### 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



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.
- 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.
- 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.



- 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.
- 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.
- 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.
- 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.



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