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Academic Employment

Stanford University

- *Kleiner Perkins, Mayfield, Sequoia Professor of Engineering (2012-)*
- *Professor of Electrical Engineering and Computer Science (2010-)*
- *Faculty Director, Open Networking Research Center (2012-2016)*
- *Faculty Director, Clean Slate Design for the Internet (2006-2012)*
- *Associate Professor of Electrical Engineering and Computer Science (2002-2010)*
- *Assistant Professor of Electrical Engineering and Computer Science (1995- 2002)*

Current research interests

Software-defined networks (SDN), programmable networks, languages for expressing forwarding behavior, net-neutrality and personalized networks.

Academic Background

<i>Place of Study</i>	<i>Degree</i>	<i>Dates</i>
University of California, Berkeley Electrical Engineering and Computer Science	PhD	May 1995
University of California, Berkeley Electrical Engineering and Computer Science	MS	May 1992
University of Leeds, England Electrical and Electronic Engineering	BEng	May 1986

Phd Thesis: Scheduling Cells in an Input-Queued Cell Switch.

Adviser: Professor Jean Walrand, University of California, Berkeley.

Other Organizations

P4 Language Consortium (P4.org), Board Member (2014-)

Barefoot Networks Inc, Co-Founder, Chairman and Chief Scientist (2013-)

Open Networking Lab (ON.Lab), Board Member (2011-)

Open Networking Foundation (ONF), Co-Founder and Board Member (2010-)

Nicira Networks Inc, Co-Founder and Board Member (2007-2012; Acquired by VMware)

Nicira was one of the first “software-defined networking” (SDN) companies and invented the concept of “network virtualization”.

Nemo Systems Inc, CEO and Co-Founder (2003-2005; Acquired by Cisco)

“Network Memory” saves networking companies hundreds of millions of dollars per year on high price SRAMs for packet buffering and event counters.

Abrizio Inc, CTO and Co-Founder (1998-2001; Acquired by PMC-Sierra)

An offshoot of the Tiny Tera Project, Abrizio was a fabless semiconductor company enabling companies to build high performance multi-chassis switches and routers.

Hewlett-Packard Labs, Bristol, UK (1986-89)

Awards

1. Sigcomm “Test of Time” Award for Ethane paper on SDN, 2017.
2. Sigcomm “Best CCR paper” for Reproducibility paper, 2017.
3. NEC Computer & Communications Award, 2015.
4. Sigcomm “Test of Time” Award for paper on Buffer Sizing in Routers, 2015.
5. Sigcomm “Best CCR paper” for P4 paper, 2015.
6. Fellow of American Academy of Arts and Sciences, 2015.
7. ETH Zurich, Honorary Doctorate, 2014.
8. UC Berkeley EECS Department Distinguished Alumni Award, 2013.
9. Sigcomm Award for lifetime contributions to networking, 2012.
10. US National Academy of Engineering, 2011.
11. IEEE Koji Kobayashi Computers and Communication Award, 2009. Citation: “Considered the dominant contributor to both the theory and practice of switching technology.”
12. MIT Technology Review TR10 2009.
“Software Defined Networking” identified as one of the ten most promising new technology trends.
13. ACM Sigcomm Best Demo Awards: 2008 and 2009.
14. Fellow of the IEEE, 2005.
15. Fellow of the ACM, 2006.
16. Ada Lovelace Medal, British Computer Society, 2005.
Citation: “Considered the world's leading expert on router design.”
17. Fellow of the Royal Academy of Engineering (UK), 2004.
18. STMicroelectronics Faculty Development Scholar, 2003-2006.
19. IEEE Comms Society Stephen O. Rice Prize Paper Award in the Field of Communications Theory, 2000.
20. Charles Lee Powell Fellowship, 2000-2001.

21. Alfred P. Sloan Fellow, 1997-1999.
22. Robert N. Noyce Faculty Scholar, Stanford, 1997-1999.
23. Hewlett-Packard Labs Ph.D. Scholarship, 1989-1993.
24. IEE Undergraduate Scholarship, 1985-1986.
25. University Award for outstanding achievement, Leeds, 1986.
26. University Award for instrumentation and control, Leeds, 1986.
27. British National Engineering Scholarship, 1982-1986.
28. Undergraduate Scholarship from GEC-Marconi, 1981-1985.

Professional Service

1. Program Committee Member, SOSR Conference, 2015
2. Program Committee Member, NSDI, 2014
3. Program Committee Member, Sigcomm Conference, 2012.
4. Program Committee Member, Sigcomm HotSDN Conference, 2012.
5. Program Committee Member, Sigcomm workshop on Education, 2011.
6. Program Committee Member, WISH workshop, 2011.
7. Co-founder and Board Member, Open Networking Foundation (ONF), 2011.
8. Program Committee Member, Usenix NSDI Conference, 2009.
9. Program Committee, ACM Sigcomm VISA Workshop, 2009.
10. Program Committee, ACM Sigcomm WREN Workshop, 2009.
11. Program Committee, PRESTO Workshop, 2009.
12. Program Co-Chair, ACM Sigcomm, August 2006.
13. Steering Committee, ANCS, 2006-.
14. Program Committee Member, ACM Sigcomm, 1998-2002, 2005, 2006.
15. Editor for IEEE Transactions on Networking, 2000-2003.
16. Member of Technical Advisory Committee for ACM Sigcomm, 1999-2008.
17. Chair of Technical Advisory Committee for ACM Sigcomm, 2003-2007.
18. Program Committee Co-chair, Hot Nets III, 2003.
19. Editor for Switching and Routing, IEEE Transactions on Communication, 1997-2000.
20. Guest Editor for IEEE Communications Magazine, December 2000.
21. Guest Editor for IEEE Networks Magazine, January 2001.
22. Guest Editor for IEEE Micro Magazine, January/February 1999.
23. Guest Editor for IEEE JSAC Special Issue, June 1999.
24. Program Committee Co-chair, Hot Interconnect VI, 1998.
25. Program Committee member, IEEE Infocom 1998.
26. Local Organizer Co-chair, Hot Interconnects V, 1997.
27. Program Committee member, Hot Interconnects V, 1997.
28. Conference Chairman of Gignet '97, London, June 1997.
29. Program Committee member, IEEE LAN/MAN Workshop, 1996.
30. Conference chair, Workshop on High Speed Switching & Routing, Stanford, 1996.

Publications

Journals

1. Gianni Antichi, Muhammad Shahbaz, Yilong Geng, Noa Zilberman, Adam Covington, Marc Bruyere, Nick McKeown, Nick Feamster “OSNT: Open Source Network Tester” *Network, IEEE, September 2014*
2. Pat Bosshart, Dan Daly, Glen Gibb, Martin Izzard, Nick McKeown, Jennifer Rexford, Cole Schlesinger, Dan Talayco, Amin Vahdat, George Varghese, David Walker “P4: Programming Protocol-Independent Packet Processors” *ACM Sigcomm Computer Communications Review (CCR). Volume 44, Issue #3 (July 2014)*
3. Masayoshi Kobayashi, Srini Seetharaman, Guru Parulkar, Guido Appenzeller, Joseph Little, Johan Van Reijendam, Paul Weissmann, Nick McKeown “Maturing of OpenFlow and Software-defined Networking through deployments” *Computer Networks, Vol 61, Pages 151-175 (March 2014)*
4. Hongyi Zeng, Peyman Kazemian, George Varghese, Nick McKeown “Automatic Test Packet Generation” *IEEE/ACM Transactions on Networking*
5. Saurav Das, Guru Parulkar, Nick McKeown “Rethinking IP Core Networks” *Journal of Optical Communications and Networking, December 2013*
6. Masayoshi Kobayashi, Srini Seetharaman, Guru Parulkar, Guido Appenzeller, Joseph Little, Johan van Reijendam, Paul Weissmann, Nick McKeown “Maturing of OpenFlow and Software-defined Networking through Deployments” *Elsevier October 2013*
7. Brandon Heller, Rob Sherwood, Nick McKeown “The Controller Placement Problem” *Computer Communication Review 42(4): 473-478 (2012)*
8. Masayoshi Kobayashi, Srini Seetharaman, Guru Parulkar, Guido Appenzeller, Joseph Little Johan van Reijendam, Paul Weissmann, Nick McKeown “Maturing of OpenFlow and Software Defined Networking through Deployments” *Elsevier August 14, 2012*
9. Hongyi Zeng, Peyman Kazemian, George Varghese, Nick McKeown “Formal Network Testing” *Technical Report : Stanford University, Stanford, CA USA, UCSD, San Diego and Yahoo! Labs, Santa Clara, CA, USA*
10. Kok-Kiong Yap, Te-Yuan Huang, Yiannis Yiakoumis, Masayoshi Kobayashi, Sachin Katti, Guru Parulkar, Nick McKeown “Making Use of All the Networks Around Us: A Case Study in Android” *ACM CellNet Workshop 2012, Aug., Helsinki, Finland (Affiliated with ACM SIGCOMM 2012). Also in Computer Communication Review 42(4): 455-460 (2012)*
11. Saurav Das, Guru Parulkar, Nick McKeown “Why OpenFlow/SDN Can Succeed Where GMPLS Failed” *ECOC Technical Digest, 2012 OSA*
12. Kok-Kiong Yap, Yiannis Yiakoumis, Masayoshi Kobayashi, Sachin Katti, Guru Parulkar, and Nick McKeown “Separating Authentication, Access and Accounting: A Case Study with OpenWiFi” *Stanford University NEC OPENFLOW-TR-2011-1*

13. Daniel J. Blumenthal, John Barton, Neda Beheshti, John E. Bowers, Emily Burmeister, Larry A. Coldren, Matt Dummer, Garry Epps, Alexander Fang, Yashar Ganjali, John Garcia, Brian Koch, Vikrant Lal, Erica Lively, John Mack, Milan Mašanović, Nick McKeown, Kim Nguyen, Steven C. Nicholes, Hyundai Park, Biljana Stamenic, Anna Tauke-Pedretti, Henrik Poulsen, and Matt Sysak "Integrated Photonics for Low-Power Packet Networking". *IEEE Journal of Selected Topics in Quantum Electronics*, Vol 17, No. 2, March/April 2011.
14. Neda Beheshti, Emily Burmeister, Yashar Ganjali, John Bowers, Dan Blumenthal, and Nick McKeown "Optical Packet Buffers for Backbone Internet Routers". *IEEE Transactions on Networking*, Vol. 18, No. 5, Oct 2010.
15. Kok-Kiong Yap, Masayoshi Kobayashi, Rob Sherwood, Te-Yuan Huang, Michael Chan, Nikhil Handigol, and Nick McKeown. "OpenRoads: empowering research in mobile networks." *SIGCOMM Comput. Commun. Rev.* 40, 1 (January 2010).
16. Martin Casado, Michael J. Freedman, Justin Pettit, Jianying Luo, Natasha Gude, Nick McKeown, and Scott Shenker, "Rethinking Enterprise Network Control," *Transactions on Networking (ToN)*, Vol. 17, No. 4, pp. 1270-1283, August 2009.
17. Ashvin Lakshmikantha, R. Srikant, Nandita Dukkipati, Nick McKeown, and Carolyn Beck, "Buffer Sizing results for RCP Congestion Control under Connection Arrivals and Departures," *ACM SIGCOMM Computer Communications Review*, Vol. 39, No. 1, pp. 5-15, January 2009.
18. Sundar Iyer, Ramana Kompella, and Nick McKeown, "Designing packet buffers for router linecards," *IEEE Transactions on Networking*, Vol. 16, No. 3, pp. 705-717, June 2008.
19. Nick McKeown, Tom Anderson, Hari Balakrishnan, Guru Parulkar, Larry Peterson, Jennifer Rexford, Scott Shenker, and Jonathan Turner, "OpenFlow: Enabling Innovation in Campus Networks," *ACM SIGCOMM Computer Communication Review*, Vol. 38, No. 2, pp. 69-74, April 2008.
20. Natasha Gude, Teemu Koponen, Justin Pettit, Ben Pfaff, Martin Casado, Nick McKeown, and Scott Shenker, "NOX: Towards an Operating System for Networks," *ACM Computer Communications Review*, Vol. 38, No. 3, pp. 105-110, April 2008.
21. Glen Gibb, John W. Lockwood, Jad Naous, Paul Hartke, and Nick McKeown, "NetFPGA -- Open Platform for Teaching How to Build Gigabit-rate Network Switches and Routers," *IEEE Transactions on Education*, Vol. 51, No. 3, pp. 364-369, 2008.
22. Hamsa Balakrishnan, Nandita Dukkipati, Nick McKeown, and Claire Tomlin, "Stability Analysis of Explicit Congestion Control Protocols," *IEEE Communications Letters*, Vol. 11, No. 10, pp. 823-825, October 2007.
23. Yashar Ganjali, and Nick McKeown, "Update on Buffer Sizing in Internet Routers," *Computer Communications Review (CCR)*, Vol. 36, No. 5, pp. 67-70, October 2006.
24. Nandita Dukkipati, and Nick McKeown, "Why flow-completion time is the right metric for congestion control," *ACM SIGCOMM Computer Communication Review*, Vol. 36, No. 1, pp. 59-62, January 2006.
25. Damon Wischik, and Nick McKeown, "Part I: Buffer Sizes for Core Routers," *ACM/SIGCOMM Computer Communication Review*, Vol. 35, No. 3, pp. 75-78, July 2005.
26. Mihaela Enachescu, Yashar Ganjali, Ashish Goel, Tim Roughgarden, and Nick McKeown, "Part III: Routers with Very Small Buffers," *ACM/SIGCOMM Computer Communication Review*, Vol. 35, No. 3, pp. 83-90, July 2005.

27. Mingjie Lin, and Nick McKeown, "The Throughput of a Buffered Crossbar Switch," *IEEE Communications Letters*, Vol. 9, No. 5, pp. 465-467, May 2005.
28. Srikanth Arekapudi, Shang-Tse Chuang, Isaac Keslassy, Nick McKeown, "Using Hardware to Configure a Load-Balanced Switch," *IEEE Micro*, vol. 25, No. 1, pp. 70-78, January/February 2005.
29. Isaac Keslassy, Rui Zhang-Shen, and Nick McKeown, "Maximum Size Matching is Unstable for Any Packet Switch," *IEEE Communications Letters*, Vol. 7, No. 10, pp. 496-498, October 2003.
30. Sundar Iyer, and Nick McKeown, "Using Constraint Sets to Achieve Delay Bounds in CIOQ Switches," *IEEE Communication Letters*, Vol. 7, No. 6, pp. 275-277, June 2003.
31. Sundar Iyer, and Nick McKeown, "Analysis of the Parallel Packet Switch Architecture," *IEEE/ACM Transactions on Networking*, pp. 314-324, April 2003.
32. Pablo Molinero-Fernandez, and Nick McKeown, "The performance of circuit switching in the Internet," *OSA Journal of Optical Networking*, Vol. 2, No. 4, pp.1-14, March 2003.
33. Pablo Molinero-Fernandez, Nick McKeown, and Hui Zhang "Is IP going to take over the world (of communications)?" *ACM Computer Communications Review*, Vol. 33, No. 1, pp. 113-118, January 2003.
34. Sundar Iyer, Rui Zhang, and Nick McKeown, "Routers with a Single Stage of Buffering," *ACM Computer Communication Review*, Vol. 32, No. 4, pp. 251-264, October 2002.
35. Martin Casado, Vikram Vijayaraghavan, Guido Appenzeller, and Nick McKeown, "The Stanford Virtual Router: a teaching tool and network simulator," *ACM SIGCOMM Computer Communication Review*, Vol. 32, No. 3, pp. 26-26, July 2002.
36. Pablo Molinero-Fernandez, and Nick McKeown, "The performance of circuit switching in the Internet," *ACM SIGCOMM Computer Communication Review/Abstract*, Vol. 32, No. 3, pp. 12-12, July 2002.
37. Pablo Molinero-Fernandez, and Nick McKeown, "TCP Switching: Exposing circuits to IP," *IEEE Micro Magazine*, Vol. 22, No. 1, pp. 82-89, January-February 2002.
38. Devavrat Shah, Sundar Iyer, Balaji Prabhakar, and Nick McKeown, "Maintaining Statistics Counters in Router Line Cards," *IEEE MicroMagazine*, Vol. 22, No. 1, pp. 76-81, January-February 2002.
39. Sundar Iyer, and Nick McKeown, "On the Speedup Required for a Multicast Parallel Packet Switch," *IEEE Communication Letters*, Vol. 5, No. 6, pp. 269-271, June 2001.
40. Pankaj Gupta, and Nick McKeown, "Algorithms for Packet Classification," *IEEE Network*, Vol. 15, No. 2, pp. 24-32, March-April 2001.
41. Pankaj Gupta, and Nick McKeown, "Packet Classification using Hierarchical Intelligent Cuttings," *IEEE Micro Magazine*, Vol. 20, No. 1, pp. 34-41, January-February 2000.
42. Shang-Tse Chuang, Ashish Goel, Nick McKeown, and Balaji Prabhakar, "Matching Output Queueing with a Combined Input Output Queued Switch," *IEEE Journal on Selected Areas in Communications*, Vol. 17, No. 6, pp. 1030-1039, December 1999.
43. Balaji Prabhakar, and Nick McKeown, "On the Speedup Required for Combined Input and Output Queued Switching," *Automatica*, Vol. 35, No. 12, pp. 1909-1929, December 1999.
44. Nick McKeown, Adisak Mekkitikul, Venkat Anantharam, and Jean Walrand, "Achieving 100% Throughput in an Input-Queued Switch (Extended Version)," *IEEE Transactions on Communications*, Vol. 47, No. 8, pp. 1260-1267, August 1999.

45. Nick McKeown, "iSLIP: A Scheduling Algorithm for Input-Queued Switches," *IEEE Transactions on Networking*, Vol. 7, No. 2, pp. 188-201, April 1999.
46. Pankaj Gupta, and Nick McKeown, "Design and Implementation of a Fast Crossbar Scheduler," *IEEE Micro Magazine*, Vol. 19, No.1, pp. 20-28, January-February 1999.
47. Kun-Yung Ken Chang, Shang-Tse Chuang, Nick McKeown, and Mark Horowitz, "A 50 Gb/s 32*32 CMOS crossbar chip using asymmetric serial links," *1999 Symposium on VLSI Circuits. Digest of Technical Papers*, pp. 19-22, 1999.
48. Nick McKeown, and Thomas E. Anderson, "A Quantitative Comparison of Scheduling Algorithms for Input-Queued Switches," *Computer Networks and ISDN Systems*, Vol. 30, No. 24, pp. 2309-2326, December 1998.
49. Nick McKeown, "A Fast Switched Backplane for a Gigabit Switched Router," *Business Communications Review*, Vol. 27, No. 12, December 1997.
50. Ritesh Ahuja, Balaji Prabhakar, and Nick McKeown, "Multicast Scheduling for Input-Queued Switches," *IEEE Journal on Selected Areas in Communications*, Boston, MA, Vol. 15, No. 15, pp. 885-866, June 1997.
51. Nick McKeown, Martin Izzard, Adisak Mekittikul, Bill Ellersick, and Mark Horowitz, "The Tiny Tera: A Small High-Bandwidth Packet Switch Core," *IEEE Micro Magazine*, Vol. 17, No. 1, pp. 26 - 33, January-February 1997.
52. Richard Edell, Nick McKeown, and Pravin Varaiya, "Billing Users and Pricing for TCP," *IEEE JSAC Special Issue on Advances in the Fundamentals of Networking*, Vol. 13, No. 7, pp. 1162-75, September 1995.
53. Nick McKeown, Pravin Varaiya, and Jean Walrand, "Scheduling Cells in an Input-Queued Switch," *IEE Electronics Letters*, Vol. 29, No. 25, pp.2174-2175, December 1993.
54. Nick McKeown, Richard Edell, and My T. Le, "The Bay Bridge: A High Speed Bridge/Router," *IFIP Transactions C (Communications Systems)*, Vol. C-9, pp. 203-218, November 1993.
55. Steven E. Schladover, Charles A. Desoer, J. Karl Hedrick, Masayoshi Tomizuka, Jean Walrand, Wei-Bin Zhang, Donn H. McMahon, Huei Peng, Shahab Sheikholeslam, and Nick McKeown, "Automatic Vehicle Control Developments in the PATH Program," *IEEE Transactions on Vehicular Technology*, Vol. 40, No.1, pp. 114-130, February 1991.

Conferences and Workshops

1. Lavanya Jose, Lisa Yan, George Varghese, Nick McKeown "High Speed Networks Need Proactive Congestion Control" *HotNets' 15, Philadelphia, PA November 2015*
2. Lavanya Jose, Lisa Yan, George Varghese, Nick McKeown, "Compiling Packet Programs to Reconfigurable Switches," *NSDI '15, Oakland, CA*
3. David Erickson, Brandon Heller, Nick McKeown, Mendel Rosenblum, "Using Network Knowledge to Improve Workload Performance in Virtualized Data Centers," *IC2E, Boston, March 2014*
4. Yiannis Yiakoumis, Manu Bansal, Adam Covington, Johan van Reijndam, Sachin Katti, Nick McKeown, "BeHop: A Testbed for Dense Wifi Networks," *Wintech 2014, Maui, USA 2014*
5. Nick Shelly, Ethan J Jackson, Teemu Koponen, Nick McKeown, Jarno Rajahalme, "Flow Caching

- For High Entropy Packet Fields," *Hot Topics in Software Defined Networking 2014, Chicago, IL, August 2014*
6. Te-Yuan Huang, Ramesh Johari, Nick McKeown, Matthew Trunnell, Mark Watson, "A Buffer-Based Approach to Rate Adaptation: Evidence from a Large Video Streaming Service," *ACM Sigcomm 2014, Chicago*
 7. Nikhil Handigol, Brandon Heller, Vimalkumar Jeyakumar, David Mazieres, Nick McKeown, "I Know What Your Packet Did Last Hop: Using Packet Histories to Troubleshoot Networks," *NSDI 2014, Seattle, WA*
 8. Hongyi Zeng, Shidong Zhang, Fei Ye, Vimalkumar Jeyakumar, Mickey Ju, Junda Liu, Nick McKeown, Amin Vahdat, "Libra: Divide and Conquer to Verify Forwarding Tables In Huge Networks," *NSDI 2014, Seattle, WA*
 9. Brandon Heller, Colin Scott, Nick McKeown, Scott Shenker, Andreas Wundsam, Hongyi Zeng, Sam Whitlock, Vimalkumar Jeyakumar, Nikhil Handigol, James McCauley, Kyriakos Zaris, Peyman Kazemian, "Leveraging SDN Layering to Systematically Troubleshoot Networks," *ACM SIGCOMM 2013 Hot Topics in Software Defined Networking (HotSDN)*
 10. Pat Bosshart, Glen Gibb, Hun-Seok Kim, George Varghese, Nick McKeown, Martin Izzard, Fernando Mujica, Mark Horowitz, "Forwarding metamorphosis: fast programmable match-action processing in hardware for SDN," *ACM SIGCOMM 2013*
 11. Mohammad Alizadeh, Shuang Yang, Milad Sharif, Sachin Katti, Nick McKeown, Balaji Prabhakar, Scott Shenker, "pFabric: minimal near-optimal datacenter transport," *ACM SIGCOMM 2013*
 12. Te-Yuan Huang, Ramesh Johari, Nick McKeown, "Downton Abbey Without the Hiccups: Buffer-Based Rate Adaptation for HTTP Video Streaming," *ACM SIGCOMM 2013 Workshop on Future Human-Centric Multimedia Networking (FhMN)*
 13. Kok-Kiong Yap, Te-Yuan Huang, Yiannis Yiakoumis, Nick McKeown, Sachin Katti, "Late-binding: how to lose fewer packets during handoff," *CellNet 2013: 2013 workshop on Cellular networks: operations, challenges, and future design*
 14. Peyman Kazemian, Michael Chang, Hongyi Zeng, George Varghese, Nick McKeown, Scott Whyte, "Real Time Network Policy Checking using Header Space Analysis," *10th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2013)*
 15. Kok-Kiong Yap, Te-Yuan Huang, Yiannis Yiakoumis, Sandeep Chinchali, Nick McKeown, Sachin Katti, "Scheduling Packets Over Multiple Interfaces While Respecting User Preferences," *CoNext 2013, Santa Barbara, CA*
 16. Glen Gibb, George Varghese, Mark Horowitz, Nick McKeown, "Design Principles for Packet Parsers," *ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS 2013)*
 17. Nikhil Handigol, Brandon Heller, Vimalkumar Jeyakumar, Bob Lantz, Nick McKeown, "Reproducible Network Experiments using Container Based Emulation," *CoNEXT 2012, Nice, France*
 18. Hongyi Zeng, Peyman Kazemian, George Varghese, Nick McKeown, "Automatic Test Packet Generation," *The 8th International Conference on emerging Networking EXperiments and Technologies (CoNEXT 2012), Nice, France*
 19. Te-Yuan Huang, Nikhil Handigol, Brandon Heller, Nick McKeown, Ramesh Johari, "Confused,

- Timid, and Unstable: Picking a Video Streaming Rate is Hard," *ACM SIGCOMM Internet Measurement Conference (IMC), Boston, Nov, 2012*
20. Mohammad Alizadeh, Shuang Yang, Sachin Katti, Nick McKeown, Balaji Prabhakar, Scott Shenker, "Deconstructing Datacenter Packet Transport," *HotNets 2012: 133-138*
 21. Kok-Kiong Yap, Nick McKeown, Sachin Katti, "Multi-Server Generalized Processor Sharing," *September 2012, Krakw, Poland International Teletraffic Congress 2012*
 22. Yiannis Yiakoumis, Te-Yuan Huang, Kok-Kiong Yap, Sachin Katti, Ramesh Johari, Nick McKeown, "Putting Home Users in Charge of their Network," *ACM HomeSys Workshop 2012, Sep., Pittsburgh, PA, USA (Affiliated with ACM UbiComp 2012)*
 23. Glen Gibb, Hongyi Zeng, Nick McKeown, "Outsourcing Network Functionality," *HotSDN '12 Proceedings of the first workshop on Hot topics in software defined networks Pages 73-78 ACM New York, NY, USA 2012*
 24. Nikhil Handigol, B. Heller, V. Jeyakumar, D. Mazieres, N. McKeown, "Where is the Debugger for my Software-Defined Network? ," *HotSDN 2012, Helsinki, Finland (Best Student Presentation Award)*
 25. Peyman Kazemian, George Varghese, Nick McKeown.
"Header Space Analysis: Static Checking for Networks", *9th USENIX Symposium on Networked Systems Design and Implementation. NSDI '12, San Jose, CA, April 2012.*
 26. David Erickson, Brandon Heller, Shuang Yang, Jonathan Chu, Jonathan D. Ellithorpe, Scott Whyte, Stephen Stuart, Nick McKeown, Guru M. Parulkar, Mendel Rosenblum.
"Optimizing a Virtualized Data Center", *Proceedings of the ACM SIGCOMM 2011 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications, SIGCOMM 2011:478-479, Toronto, ON, Canada, August 2011.*
 27. Ali Reza Sharafat, Saurav Das, Guru M. Parulkar, Nick McKeown.
"MPLS-TE and MPLS VPNS with OpenFlow", *Proceedings of the ACM SIGCOMM 2011 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications, SIGCOMM 2011:452-453, Toronto, ON, Canada, August 2011.*
 28. Yiannis Yiakoumis Kok-Kiong Yap Sachin Katti Guru Parulkar Nick McKeown.
"Slicing Home Networks", *Sigcomm Workshop on Home Networks, Aug 2011.*
 29. Glen Gibb, Hongyi Zeng, Nick McKeown.
"Initial thoughts on custom network processing via waypoint services", *WISH - 3rd Workshop on Infrastructures for Software/Hardware co-design, CGO 2011, Chamonix, France, April 2011.*
 30. Saurav Das, Ali Reza Sharafat, Guru M. Parulkar, Nick McKeown.
"MPLS with a Simple OPEN Control Plane", *Proceedings of OFC/NFOEC'11, Los Angeles, March 2011.*
 31. Saurav Das, Yiannis Yiakoumis, Guru M. Parulkar, Preeti Singh, Daniel Getachew, Premal Dinesh Desai, Nick McKeown.
"Application-Aware Aggregation and Traffic Engineering in a Converged Packet-Circuit Network", *Proceedings of OFC/NFOEC'11, Los Angeles, March 2011.*
 32. Teemu Koponen, Scott Shenker, Hari Balakrishnan, Nick Feamster, Igor Ganichev, Ali Ghodsi, P. Brighten Godfrey, Nick McKeown, Guru Parulkar, Barath Raghavan, Jennifer Rexford, Somaya Arianfar, and Dmitriy Kuptsov.
"Architecting for Innovation", *ACM Computer Communications Review, 2011.*

33. Glen Gibb, Nick McKeown.
"OpenPipes: Making Distributed Hardware Systems Easier", *Proceedings of the International Conference on Field-Programmable Technology, FPT 2010, Tsinghua University, Beijing, China 2010. FPT 2010:381-384*, December 2010.
34. Kok-Kiong Yap, Sachin Katti, Guru Parulkar, Nick McKeown.
"Delivering Capacity for the Mobile Internet by Stitching Together Networks", *Proceedings of the 2010 ACM workshop on Wireless of the students, by the students, for the students S3'10, Chicago, Illinois*, September 2010.
35. Brandon Heller, David Erickson, Nick McKeown, Rean Griffith, Igor Ganichev, Scott Whyte, Kyriakos Zarifis, Daekyeong Moon, Scott Shenker, Stephen Stuart.
"Ripcord: A Modular Platform for Data Center Networking", *Proceedings of the ACM SIGCOMM 2010 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications, New Delhi, India*, September 2010.
36. Saurav Das, Guru Parulkar, Preeti Singh, Daniel Getachew, Lyndon Ong and Nick McKeown.
"Packet and Circuit Network Convergence with OpenFlow" (*OFC'10*), *San Diego*, March, 2010.
37. Saurav Das, Guru Parulkar and Nick McKeown. "Unifying Packet and Circuit Switched Networks" *Workshop on Below IP Networking, Globecom09, Hawaii*, November, 2009.
38. Kok-Kiong Yap, Masayoshi Kobayashi, David Underhill, Srinivasan Seetharaman, Peyman Kazemian, and Nick McKeown. "The Stanford OpenRoads Deployment", *WiNTECH, Mobicom*, Beijing, China, September 2009.
39. Rob Sherwood, Glen Gibb, Kok-Kiong Yap, Guido Appenzeller, Martin Casado, Nick McKeown and Guru Parulkar, "Can the Production Network Be the Testbed?" *OSDI 2010*, Vancouver, Oct 2010.
40. Brandon Heller, Sridhar Seetharaman, Priya Mahadevan, Yiannis Yiakoumis, Puneet Sharma, Sujata Banerjee, and Nick McKeown. "ElasticTree: saving energy in data center networks." *7th USENIX conference on Networked systems design and implementation (NSDI'10)*. Berkeley, CA, USA.
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PhD Students

Current students, research topic and estimate graduation date:

1. Lavanya Jose (CS) - Programmable forwarding planes, 2018
2. Lisa Yan (EE) - CS Education, 2018
3. Sean Choi (EE)
4. Steven Ibanez (EE)

Graduated Phd students, including thesis title and graduation date:

1. Yiannis Yiakoumis (EE '16) - Network neutrality and personalized networks, 2016
2. Glen Gibb (EE '14) - OpenFlow-optimized chip design, 2013
3. KK Yap (EE '13) - Wireless networks with multiple interfaces, 2013
4. Peyman Kazemian (EE '13) - Header space Analysis, 2013
5. James Zeng (EE '13) – Formal methods for network analysis, 2014
6. Brandon Heller (CS '13) - High fidelity network emulation, 2013
7. David Erickson (CS '13) - Using network knowledge to improve workload performance in virtualized data centers, 2013
8. Nikhil Handigol (CS '13) - Using packet histories to troubleshoot networks, 2013
9. TY Huang (CS '14) - Adaptive video streaming, 2014
10. Saurav Das (EE '12) - Converged control of WANs.
11. Jad Naous (EE '11) - Thesis Title: Control methods for virtualized networks.
12. Neda Beheshti (EE '10) - Thesis: Tiny buffers for electronic and optical routers
13. Nandita Dukkipati (EE '08) – Thesis Title: Rate Control Protocol (RCP): Congestion control to make flows complete quickly
14. Sundar Iyer (CS '08) – Thesis Title: Load balancing and parallelism for the internet.
15. Martin Casado (CS '07) – Thesis Title: A Management and Security Architecture for Enterprise Networks.
16. Yashar Ganjali (EE '07) - Thesis Title: Buffer Sizing in Internet Routers
17. Rui Zhang-Shen (EE '07) - Thesis Title: Designing a Predictable Backbone Network Using Valiant Load-Balancing
18. Guido Appenzeller (CS '05) – Thesis Title: Sizing Router Buffers.
19. Shang-tse Chuang (EE '05) - Thesis Title: Providing Performance Guarantees With Crossbar-Based Routers
20. Isaac Keslassy (EE '04) - Thesis Title: The Load-Balanced Router
21. Pablo Molinero-Fernandez (EE '03) - Thesis Title: Circuit Switching in the Internet
22. Pankaj Gupta (CS '01) – Thesis Title: Algorithms for routing lookups & packet classification.
23. Adisak Mekittikul (EE '99) - Thesis Title: Scheduling Non-Uniform Traffic in High Speed Packet Switches and Routers