Prashant Shenoy

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Research Interests

Operating and Distributed systems, Sensor networks, Mobile and Multimedia systems, Sustainability

Education

August 1998	Doctor of Philosophy (Ph.D.), Department of Computer Sciences, The University of Texas of Austin. Dissertation title: *Symphony: An Integrated Multimedia File System* Advisor: *Prof. Harrick M. Vin*.
December 1994	Master of Science (M.S) in Computer Sciences The University of Texas of Austin.
July 1993	Bachelor of Technology (B.Tech), Department of Computer Science and Engineering The Indian Institute of Technology, Bombay, India.

Work Experience

- 9/2016 - present: Associate Dean, College of Information and Computer Sciences, University of Massachusetts Amherst.

- 9/2009-present: Professor, College of Information and Computer Sciences, University of Massachusetts Amherst.

- Fall 2011: Visiting Researcher, NICTA, Sydney, Australia

- 9/2004-8/2009: Associate Professor, Department of Computer Science, University of Massachusetts Amherst.

- 9/1998-8/2004: Assistant Professor, Department of Computer Science, University of Massachusetts Amherst.

- 8/1995-8/1998: Graduate Research Assistant, Department of Computer Sciences, University of Texas at Austin.

- 5/1995-8/1995: Summer Intern, AT&T Bell Laboratories, Murray Hill, NJ.

- 8/1994-5/1995: Teaching Assistant, Department of Computer Sciences, University of Texas at Austin.

- 5/1994-8/1994: Summer Intern, Microsoft Research, Redmond, WA.

Expert Witness Experience

- Veeam v. Symantec, *Inter Partes Review* Case IPR2013-00141 for US Patent 6,931,558, "Computer Restoration Systems and Methods" Deposition October 2013 and March 2014.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2013-00142 for US Patent 6,931,558, "Computer Restoration Systems and Methods," Deposition October 2013 and March 2014.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2013-00143 for US Patent 7,191,299, "Method and System of Providing Periodic Replication," Deposition November 2013 and March 2014.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2013-00144 for US Patent 7,254,682, "Selective File and Folder Snapshot Image Creation," Written testimony February 2013.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2013-00145 for US Patent 7,254,682, "Selective File and Folder Snapshot Image Creation," Written testimony February 2013.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2013-00150 for US Patent 7,093,086, "Disaster Recover and Backup Using Virtual Machines," Deposed November 2013 and March 2014.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2014-00088 for US Patent 7,480,822, "Recover and Operation of Captured Running States from Multiple Computing Systems On a Single Computing System," Deposition June 2014.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2014-00089 for US Patent 7,831,861, "Techniques for Efficient Restoration of Granular Application Data" Deposition June 2014.

- Veeam v. Symantec, *Inter Partes Review* Case IPR2014-00091 for US Patent 8,117,168, "Methods and Systems for Creating and Managing Backups Using Virtual Disks," Deposition July 2014.

- Riverbed and SAP v. Parallel Networks, *Inter Partes Review* Case IPR2014-01398 for US Patent 8,352,570, "Method and System for Uniform Resource Locator Transformation," August 2014.

- Riverbed and SAP v. Parallel Networks, *Inter Partes Review* Case IPR2014-01399 for US Patent 7,571,217, "Method and System for Uniform Resource Locator Transformation," August 2014.

- Delphix v. Actifio, *Inter Partes Review* Case IPR2015-00100 for US Patent 8,566,361, "Datacenter Workflow Automation Scenarios Using Virtual Databases," August 2015. Deposed.

- Delphix v. Actifio, *Inter Partes Review* Case IPR2015-00108 for US Patent 8,566,361, "Datacenter Workflow Automation Scenarios Using Virtual Databases," August 2015. Deposed.

- Delphix v. Actifio, *Inter Partes Review* Case IPR2015-01678 for US Patent 8,299,944, "System and Method for Creating Deduplicated Copies of Data Storing Non-lossy Encodings of Data Directly in a Content Addressable Store," August 2015. Deposed.

- Delphix v. Actifio, *Inter Partes Review* Case IPR2015-01689 for US Patent 8,788,769, "System and method for performing backup or restore operations utilizing difference information and timeline state information," August 2015. Deposed.

Honors and Awards

- Elected as the Fellow of the IEEE, 2013

- Distinguished member of the ACM, 2009.

- ACM Sigmetrics 2016 Test of Time Award.

- Keynote Speaker, ACM ICPE 2013 conference

- Keynote Speaker, ACM GreenMetrics 2013

- Keynote Speaker, IEEE E6 Energy Workshop, 2012.

- Keynote speaker, TCS Excellence in Computer Science (TECS) Week, January 2012.

- Best paper Finalist, ACM Buildsys 2014.

- Best paper, *ACM/IEEE IWQOS* symposium, Montreal, 2013

- Best paper runner-up, *ACM eEnergy* conference, Berkeley, CA, 2013

- Best papers of *IEEE PerCom 2012* conference (one of three papers chosen for this honor).

- Best paper, *IEEE COMSNETS 2012* conference, India.

- Best paper, *ACM Sigcomm GreenNets 2011* workshop, Toronto, Canada.

- Our Memory Buddies paper adjudged one of the four best papers of ACM VEE 2009.

- Best paper, *Usenix 2007* annual technical conference.

- Best Paper, *ACM Multimedia 2005*, Singapore.

- Paper co-authored with a student won Best Student Paper, *IEEE Autonomic Computing conference (ICAC) 2005*.

- Best Paper, *IEEE Web Information Systems Engineering Conference*, 2002. Forwarded to a fast-track issue of *World Wide Web Journal*.

- Best Paper in Performance/Systems Category and Finalist for overall Best Paper, *World Wide Web Conference*, May 2002. Forwarded to a fast-track issue of *IEEE Transactions on Knowledge and Data Engineering*.

- Paper co-authored with a student was Best Student Paper Finalist, *ACM Multimedia 2005*.

- Lilly Foundation Teaching Fellowship, August 2001.

- IBM Faculty Partnership Award, June 2000, June 2001 and June 2003.

- National Science Foundation (NSF) CAREER Award, April 2000.

- Best Doctoral Dissertation of 1998-99, Department of Computer Sciences, University of Texas at Austin.

- MCD Graduate Fellowship, Department of Computer Sciences, University of Texas at Austin, 1993-95.

- Institute Medal recipient for being the top ranking graduating student, Department of Computer Science and Engineering, Indian Institute of Technology, Bombay, July, 1993.

Book Chapters

B1. Michael Zink and Prashant Shenoy, "Caching and Distribution Issues for Streaming Content Distribution Networks," X. Tang, J. Xu, and S T. Chanson (eds), Springer, 2005.

B2. Harrick Vin and Prashant Shenoy, "Storage Architectures for Digital Imagery," *Image Databases: Search and Retrieval of Digital Imagery*, V. Castelli and L. Bergman (eds), John Wiley, 2002.

B3. Prashant Shenoy and Harrick Vin, "Media Servers," *Readings in Multimedia Computing*, K Jeffay and H. Zhang (eds), Morgan Kaufman Publishers, August 2001.

Journal Publications

J1. P. Sharma, S. Lee, T. Guo, D. Irwin and P. Shenoy, "Managing Risk in a Derivative IaaS Cloud,", *IEEE Trans on Parallel and Distributed Systems (TPDS)*, 2017.

J2. David Irwin, Srinivasan Iyengar, Stephen Lee, Aditya Mishra, Prashant Shenoy, Ye Xu, "Enabling Distributed Energy Storage by Incentivizing Small Load Shifts," *ACM Transactions on Cyber-Physical Systems (ACM TCPS)*, 2017.

J3. Srinivasan Iyengar, Navin Sharma, David Irwin, Prashant Shenoy, Krithi Ramamritham, "A Cloud-based Black Box Solar Predictor for Smart Homes," *ACM Transactions on Cyber- Physical Systems - Special Issue on Smart Homes, Buildings, and Infrastructures*, 2017.

J4. Zhichuan Huang, Ting Zhu, Yu Gu, David Irwin, Aditya Mishra, Daniel Menasche, Prashant Shenoy, "Minimizing Transmission Loss in Smart Microgrids by Sharing Renewable Energy," *ACM Trans on Cyber-Physical Systems*, 2017.

J5. Prateek Sharma, Patrick Pegus, David Irwin, and Prashant Shenoy, "Design and Operational Analysis of a Green Data Center," IEEE Internet Computing, Special Issue on Energy-efficient Data Centers, 2017.

J6. Prateek Sharma, David Irwin, and Prashant Shenoy, "Keep it Simple: Bidding for Servers in Today?s Cloud Platforms," IEEE Internet Computing, 2017.

J7. Navin Sharma, Dilip Krishnappa, Sean Barker, David Irwin, and Prashant Shenoy, "Managing server clusters on intermittent power," *PeerJ Computer Science Journal*, December 2015.

J8. Boduo Li, Yanlei Diao, Prashant Shenoy, "Supporting Scalable Analytics with Latency Constraints," *PVLDB Journal*, 8(11), 2015. Also presented at the VLDB conference, Hawaii, Aug 2015.

J9. Dong Chen, Sandeep Kalra, David Irwin, Prashant Shenoy, and Jeannie Albrecht, "Preventing Occupancy Detection from Smart Meter Data," *IEEE Transactions on Smart Grid*, 2015.

J10. T. Wood, K K. Ramakrishnan, P. Shenoy, J. van der Merwe, J. Hwang, G. Liu and L. Chaufournier, "CloudNet: Dynamic Pooling of Cloud Resources by Live WAN Migration of Virtual Machines," *IEEE/ACM Transactions on Networking (TON)*, 2014.

J11. Navin Sharma, Jeremy Gummeson, David Irwin, Ting Zhu and Prashant Shenoy "Leveraging weather forecasts in renewable energy systems," *Sustainable Computing: Informatics and Systems*, Volume 4, Issue 3, pages 160-171, September 2014.

J12. Vimal Mathew, Ramesh K. Sitaraman and Prashant Shenoy "Energy-efficient content delivery networks using cluster shutdown," *Sustainable Computing: Informatics and Systems (SUSCOM)*, Special Issue of Invited Papers from IGCC 2013, 2014.

J13. Navin Sharma, David Irwin, and Prashant Shenoy, "BlinkFS: A Distributed File System for Intermittent Power," *Sustainable Computing (SUSCOM)*, 2014.

J14. Rahul Singh, Prateek Sharma, David Irwin, Prashant Shenoy, and K.K. Ramakrishnan, "Here Today, Gone Tomorrow: Exploiting Transient Servers in Data Centers," *IEEE Internet Computing*, 18(4):22-29 2014.

J15. Sean Barker, Sandeep Kalra, David Irwin, and Prashant Shenoy, "Empirical Characterization, Modeling, and Analysis of Smart Meter Data," *IEEE Journal on Selected Areas in Communications (JSAC)*, Special Series on Smart Grid Communications, 32(7):1312-1327, July 2014.

J16. Tian Guo, Upendra Sharma, Prashant Shenoy, Timothy Wood, Sambit Sahu, "Cost-aware Cloud Bursting for Enterprise Applications," *ACM Transactions on Internet Technology (TOIT)*, vol 13, no 3, May 2014.

J17. Prashant Shenoy, "Multimedia Systems Research: The First Twenty Years and Lessons for the Next Twenty," *ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOM-CCAP)*, Special Issue on 20 Years of ACM Multimedia, vol 9, no 1s, October 2013.

J18. R. Singh, P. Shenoy, M. Natu, V. Sadaphal and H. Vin, "Analytical Modeling for What-if Analysis in Complex Cloud Computing Applications," *ACM Sigmetrics Performance Evaluation Review, Special Issue on Cloud Computing*, Vol 40, no 4, pages 53-62, March 2013

J19. A. Mishra, D. Irwin, P. Shenoy, J. Kurose, T. Zhu, "GreenCharge: Managing Renewable Energy in Smart Buildings," *IEEE Journal on Selected Areas in Communications (JSAC), Special Series on Smart Grid Communications*, 31(7): 1281-1293, July 2013.

J20. B. Li, E. Mazur, Y. Diao, A. McGregor and P. Shenoy, "SCALLA: A Platform for Scalable One-Pass Analytics using MapReduce," *ACM Transactions on Database Systems (TODS)*, 37:4, December 2012. Special Issue of Best Papers of Sigmod 2011.

J21. Peter Desnoyers, Timothy Wood, Prashant Shenoy, Rahul Singh, Sangameshwar Patil, and Harrick Vin, "Modellus: Automated Modeling of Complex Internet Data Center Applications," *ACM Transactions on the Web (TWEB)*, 6(2), 1-19, May 2012.

J22. T. Wood, K K Ramakrishnan, P. Shenoy, K Van der Merwe, "Enterprise Ready Virtual Cloud Pools: Vision, Oppurtunities and Challenges," *The Computer Journal, Oxford Univ. Press*, vol 55, number 8, pages 1-10, October 2012.

J23. Navin Sharma, David Irwin, Prashant Shenoy and Michael Zink, "MultiSense: Proportional-Share for Mechanically Steerable Sensor Networks," Multimedia Systems Journal (MMSJ), vol 18, pages 425-444, October 2012.

J24. Y. Nie, R. Cocci, Z. Cao, Y. Diao, and P. Shenoy "SPIRE: Efficient Data Interpretation and Compression over RFID Streams," *IEEE Trans. on Knowledge and Data Engineering (TKDE)*, vol 24, number 1, pages 141-155, 2012.

J25. Zhao Cao, Charles Sutton, Yanlei Diao, and Prashant Shenoy, "Distributed Inference and Query Processing for RFID Tracking and Monitoring" *PVLDB Journal*, vol 4, number 5, pages 326-337, March 2011.

J26. Xiaotao Liu, Mark D. Corner, Prashant Shenoy, "Ferret: An RFID-enabled pervasive multimedia application," Ad Hoc Networks, 9(4), 2011.

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