

CURRICULUM VITAE

George Porter

Department of Computer Science and Engineering
 University of California, San Diego
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Research Interests

Distributed Systems, Networking, Data Intensive Computing

Education

University of California, Berkeley Computer Science Ph.D. (2008)
 Dissertation: "Improving Distributed Application Reliability with End-to-End Datapath Tracing"
 Advisor: Randy H. Katz

University of California, Berkeley Computer Science M.S. (2003)
 Thesis: "Traffic Matrix Estimation for Low-loss Routing in Hybrid Networks"
 Advisor: Randy H. Katz

University of Texas at Austin Computer Sciences B.S. (2001)
 Undergraduate Thesis: "A Commuting Diagram Relating Threaded and Non-threaded JVM Models"
 Advisor: J Strother Moore

Academic Research Experience

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| 2010—Present | Assistant Research Scientist, University of California, San Diego |
| 2009—2010 | Postdoctoral Scholar, University of California, San Diego |
| 2008—2009 | Visiting Scholar, University of California, San Diego |
| 2001—2008 | Graduate Student Researcher, University of California, Berkeley |
| 2001 | Summer Research Assistant, University of Texas at Austin |

Academic Teaching Experience

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|--------------|--|
| 2011—Present | Lecturer, Revelle College, University of California, San Diego |
| 2005 | Instructor, Data Structures, University of California, Berkeley |
| 2002 | Teaching Assistant, Digital Logic Design, University of California, Berkeley |

Industrial Research Experience

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| 2009 | Principal Investigator, Sun Microsystems Laboratories, San Diego, CA. |
| 2008—2009 | Technical Staff, Chief Technology Office, Sun Microsystems, San Diego, CA |
| 2004 | Research Intern, Network Technology Office, Sun Microsystems, Menlo Park, CA |
| 2002 | Research Intern, HP Labs / Compaq Systems Research Center, Palo Alto, CA |
| 1995 – 2000 | Programmer / Analyst, NeoSoft, Inc., Houston, TX |

Refereed Publications

Bhanu C. Vattikonda, George Porter, Amin Vahdat, Alex C. Snoeren, "Practical TDMA for Datacenter Ethernet," Proceedings of the 7th European Conference in Computing Systems (EuroSys'12), Bern, Switzerland, Apr 10-13, 2012.

Harsha V. Madhyastha, John C. McCullough, George Porter, Rishi Kapoor, Stefan Savage, Alex C. Snoeren, Amin Vahdat, "scc: Cluster Storage Provisioning Informed by Application Characteristics and SLAs," Proceedings of the 10th USENIX Conference on File and Storage Technologies (FAST'12), San Jose, Calif., Feb 14-17, 2012.

Hamid Bazzaz, Malveeka Tewari, Guohui Wang, George Porter, T. S. Eugene Ng, David Anderson, Michael Kaminsky, Michael Kozuch, Amin Vahdat, "Switching the Optical Divide: Fundamental Challenges for Hybrid Electrical/Optical Datacenter Networks," Proceedings of the 2nd ACM Symposium on Cloud Computing (SOCC'11), Cascais, Portugal, Oct 27-28, 2011.

Alexander Rasmussen, George Porter, Michael Conley, Harsha Madhyastha, Radhika Mysore, Alexander Pucher, Amin Vahdat, "TritonSort: A Balanced Large-Scale Sorting System," Proceedings of the 8th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2011), Boston, MA, Mar 30-Apr 1, 2011.

Nathan Farrington, George Porter, Sivasankar Radhakrishnan, Hamid Bazzaz, Vikram Subramanya, Yeshaiah Fainman, George Papen, Amin Vahdat, "A Hybrid Electrical/Optical Switch Architecture for Modular Data Centers," Proceedings of the ACM SIGCOMM 2010 Conference on Data Communication (SIGCOMM 2010), New Delhi, India, Aug 30-Sept 3, 2010.

Amin Vahdat, Mohammad Al-Fares, Nathan Farrington, Radhika Niranjan Mysore, George Porter, and Sivasankar Radhakrishnan, "Scale Out Networking in the Data Center", IEEE Micro, July/August 2010.

George Porter, "Decoupling Storage and Computation in Hadoop with SuperDataNodes," SIGOPS Operating Systems Review. Vol. 44, Issue 2, April 2010.

Rodrigo Fonseca, Michael J. Freedman, George Porter, "Experiences with Tracing Causality in Networked Services," Internet Network Management Workshop / Workshop on Research on Enterprise Networking (INM/WREN 2010), San Jose, CA., April 2010.

George Porter, "Towards Decoupling Storage and Computation in Hadoop with SuperDataNodes," Third ACM SIGOPS International Workshop on Large Scale Distributed Systems and Middleware (LADIS 2009), Big Sky, MT., October 2009.

Rodrigo Fonseca, George Porter, Randy H. Katz, Scott Shenker, Ion Stoica, "X-Trace: A Pervasive Network Tracing Facility," Fourth USENIX Symposium on Networked Systems Design and Implementation (NSDI 2007), Cambridge, MA., April 2007.

George Porter and Randy H. Katz, "Effective 'Small Site' Web Load Balancing Through Statistical Monitoring," IEEE/IFIP International Workshop on Self-Managed Systems and Services (SelfMan 2005), Nice, France, May 2005.

George Porter and Minwen Ji, "Delta Routing: Improving the Price-Performance of Hybrid Private Networks," IEEE/IFIP Network Operations & Management Symposium (NOMS 2004), Seoul, Korea, April 2004.

J Strother Moore and George Porter, "The apprentice challenge," ACM Transactions on Programming Languages and Systems (TOPLAS), Vol 24, No. 3, May 2002.

J Strother Moore, Robert Krug, Hanbing Liu, and George Porter, "Formal Models of Java at the JVM Level--a Survey from the ACL2 Perspective," Workshop on Formal Techniques for Java Programs / ECOOP 2001, Budapest Hungary, June 2001.

J Strother Moore and George Porter, "An Executable Formal Java Virtual Machine Thread Model," 2001 Java Virtual Machine USENIX Symposium (JVM 2001), Monterey, CA, Apr 2001.

Patents

Minwen Ji and George Porter, "Method of Routing Packet," US Patent #7,697,438 (Issued Apr 4, 2010).

Non-refereed Publications

Harsha V. Madhyastha, John C. McCullough, George Porter, Rishi Kapoor, Stefan Savage, Alex C. Snoeren, and Amin Vahdat, "scc: Cluster Storage Provisioning Informed by Application Characteristics and SLAs," USENIX ;login: 37(3), June 2012.

Harsha Madhyastha, George Porter, Meg Walraed-Sullivan, and Amin Vahdat, "TuneStore: A Tunable Storage System," Sixth USENIX Symposium on Networked Systems Design and Implementation (NSDI 2009) Poster Session, Boston, MA., April 2009.

George Porter and Randy H. Katz, "Self Managed Systems and Services: Effective Web Service Load Balancing Through Statistical Monitoring," Communications of the ACM, Vol. 49, No. 3, March 2006.

Randy H. Katz, George Porter, Scott Shenker, Ion Stoica, and Mel Tsai, "COPS: Quality of Service vs. Any Service at All," International Workshop on Quality of Service (IWQoS 2005), Passau, Germany, June 2005. Invited Paper.

Rodrigo Fonseca, George Porter, Randy H. Katz, Scott Shenker, and Ion Stoica, "IP Options are not an option," University of California, Berkeley, Berkeley, CA, Tech. Rep. UCB/EECS-2005-24, 2005.

George Porter and Randy H. Katz, "In-network Video Prioritization via iBox Classification Predicates," University of California, Berkeley, Berkeley, CA, Tech. Rep. UCB/EECS-2005-1, 2005.

B. Raman, S. Agarwal, Y. Chen, M. Caesar, W. Cui, P. Johanson, K. Lai, T. Lavian, S. Machiraju, Z. Mao, G. Porter, T. Roscoe, M. Seshadri, J. Shih, K. Sklower, L. Subramanian, T. Suzuki, S. Zhuang, A. D. Joseph, R. H. Katz, and I. Stoica, "The SAHARA Model for Service Composition Across Multiple Providers," International Conference on Pervasive Computing (Pervasive 2002), Zurich, Switzerland, August 2002, Invited Paper.

Support

| Dates | Source/Agency | Type | Amount | Role |
|-----------|--|-------|-----------------|-------|
| 2012-2013 | Google, Inc.: "Mordia: A Microsecond Optical Research Datacenter Interconnect Architecture" | Gift | \$160k | Co-PI |
| 2012-2013 | Ericsson: "Optical switching in datacenters" | Gift | \$50k | Co-PI |
| 2012-2013 | Cisco Systems: "Microsecond Optical Research Datacenter Interconnect Architecture" | Gift | \$75k | Co-PI |
| 2011-2014 | National Science Foundation: "CSR:Small:Highly Efficient, Pipeline-oriented Data-intensive Scalable Computing" | Grant | \$350k | PI |
| 2011 | NetApp Faculty Fellowship | Gift | \$40k | PI |
| 2011-2012 | Center for Networked Systems / Cisco Systems: "Incorporating Networked Storage within Highly Efficient Data-intensive Computing" | Gift | \$100k | PI |
| 2010-2012 | Center for Networked Systems / Cisco Systems: "TritonSort: A Balanced Sorting System" | Gift | \$148k | PI |
| 2010-2012 | Google, Inc.: "Mordia: A Microsecond Optical Research Datacenter Interconnect Architecture" | Gift | \$250k | Co-PI |
| | Subtotal (PI): | | \$638k | |
| | Subtotal (Co-PI): | | \$535k | |
| | Total (PI and Co-PI): | | \$1.173M | |

Service

Program Committees: NSDI 2012, OSDI 2012 (External), HotCloud 2012, 2010 ISSRE (Fast Abstracts)

Journal Reviewing: IEEE/ACM Transactions on Networking 2012, IEEE/ACM Transactions on Networking (2011), IEEE Journal on Selected Areas in Communications (2009), International Journal of Information Security (2008 and 2009), IEEE Transactions on Network and Service Management (2008), Annual Computer Security Applications Conference (ACSAC) (2006)

Ph.D Research Exam Committee Member: Neha Chachra (2012), He Liu (2012)

2012 Ph.D. Admissions Committee member
 2010 NSF CIAN Working Group 1 (Datacenter) Coordinator
 2007 Facilitator, Computer Science Graduate Student Instructor Orientation Workshop
 2005 Student Member, U. C. Berkeley RAD Lab Design Committee
 2003—2008 Mock Prelim Exam Committee
 2002—2003 Officer, UC Berkeley Computer Science Graduate Student Association

Academic Accomplishments

2008 Guest Lecturer, CSE 124 – Networked Services, University of California, San Diego
 2007 Institute Fellow, U. C. Berkeley Summer Institute for Preparing Future Faculty
 2007 Guest Lecturer, CS 294 – Internet Datacenters, UC Berkeley
 2006 Guest Panelist, CS 302 – Designing Computer Science Education, UC Berkeley
 2001 NSF Graduate Fellowship Honorable Mention in Computer Sciences
 2001 Special Departmental Honors, Dept. of Computer Sciences, University of Texas at Austin
 2001 Dean's Honored Graduate, College of Natural Sciences, University of Texas at Austin
 2001 Phi Beta Kappa

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| 2000 | Tenpas Scholarship in Computer Sciences |
| 1997 – 2001 | The Williams Companies Merit Scholarship |
| 1997 – 2001 | The University of Texas at Austin Merit Scholarship |
| 1997 | National Merit Finalist |
| 1997 | Tandy Corporation Award for Excellence in Mathematics, Science, and Computer Science |

Presentations

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| 2011 | “Towards Balanced, Data-intensive Scalable Computing,” University of Washington CSE Departmental Colloquium, Seattle, WA. |
| 2011 | “Achieving High Performance, Energy-efficient, Data-intensive computing through cross-resource balance,” HP Labs, Palo Alto, CA |
| 2011 | “NetBump: User-extensible Active Queue Management with ‘Bumps on the wire,’” Stanford University |
| 2010 | “Helios: A Hybrid Electrical/Optical Switch Architecture for Modular Data Centers,” Computer Sciences Departmental Colloquium, University of Texas at Austin. |
| 2010 | “Efficient Data-intensive Scalable Computing,” HP Labs, Palo Alto, CA |
| 2010 | “Efficiency and Scale in Datacenter Networks,” Toronto Networking Seminar Series, University of Toronto |
| 2009 | “Towards Decoupling Storage and Computation in Hadoop with SuperDataNodes,” LADIS 2009, Big Sky, MT. |
| 2009 | “Using Grid Engine to Power Hadoop Applications,” CommunityOne, San Francisco, CA |
| 2008 | “Improving Virtualization and Performance Tracing of Hadoop with OpenSolaris,” Hadoop Camp (ApacheCon), New Orleans, LA |
| 2008 | “X-Trace: A Pervasive Network Tracing Framework,” Sun Labs, Menlo Park, CA |
| 2007 | “X-Trace: A Pervasive Network Tracing Framework,” Google, Inc., Mountain View, CA |
| 2007 | “X-Trace: A Pervasive Network Tracing Framework,” Splunk, Inc. San Francisco, CA |
| 2007 | “X-Trace: A Pervasive Network Tracing Framework,” Facebook, Inc. Palo Alto, CA |
| 2007 | “Berkeley RAD Lab Overview and X-Trace Presentation,” Cisco Central Technology Group, San Jose, CA |
| 2007 | “Berkeley RAD Lab Overview and X-Trace Presentation,” Nortel Networks, Santa Clara, CA |
| 2005 | “Effective 'Small Site' Web Load Balancing Through Statistical Monitoring,” SelfMan Workshop, Nice, France |
| 2004 | “Delta Routing: Improving Price-Performance of Hybrid Private Networks,” IEEE/IFIP Network Operations and Management Symposium, Seoul, Korea |
| 2003 | “Programmable Network Testbed,” NTT Multimedia Communications Laboratories, Palo Alto, CA |
| 2003 | “Overlays and Active Services for Inter-networked Storage,” University of California CITRIS Poster Session, Santa Cruz, CA |