of Computer Science, Spring 2004.
3. Distinguished Teaching Assistant, College of Computing, Georgia Tech, Spring 1997.

3.2 Advising: Research Advisor

3.2.1 Undergraduate

- Sebastian Gomez, Fall 2010 – Spring 2011.
- Chris Heistand, Fall 2010 – Spring 2011.
- Robert Kiefer, Spring 2009 – Summer 2010.
- Anika Cartas, Summer 2008 – Spring 2009.
- Katrina LaCurts, Fall 2007 – Summer 200.
- David Renie, Spring – Fall 2004.
- Ryan Evans Braud, Graduated Spring 2004.
- Mentor for Joseph Barrett, Colin Dixon, Tianzhou Duan, Kevin Genson, Bryant McIver, Ben Roseman, as part of the University of Maryland GEMSTONE program. Project title: *Anonymous Communications*, 2002-2005.

3.2.2 Masters

- Randolf Baden, Spring 2008.
- Chunyuan Liao, Fall 2004.
- Vijay Gopalakrishnan, Spring 2003.
- Kuo-Tung Kuo, Spring 2003.
- Dave Hovemeyer, Fall 2001.
- Vaibhav Kumar (ECE), Spring 2001.
- William Shapiro, Spring 2000.

3.2.3 Doctoral (completed)

- Suman Banerjee, graduated Summer 2003. Current position: Assistant Professor at University of Wisconsin.
- Laura Bright, graduated Spring 2003 (co-advisor). Current position: Research Associate, Oregon Graduate Institute.
- Vijay Gopalakrishnan, graduated Summer 2006. Current position: MTS, AT&T Research.
- Seungjoon Lee, graduated Summer 2006. Current position: MTS, AT&T Research.
- Ruggero Morselli, graduated Summer 2006. Current position: MTS, Google Inc.
- Christopher Kommareddy, graduated Summer 2006. Current position: Researcher, Amazon, Inc.
- Rob Sherwood, graduated Summer 2008. Current position: MTS, Deutsche Telekom Labs.
- Adam Bender, gradudated Fall 2010, Current Position: MTS, Google.
- Dave Levin, graduated Summer 2010, Current Position: Visiting Research Professor, University of Maryland.
- Randolf Baden, graduated Summer 2012, Current Position: MTS, LTS-NSA.

3.2.4 Doctoral (current)

- Matthew Lentz
- Yeongsam Park
- Kookjin Lee
- James Litton
- Also advised visiting Ph.D. student Paolo Massa (Univ. of Trento) during Winter 2003-2004

3.3 Advising: Ph.D. Committees

- Nikhil Swami, Expected July 2008.
- Arun Vasan, 2008.
- Stephen Birrer (Northwestern University), 2007.
- Tuna Guven (ECE), 2006.
- Wan, Yung Chun, 2005.

- Andrzej Kochut, 2005.
- Yoo Ah Kim, 2005.
- Mehdi Kalantari (ECE), 2005.
- Arunesh Mishra, 2005.
- Surapich Phuvoravan (ECE), 2003.
- Bujor Silaghi, 2003.
- Suman Banerjee, 2003.
- Laura Bright, 2003.
- Kaushik Kar (ECE), 2002.
- Sungjoon Ahn, 2001.
- Ugur Cetintemel, 2001.
- Gabriel Rivera, 2001.
- Cuneyt Akinlar, 2001.
- Jung-Min Kim, 2001.
- Kritchalach Thitikamol, 2000.
- Saswati Sarkar (ECE), 2000.
- Demet Aksoy, 2000.

4 Service

4.1 Professional

4.1.1 Unpaid Reviewing Activities for Agencies

1. *NSF workshop on Network Testbeds*, attended workshop and co-authored report, 2002. Report basis for new NSF program on research testbeds.
2. NSF Networking Research Panel, Fall 2000, Fall 2001, Spring 2002, Fall 2002, Spring 2003, Spring 2004, Fall 2005, Spring 2008.
3. DoE High Performance Networking Panel, Spring 2001.
4. Evaluator for Intel Science Talent Search, 2001, 2002, 2003, 2004, 2005, 2007.

4.1.2 Other non-University Panels and Positions

- Program Committee Member, W-PIN+Netecon, 2013.
- Program Committee Member, WWW, 2013.
- Program Co-Chair, IEEE ICNP 2012.
- Program Committee Member, IMC, 2011.
- Co-Chair, Internet Research Task Force (IRTF) Peer-to-Peer Research Group, 2003 – 2009.
- Member, Internet Research Steering Group (IRSG), 2003 – current.
- Co Program Committee Chair, NetEcon 2009 Workshop.
- Program Committee Member, INFOCOM, 2009.
- Program Committee Member, Sigmetrics, 2009.
- Program Committee Member, Area TPC Chair, ICNP, 2008.
- Program Committee Member, INFOCOM, 2008.
- Program Committee Member, LANMAN, 2008.
- Program Committee Member, Sigmetrics, 2008.
- Program Committee Member, Workshop on Social Network Systems, 2008.
- Program Committee Member, ACM SIGCOMM, 2007.
- Program Committee Member, NetDB, 2007.
- Program Committee Member, Sigmetrics, 2007.
- Program Committee Member, ICDCS (P2P track), 2007.
- Program Committee Member, ICNP (P2P track), 2007.
- Program Committee Member, Electronic Commerce (EC), 2007.
- Area Chair (Dependeable and Trustworthy Computing), ICPADS, 2007.
- Program Committee Member, IEEE Consumer Communications and Networking Conference - Workshop on Peer-to-Peer Multicasting, 2007.
- Program Committee Member, IEEE INFOCOM, 2006.
- Associate Chair (P2P, Grids Track), Fifteenth International Conference on Computer Communications and Networks (IC3N), 2006.

- Associate Chair (P2P Track), The 26th International Conference on Distributed Computing Systems (ICDCS), 2006.
- Program Committee Member, Global Internet (GI), 2006.
- Program Committee Member, IWAN, 2006.
- Program Committee Member, ICNP, 2006.
- Program Committee Member, IEEE INFOCOM, 2006.
- Program Committee Member, The 25th International Conference on Distributed Computing Systems (ICDCS), 2005.
- Program Committee Member, International Workshop on Active Networking (IWAN), 2005.
- Program Committee Member, IEEE INFOCOM 2005.
- Program Committee Member, IPTPS, 2005.
- Program Committee Member, HICSS, 2005.
- Program Committee Member, ACM SIGCOMM, 2004.
- Program Committee Member, 6th International Workshop on Distributed Computing (IWDC), 2004.
- Program Committee Member, 24th International Conference on Distributed Computing Systems (ICDCS), 2004.
- Program Committee Member, IEEE Global Internet Conference, 2004.
- Program Committee Member, International Workshop on Active Networking (IWAN), 2004.
- Program Committee Co-Chair, OpenArch, 2003.
- Program Committee Member, IEEE International Conference on Network Protocols, 2003.
- Program Committee Member, IEEE OpenSig, 2003.
- Program Committee Member, International Workshop on Networked Group Communications (NGC), 2003.
- Program Committee Member, International Workshop on Active Networking (IWAN), 2003.
- Program Committee Member, IEEE Global Internet Conference, 2003.
- Program Committee Member, IEEE International Conference on Network Protocols, 2002.

- Program Committee Member, International Workshop on Networked Group Communications (NGC), 2002.
- Program Committee Member, IEEE Global Internet Conference, 2002.
- Program Committee Member, International Workshop on Active Networking (IWAN), 2002.
- Program Committee Member, IEEE International Conference on Network Protocols, 2001.
- Program Committee Member, Workshop on Performance and Architecture of Web Servers (PAWS), 2001.
- Publications Chair, Member of Organizing and Program Committee, IEEE/ACM OpenArch, 2001.
- Program Committee member, IEEE Global Internet Conference, 2001.