

ARUN VENKATARAMANI

CONTACT INFORMATION	Room 236, Computer Science University of Massachusetts 140 Governors Drive Amherst, MA 01003	Phone: (413) 545-3651 Fax: (413) 545-1249 E-mail: arun@cs.umass.edu WWW: www.cs.umass.edu/~arun
EDUCATION	University of Texas at Austin, Austin, Texas USA Ph.D., Computer Sciences, December 2004. University of Texas at Austin, Austin, Texas USA M.S., Computer Sciences, December 2000. Indian Institute of Technology (IIT) Bombay, Mumbai, India B.Tech., Computer Science and Engineering, May 1999.	
RESEARCH INTERESTS	Broadly computer networking and distributed systems including cloud computing, mobile and wireless systems, content distribution, Internet architecture, and network security.	
WORK AND RESEARCH EXPERIENCE	University of Massachusetts Amherst University of Massachusetts Amherst University of Massachusetts Amherst University of Washington University of Washington Internet Center for Internet Research (ICIR) Berkeley Microsoft Research, Silicon Valley Research Center IBM Research, Austin Research Lab University of Texas at Austin University of Texas at Austin	Professor, Sep 2017-present Associate Professor, Sep 2010-present Assistant Professor, Jan 2005-Sep 2010 Visiting Faculty, Jul-Aug 2007, Jun-Aug 2006 Visiting Faculty, Aug-Dec 2004 Intern, Jun-Aug 2003 Intern, Jun-Aug 2002 Intern, Jun-Aug 2001 Research Assistant, Jan 2001-Aug 2004 Teaching Assistant, Aug 1999-May 2001
HONORS	Best Paper Award at ACM SIGCOMM Conference on Emerging Networking Experiments and Technologies (CoNEXT) 2009. NSF CAREER Award, 2009. Best Paper Award at USENIX Symposium on Networked System Design and Implementation (NSDI) 2008. Best Student Paper Award at USENIX Symposium on Networked System Design and Implementation (NSDI) 2007. J.C. Browne Outstanding Graduate Student Fellowship in 2002 at the Department of Computer Sciences, University of Texas at Austin.	
CONFERENCE PAPERS	<i>Citation counts if listed below are as reported by Google Scholar in 2015.</i> [C39] <code>msocket</code> : System Support for Mobile, Multipath, and Middlebox-Agnostic Applications, Aditya Yadav, Arun Venkataramani, Emmanuel Cecchet, International Conference on Network Protocols (ICNP), 2016. [C38] Measurement and modeling of user transitioning among networks, Sookhyun Yang, Jim Kurose, Simon Heimlicher, Arun Venkataramani, IEEE IEEE Conference on Computer Communications (INFOCOM) 2015. Acceptance rate: 19%.	

- [C37] Pros and Cons of Model-Based Bandwidth Control for Client-Assisted Content Delivery, Abhigyan Sharma, Arun Venkataramani, Antonio A. Rocha, International Conference on Communication Systems and Networks (COMSNETS), 2014.
- [C36] VMShadow: Optimizing the Performance of Latency-Sensitive Virtual Desktops in Distributed Clouds, Tian Guo, Vijay Gopalakrishnan, K. K. Ramakrishnan, Prashant J. Shenoy, Arun Venkataramani, Seungjoon Lee, ACM Multimedia Systems Conference Series, p. 103-114, 2014. Acceptance rate: 26%.
- [C35] A Global Name Service for a Highly Mobile Internetwork, Abhigyan Sharma, Xiaozheng Tie, Hardeep Uppal, Arun Venkataramani, David Westbrook, Aditya Yadav, ACM Special Interest Group on Data Communications (**SIGCOMM**), 247-258, 2014. Acceptance rate: 19%.
- [C34] Towards a quantitative comparison of location-independent network architectures, Zhaoyu Gao, Arun Venkataramani, James F. Kurose, Simon Heimlicher, ACM Special Interest Group on Data Communications (**SIGCOMM**), p. 259-270, 2014. Acceptance rate: 19%.
- [C33] Design requirements of a global name service for a mobility-centric, trustworthy internetwork, Arun Venkataramani, Abhigyan Sharma, Xiaozheng Tie, Hardeep Uppal, David Westbrook, Jim Kurose, Dipankar Raychaudhuri, International Conference on Communication Systems and Networks (COMSNETS), 2013.
- [C32] Identifying and Addressing Protocol Manipulation Attacks in “Secure” BGP, Yang Song, Arun Venkataramani, Lixin Gao, International Conference on Distributed Computing Systems (**ICDCS**), p. 550-559, 2013. Acceptance rate: 13%.
- [C31] On the CDN Pricing Game, Yang Song, Arun Venkataramani, Lixin Gao, IEEE International Conference on Computer Communications (**INFOCOM**), 2013. Acceptance rate: 25%.
- [C30] Distributing Content Simplifies ISP Traffic Engineering, Abhigyan Sharma, Arun Venkataramani, Ramesh K. Sitaraman, ACM **SIGMETRICS**, p. 229-242, 2013. Acceptance rate: 14%. *Cited 52 times.*
- [C29] Beyond MLU: An Application-Centric Comparison of Traffic Engineering Schemes, Abhigyan, Aditya Mishra, Vikas Kumar, Arun Venkataramani, IEEE Conference on Computer Communications (**INFOCOM**), April 2011. Acceptance rate: 16%.
- [C28] ZZ and the Art of Practical BFT Execution, Timothy Wood, Rahul Singh, Arun Venkataramani, Prashant J. Shenoy, Emmanuel Cecchet, ACM SIGOPS **EuroSys** 2011, p. 123-138. Acceptance rate: 18%. *Cited 74 times.*
- [C27] Augmenting 3G Using Opportunistic WiFi: Measurement, Modeling, and Protocol Design, Aruna Balasubramanian, Brian Levine, Ratul Mahajan, Arun Venkataramani, ACM Annual International Conference on Mobile Systems, Applications and Services (**MOBISYS**), June 2010. Acceptance rate: 17%. *Cited 571 times.*
- [C26] Contracts: Practical Contribution Incentives for P2P Live Streaming, Michael Piatek, Arvind Krishnamurthy, Arun Venkataramani, Yang Richard Yang, David Zhang, Alexander Jaffe, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 81-94, 2010. Acceptance rate: 17%. *Cited 58 times.*
- [C25] Disaster Recovery as a Cloud Service: Economic Benefits & Deployment Challenges. Timothy Wood, Emmanuel Cecchet, KK Ramakrishnan, Prashant J. Shenoy, Jacobus E. van der Merwe, Arun Venkataramani, HotCloud 10, 8-15, 2010. *Cited 127 times.*
- [C24] Estimating self-sustainability in peer-to-peer swarming systems, Daniel S. Menasch, Antonio Augusto de Arago Rocha, Edmundo de Souza e Silva, Rosa Maria Meri Leo, Donald F. Towsley, Arun Venkataramani, Performance Evaluation, 67(11), p. 1243-1258, 2010.

- [C23] Content Availability and Bundling in Peer-to-Peer Swarming Systems, Daniel Menasche, Antonio Rocha, Bin Li, Don Towsley, Arun Venkataramani, ACM Sigcomm International Conference on Emerging Networking Experiments and Technologies (**CoNEXT**), December 2009. Acceptance rate: 17%. *Cited 123 times.*
Awarded Best Paper.
- [C22] Energy Consumption in Mobile Phones: A Measurement Study and Implications for Network Applications, Niranjana Balasubramanian, Aruna Balasubramanian, Arun Venkataramani, ACM Sigcomm Internet Measurement Conference (**IMC**), 14 pages, December 2009. Acceptance rate: 22%. *Cited 1017 times*
- [C21] Modeling Content Availability in Peer-to-Peer Swarming Systems, Daniel Menasche, Antonio Rocha, Bin Li, Donald Towsley, Arun Venkataramani, ACM Special Interest Group on Performance Evaluation (**SIGMETRICS**) poster paper, 2 pages, June 2009. Poster paper acceptance rate: 27%.
- [C20] Block-switched Networks: A New Paradigm for Wireless Transport, Ming Li, Devesh Agrawal, Deepak Ganesan, Arun Venkataramani, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 423-436, April 2009. Acceptance rate: 20%. *Cited 61 times.*
- [C19] iPlane Nano: Path Prediction for Peer-to-Peer Applications, Harsha Madhyastha, Ethan Katz-Bassett, Thomas Anderson, Arvind Krishnamurthy, Arun Venkataramani, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 137-152, April 2009. Acceptance rate: 20%. *Cited 103 times.*
- [C18] Enhancing Interactive Applications in Hybrid Networks, Aruna Balasubramanian, Brian Levine, Arun Venkataramani, ACM International Conference on Mobile Computing & Networking (**MOBICOM**), p. 70-80, September 2008. Acceptance rate: 12%. *Cited 234 times.*
- [C17] Interactive WiFi Connectivity From Moving Vehicles, Aruna Balasubramanian Ratul Mahajan, Arun Venkataramani, Brian Levine, John Zahorjan ACM Special Interest Group on Data Communications (**SIGCOMM**), p. 427-438, August 2008. Acceptance rate: 12%. *Cited 262 times.*
- [C16] Consensus Routing: The Internet as a Distributed System, John P. John, Ethan Katz-Bassett, Arvind Krishnamurthy, Thomas E. Anderson, Arun Venkataramani, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 351-364, April 2008. Acceptance rate: 18%. *Cited 102 times.*
Awarded Best Paper.
- [C15] Multi-User Data Sharing in Radar Sensor Networks, Ming Li, Tingxin Yan, Deepak Ganesan, Eric Lyons, Prashant Shenoy, Arun Venkataramani, ACM Conference on Embedded Networked Sensor Systems (**SENSYS**), p. 247-260, November 2007. Acceptance rate: 16%. *Cited 32 times.*
- [C14] DTN Routing as a Resource Allocation Problem, Aruna Balasubramanian, Brian Neil Levine, Arun Venkataramani, ACM Special Interest Group on Data Communications (**SIGCOMM**), p. 373-384, August 2007. Acceptance rate: 13%. *Cited 1017 times.*
- [C13] Do Incentives Build Robustness in BitTorrent? Michael Piatek, Tomas Isdal, Thomas Anderson, Arvind Krishnamurthy, Arun Venkataramani, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 1-14, April 2007. Acceptance rate: 24%. *Cited 512 times.*
Awarded Best Student Paper.
- [C12] Black-box and Gray-box Strategies for Virtual Machine Migration, Timothy Wood, Prashant Shenoy, Arun Venkataramani, Mazin Yousif, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 229-242, April 2007. Acceptance rate: 24%. *Cited 879 times.*

- [C11] A Multipath Background Network Architecture, Ravi Kokku, Aniruddha Bohra, Samrat Ganguly, Arun Venkataramani, IEEE Conference on Computer Communications (**INFOCOM**), p. 1352-1360, May 2007. Acceptance rate: 18%.
- [C10] Availability in BitTorrent Systems, Giovanni Neglia, Giuseppe Reina, Honggang Zhang, Donald Towsley, Arun Venkataramani, John Danaher, IEEE Conference on Computer Communications (**INFOCOM**), p. 2216-2224, May 2007. Acceptance rate: 18%. *Cited 93 times.*
- [C9] A Comparison of DAG Scheduling Strategies for Internet-Based Computing, Rob Hall, Arnold Rosenberg, Arun Venkataramani, IEEE International Parallel and Distributed Processing Symposium (**IPDPS**), p. 1-9, March 2007. Acceptance rate: 29%. *Cited 32 times.*
- [C8] iPlane: An Information Plane for Distributed Services, Harsha Madhyastha, Tomas Isdal, Michael Piatek, Colin Dixon, Thomas Anderson, Arvind Krishnamurthy, Arun Venkataramani, USENIX Symposium on Operating Systems Design and Implementation (**OSDI**), p. 367-380, December 2006. Acceptance rate: 18%. *Cited 543 times.*
- [C7] A Structural Approach to Internet Path Latency, Harsha Madhyastha, Thomas Anderson, Arvind Krishnamurthy, Neil Spring, Arun Venkataramani, ACM SIGCOMM Internet Measurement Conference (**IMC**), p. 99-104, October 2006. Acceptance rate: 22%. *Cited 104 times.*
- [C6] PRACTI Replication, Nalini Belaramani, Michael Dahlin, Lei Gao, Amol Nayate, Arun Venkataramani, Praveen Yalagandula, Jiandan Zheng, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), p. 59-72, March 2006. Acceptance rate: 25%. *Cited 135 times.*
- [C5] Online Hierarchical Cooperative Caching, Xiaozhou Li, C. Greg Plaxton, Mitul Tiwari, Arun Venkataramani, ACM Symposium on Parallel Architectures and Algorithms (**SPAA**), p. 74-83, Jun 2004. Acceptance rate unknown.
One of the eight best papers fast-tracked to Theory of Computing Systems Journal "Special Issue on the Best Theoretical Papers at SPAA 2004".
- [C4] Separating Agreement from Execution for Byzantine Fault-Tolerant Services, Jian Yin, Jean-Philippe Martin, Arun Venkataramani, Lorenzo Alvisi, Michael Dahlin, ACM Symposium on Operating Systems Principles (**SOSP**), p. 253-267, October 2003. Acceptance rate: 17%. *Cited 307 times.*
- [C3] A Non-Interfering Deployable Web Prefetching System, Ravi Kokku, Praveen Yalagandula, Arun Venkataramani, Michael Dahlin, USENIX Symposium on Internet Technologies and Systems (**USITS**), p. 183-196, March 2003. Acceptance rate: 27%. *Cited 64 times.*
- [C2] TCP Nice: A Mechanism for Background Transfers, Arun Venkataramani, Ravi Kokku, Michael Dahlin, USENIX Symposium on Operating Systems Design and Implementation (**OSDI**), p. 329-343, December 2002. Acceptance rate: 15%. *Cited 268 times.*
- [C1] Bandwidth Constrained Placement in a WAN, Arun Venkataramani, Michael Dahlin, Phoebe Weidmann, ACM Symposium on Principles of Distributed Computing (**PODC**), p. 134-143, August 2001. Acceptance rate: 29%. *Cited 66 times.*

JOURNAL PAPERS

- [J9] Identifying and Addressing Reachability and Policy Attacks in "Secure" BGP, Yang Song, Arun Venkataramani, Lixin Gao, IEEE/ACM Transactions on Networking 24(5): 2969-2982, 2016.
- [J8] MobilityFirst: a mobility-centric and trustworthy internet architecture. ACM SIGCOMM Computer Communication Review (CCR), Arun Venkataramani, James F. Kurose, Dipankar Raychaudhuri, Kiran Nagaraja, Morley Mao, Suman Banerjee, 44(3): 74-80, 2014.

- [J7] Content Availability and Bundling in Swarming Systems, Daniel S. Menasch, Antonio Augusto de Arago Rocha, Bin Li, Donald F. Towsley, Arun Venkataramani, *IEEE/ACM Transactions on Networking* 21(2), p. 580-593, 2013.
- [J6] MobilityFirst: A Robust and Trustworthy Mobility-Centric Architecture for the Future Internet, Dipankar Raychaudhuri, Kiran Nagaraja, Arun Venkataramani, *Mobile Computing and Communications Review* 16(3): 2-13, 2012. *Cited 99 times*.
- [J5] Estimating Self-Sustainability in Peer-to-Peer Swarming Systems, Daniel S. Menasch, Antonio Augusto de Arago Rocha, Edmundo de Souza e Silva, Rosa Maria Meri Leo, Donald F. Towsley, Arun Venkataramani, *Performance Evaluation*, 67(11), p. 1243-1258, 2010. *Cited 30 times*.
- [J4] Replication Routing in DTNs: A Resource Allocation Approach, Aruna Balasubramanian, Brian Levine, Arun Venkataramani, *IEEE/ACM Transactions on Networking*, 18(2), p. 596-609, 2010. *Cited 160 times*.
- [J3] Sandpiper: Black-box and Gray-box Resource Management for Virtual Machines, Timothy Wood, Prashant Shenoy, Arun Venkataramani, and Mazin Yousif, *Elsevier Computer Networks Special Issue on Resource Management in Virtualized Data Centers*, 53(17), p. 2923-2938, 2009. *Cited 237 times*.
- [J2] Online Hierarchical Cooperative Caching, Xiaozhou Li, C. Greg Plaxton, Mitul Tiwari, Arun Venkataramani, *Theory of Computing Systems Journal*, Vol. 39 (6), p. 851-874, November 2006.
- [J1] Potential Costs and Benefits of Long-Term Prefetching for Content Distribution, Arun Venkataramani, Praveen Yalagandula, Ravi Kokku, Sadiya Sharif, Michael Dahlin, *Computer Communications Journal*, 25(4), p. 367-375, March 2002. *Cited 114 times*.

BOOK CHAPTERS

- [B2] CDN Pricing and Investment Strategies under Competition, Yang Song, Arun Venkataramani, Lixin Gao, *Smart Data Pricing*, Editors Soumya Sen, Carlee Joe-Wong, Sangtae Ha, Mung Chiang, ISBN: 978-1-118-61166-1, Sep 2014.
- [B1] Towards a Practical Approach to Confidential Byzantine Fault-Tolerance, Jian Yin, Jean-Philippe Martin, Arun Venkataramani, Lorenzo Alvisi, Michael Dahlin, *Lecture Notes in Computer Science (LNCS)*, 2584, p. 51-56, 2003.

WORKSHOP AND DEMO PAPERS

- [W8] VMShadow: optimizing the performance of virtual desktops in distributed clouds, Tian Guo, Vijay Gopalakrishnan, K. K. Ramakrishnan, Prashant J. Shenoy, Arun Venkataramani, Seungjoon Lee, 2 pages, *ACM Symposium on Cloud Computing (SoCC)*, 2013.
- [W7] Modeling Chunk Availability in P2P Swarming Systems, Daniel Sadoc Menasche, Antonio A. de Arago Rocha, Edmundo de Souza e Silva, Rosa M. Meri Leao, Donald Towsley, and Arun Venkataramani, *Eleventh Workshop on Mathematical Performance Modeling and Analysis (MAMA)*, 2009. Acceptance rate: 60%.
- [W6] Modeling Unavailability in Peer-to-Peer Systems, Daniel Sadoc Menasche, Antonio A. de Arago Rocha, Bin Li, Don Towsley, Arun Venkataramani, *IEEE INFOCOM Student Workshop*, April 2009. Acceptance rate unknown.
- [W5] Web Search from a Bus, Aruna Balasubramanian, Yun Zhou, Bruce Croft, Brian Levine, Arun Venkataramani, *ACM MobiCom Workshop on Challenged Networks (CHANTS)*, September 2007. Acceptance rate: 52%. *Cited 111 times*.
- [W4] iPlane: An Information Plane for Distributed Services, Harsha Madhyastha, Thomas Anderson, Arvind Krishnamurthy, Arun Venkataramani. Appeared as a 1-page refereed submission and demonstration at *Workshop on Real Large Distributed Systems (WORLDS)*, December 2006. <http://www.usenix.org/events/worlds06/tech>. Acceptance rate: 100%.

Also appeared as a 1-page refereed submission and presentation at North American Network Operator's Group (NANOG) 40, June 2007. Presentation video available at <http://www.nanog.org/meetings/nanog40/>. Acceptance rate unknown.

- [W3] Towards a Practical Approach to Confidential Byzantine Fault-Tolerance, Jian Yin, Jean-Philippe Martin, Arun Venkataramani, Lorenzo Alvisi, Michael Dahlin, International Workshop on Future Directions in Distributed Computing (FuDiCo), June 2002. Acceptance rate: 64%.
- [W2] Operating System Support for Massive Replication, Arun Venkataramani, Ravi Kokku, Michael Dahlin, Proceedings of the ACM SIGOPS European Workshop, September 2002. Acceptance rate unknown.
- [W1] Potential Costs and Benefits of Long-Term Prefetching, Arun Venkataramani, Praveen Yalagandula, Ravi Kokku, Sadiya Sharif, Michael Dahlin, Web Caching Workshop (WCW), July 2001. Acceptance rate: 34%. *Cited 98 times*
One of the nine best papers fast-tracked to Computer Communications Journal.

MAGAZINE ARTICLES

- [M2] Do Incentives Build Robustness in BitTorrent?, Mike Piatek, Tomas Isdal, Thomas E. Anderson, Arvind Krishnamurthy, Arun Venkataramani, USENIX ;login:, August 2007. Invited article.
- [M1] Oasis: An Overlay-Aware Network Stack, Harsha Madhyastha, Thomas Anderson, Arvind Krishnamurthy, Arun Venkataramani, ACM SIGOPS Operating Systems Review, 40(1), January 2006. Acceptance rate unknown. *Cited 19 times*

PATENTS ISSUED

- Information Plane for Determining Performance Metrics of Paths Between Arbitrary End-Hosts on the Internet, H. Madhyastha, T. Anderson, A. Krishnamurthy, and A. Venkataramani, US Patent #7778165, August 2010.
- Method and system for background replication of data objects, Michael D. Dahlin, Arun Venkataramani, Ravi Kokku, Praveen Yalagandula, US Patent #7418494 B2, August 2008.
- Methods for near-optimal bandwidth-constrained placement in a wide-area network, Michael Dahlin, Arun Venkataramani, Phoebe Weidmann. US Patent #7418494, August 2008.

RESEARCH FUNDING

Awarded grants:

- [G1] NSF PFI-BIC: CityWarn: A Smart, Hyperlocal, Context-Aware Hazard Notification Service System.
Brenda Philips (PI), Arun Venkataramani
\$999,493, NSF Award 1632193, Sep 2016–Aug 2019.
- [G2] Supplement: NSF Future Internet Architecture Next Phase: Collaborative Research: The Next-Phase MobilityFirst Project - From Architecture and Protocol Design to Advanced Services and Trial Deployments
Arun Venkataramani (PI), Prashant Shenoy
\$400,000, NSF CNS Award 1040781, May 2016–Apr 2017.
- [G3] NSF NeTS: Large: Collaborative Research: Location-Independent Networks: Evaluation Strategies and Studies
Arun Venkataramani (PI), James Kurose
\$700,851, NSF CNS Award 1413963, Oct 2014–Sep2017.
In collaboration with MIT with overall project funding of \$2M.
- [G4] NSF Future Internet Architecture Next Phase: Collaborative Research: The Next-Phase MobilityFirst Project - From Architecture and Protocol Design to Advanced Services and Trial Deployments
Arun Venkataramani (PI), James Kurose, Prashant Shenoy

\$1,350,000, NSF CNS Award 1040781, May 2014–Apr 2016.

Lead Architect of the MobilityFirst project with \$5M overall Next-Phase funding.

- [G5] NSF Hazard SEES Type 2: Next Generation, Resilient Warning Systems for Tornados and Flash Floods
Arun Venkataramani (Senior Personnel), James Kurose (Senior Personnel) in collaboration with UMass ECE and others.
\$2,998,921 overall project funding, Sep 2013–Aug 2017.
- [G6] NSF Future Internet Architecture: Collaborative Research: MobilityFirst: A Robust and Trustworthy Mobility-Centric Architecture for the Future Internet
Arun Venkataramani (PI), James Kurose, Donald Towsley
\$2,058,000, NSF CNS Award 1040781, Sep 2010–Aug 2013.
Lead Architect of the MobilityFirst project with \$7.5M overall funding.
- [G7] P3: Mobile Content Distribution in Multi-Technology Wireless World, Arun Venkataramani (PI) \$98,000, Cisco University Research Program, 2011.
- [G8] NSF Trustworthy Computing: Collaborative Research: AUSTIN–An Initiative to Assure Software Radios have Trusted Interactions
Arun Venkataramani (PI), Gerome Miklau
\$190,000, NSF CNS Award 0910671, Sep 2009–Aug 2011.
- [G9] NSF NeTS: Interdomain X-ities: Towards Five Nines Availability in Internet Routing
Arun Venkataramani (PI), Lixin Gao
\$325,250, NSF CNS Award 0917078, Aug 2009–Jul 2012.
- [G10] NSF CSR: High Assurance at Low Cost in Data Centers Using Virtualization
Arun Venkataramani (PI), Prashant Shenoy
\$424,000, NSF CNS Award 0916972, Sep 2009–Aug 2012.
- [G11] NSF CAREER: A Robust Protocol Stack for Diverse Wireless Edge Networks
Arun Venkataramani (PI)
\$466,000, NSF CNS Award 0845855, Feb 2009–14.
- [G12] NSF CSR-VCM: Dynamic Reconfiguration in Virtualized Data Centers
Prashant Shenoy (PI), Arun Venkataramani
\$330,000, NSF CNS Award 0720271, Sep 2007–Aug 2009.
- [G13] NSF NeTS-FIND: A Swarming Architecture for Internet Data Transfer
Arun Venkataramani (PI), Donald Towsley
\$628,000, NSF CNS Award 0721779, Sep 2007–Aug 2010.

COURSES TAUGHT **University of Massachusetts Amherst**

1. **Computer Networks**, CMPSCI 453, Undergraduate, Fall 2006, Fall 2007, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2013, Spring 2014, Fall 2014.
2. **Computer Networks Lab**, CMPSCI 591G, Undergraduate/graduate, Spring 2007, Fall 2007, Spring 2008, Spring 2009, Spring 2013, Spring 2014, Spring 2015, Spring 2016.
3. **Advanced Computer Networks**, CMPSCI 653, Graduate core, Fall 2008, Fall 2010.
4. Readings in Big Data Systems, CMPSCI 691BD, Graduate seminar, Fall 2012.
5. **Distributed Systems**, CMPSCI 677, Graduate core, Spring 2006.
6. **Game Theory and Computer Networks**, CMPSCI 791J, Graduate seminar co-taught with Don Towsley, Spring 2006.
7. **Advanced Network Systems**, CMPSCI 691EE, Graduate seminar, Fall 2005.

STUDENTS
ADVISED

Ph.D. Advisees:

1. Zhaoyu Gao
2. Tianbo Guo
3. Aditya Yadav
4. Xiaozheng Tie

M.S. or Post-Graduate Advisees:

1. Brendan Teich (2016-2017)
2. Adarsh Rangaiah (2015-2016)
3. Sam DeLaughter (2015-2016)
4. Karthik Anantharamu (2016-)
5. Daniel Thiyagu (2016-2017)
6. Ashutosh Choudhary (2017-)

Post-Doctoral Supervisee

1. Vasanta Chaganti (2014–present)

Software Engineer Staff

1. David Westbrook (2011–present)

Graduated Ph.D. Advisees:

1. Abhigyan Sharma
PhD thesis title: *“Role of Placement Schemes on the Interaction Between Network and Content Delivery.”*
Graduated in 2015. Staff Scientist at AT&T Research.
Recipient of the 2015 UMass CICS Outstanding Dissertation Award
2. Aruna Balasubramanian (co-advised with Brian Levine)
PhD thesis title: *“Architecting Protocols to Enable Mobile Applications in Diverse Wireless Networks.”*
Graduated in 2010. Assistant Professor at Stony Brook U. since 2015.
Recipient of the 2011 UMass CICS Outstanding Dissertation Award
Recipient of the 2011 ACM SIGCOMM Doctoral Dissertation Runner-up Award
3. Ming Li (co-advised with Deepak Ganesan)
PhD thesis title: *“Data Management and Wireless Transport for Diverse Sensor Networks.”*
Graduated in 2010. First job: IBM Research.
4. Harsha Madhyastha (co-advised with Tom Anderson and Arvind Krishnamurthy at University of Washington).
Thesis title: *“An Information Plane for Internet Applications”.*
Graduated in 2008. Assistant Professor at U. Michigan.

Post-doctoral Scientists Supervised or Hosted:

1. Prof. Antonio A. A. Rocha (2015-16)
2. Dr. Emmanuel Cecchet (2012-2014)
3. Dr. Simon Heimlicher (2012-2013)

Visiting Ph.D. Students Advised:

1. Bin Li, 2007-08, Tsinghua University, China
2. Antonio Rocha, 2008, Federal University of Rio De Janeiro, Brazil

Graduated M.S. Advisees:

1. Vijay K. Pasikanti (Graduated 2015)
2. Hardeep Uppal (Graduated 2012, First job: Amazon)
3. Gorkem Guclu (Graduated 2011, First job: Fraunhofer)
4. Karthik Sivaraman (Graduated 2008, First job: Cisco)
5. Himanshu Agrawal (Graduated 2009, First job: TapNTap)

Undergraduate Research Advisees: Matthew Dews (2016), Felipe de Mello (2010-2011), Jesse Clark (2009-10), John Schank (2009-10), Antony Partensky (Summer 2008), Huan Li (2007-08), Adrian Sud (Summer 2007), Eric Pomerleau (2006-07), Brook Arnold (2005-06), Rob Hall (2005-06).

High school students: Akshat Dhankher (Summer 2016)

Doctoral Committee Served: Sookhyun Yang (PhD 2015), Pengyu Zhang (PhD proposal 2015), Anand Seetharam (2014), Yang Song (PhD 2013), Deepak Unnikrishnan (2013), Upen-dra Sharma (PhD 2012) Daniel Menasche (PhD 2011), Timothy Wood (PhD 2011), Yong Liao (PhD 2010), Yu Gu (PhD 2008).

EXTERNAL SERVICE Panels:

- Workshop on Security of Emerging Networking Technologies (SENT) at NDSS 2015.
- NSF FIA PI Meeting, Cambridge, MIT, 2015
- IEEE Conference on Communication and Network Security (2013)

Organizing Committee:

- Served on a panel of five faculty appointed to select the ACM SIGCOMM Dissertation Award winners in 2015.
- Co-chaired the MobiArch 2010 workshop held in conjunction with ACM MobiCom 2011.
- Co-chaired Student Travel Grants, ACM SIGCOMM 2011.
- Co-chaired Student Travel Grants, ACM CoNEXT 2009.
- Co-chaired Poster Session, USENIX Symposium on Networked System Design and Implementation (NSDI) 2008, San Francisco, California.

Program Committee Member:

- IEEE Conference on Computer Communications (INFOCOM) 2016
- ACM International Conference on Information-Centric Networking (ICN) 2016
- IEEE Conference on Computer Communications (INFOCOM) 2016
- ACM Internet Measurement Conference (IMC) 2015
- ACM International Conference on Information-Centric Networking (ICN) 2015
- International Conference on Communications Systems and Networks (COMSNETS) (2015)
- Passive and Active Measurement Conference (PAM) 2014
- International Conference on Communications Systems and Networks (COMSNETS) (2014)
- ACM International Conference on Mobile Computing and Networking (MOBICOM) (2014)
- IEEE Conference on Computer Communications (INFOCOM) 2013
- ACM SIGCOMM Workshop on Information-Centric Networking (ICN) 2013
- ACM Conference on Mobile Systems, Applications, and Services (MOBISYS) 2012.
- IEEE Conference on Computer Communications (INFOCOM) 2012
- Annual Network and Distributed System Security (NDSS) Symposium 2011
- ACM SIGCOMM Conference on Emerging Networking Experiments and Technologies (CoNEXT) 2011
- IEEE Conference on Computer Communications (INFOCOM) 2011
- IEEE Conference on Computer Communications (INFOCOM) 2010
- Passive and Active Measurement Conference (PAM) 2010
- ACM Symposium on Principles of Distributed Computing (PODC) 2009
- IEEE Conference on Computer Communications (INFOCOM) 2009

- ACM SIGCOMM Workshop on Network Systems for Developing Regions (NSDR) 2008
- ACM MobiCom Workshop on Challenged Networks (CHANTS) 2008
- USENIX Symposium on Networked System Design and Implementation (NSDI) 2008
- IEEE Conference on Computer Communications (INFOCOM) 2008
- ACM MobiCom Workshop on Challenged Networks (CHANTS) 2007
- International World Wide Web (WWW) Conference 2007
- ACM Special Interest Group on Data Communications (SIGCOMM) Conference 2006
- International World Wide Web (WWW) Conference 2005

Ad Hoc Reviewer:

- Reviewed papers submitted to several journals in networking and systems including IEEE/ACM Transactions in Networking (ToN), ACM Transactions on Computer Systems (TOCS), ACM Transactions on the Web (TWEB), etc.

Invited Participation in Federal Advisory Meetings:

- Participated in NSF CAREER panels several times.
- NSF Workshop on Future Directions in Wireless Networking, Arlington, VA, 2013.
- NSF proposal review panels: 2007, 2009, 2010, 2011.
- NSF Future Internet Summit in October 2009 to discuss ideas towards a next-generation Internet architecture.
- NSF Workshop on “Secure Wireless Networks”, Atlanta, April 2008, to identify research directions in wireless network security.
- NSF Future Internet Design (FIND) meetings to disseminate research results and new directions towards a clean-slate design of future Internets.
- DARPA workshop on Assurable Global Networking, February 2007, that led to the creation of the IAMANET program targeting byzantine fault-tolerant MANETs.
- NSF workshop on “Overcoming Barriers to Disruptive Innovation in Networking”, St. Louis, MO, January 2005, the founding GENI workshop.

KEYNOTE TALKS

“MobilityFirst: Towards a Trustworthy, Mobility-Centric, Cloud-controlled Internetwork Architecture”, Keynote speaker at SBRC 2015 (the premier annual networking conference in Brazil), Vitoria, Brazil.

“MobilityFirst: Towards a Mobility-Centric, TrustWorthy Next-Generation Internet”, Keynote speaker at KAIST International Workshop on Future Communications and Smart Media/Work, Seoul, S. Korea, November 2010.

“Towards a Robust Protocol Stack for Diverse Wireless Networks”, Performance Workshop at the Conference of the Society of Brazilian Computing (CSBC), the premier annual computer science event in Brazil, 2009.