Brian Noble

Associate Professor
Electrical Engineering and Computer Science
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Research Interests

Software systems for mobile computing, distributed systems, file systems, security and privacy for mobile users, network measurement and monitoring.

Education

Carnegie Mellon University, Pittsburgh, PA   9/91—5/98

Ph.D. in Computer Science, 1998
Dissertation: *Mobile Data Access*
Advisor: M. Satyanarayanan

M.S. in Computer Science, 1994

University of California, Berkeley, Berkeley, CA   9/87—5/91

B.S. in Electrical Engineering and Computer Science, with high honors, 1991

Honors and Awards

University Teaching Award, 2010
Co-Author, Best paper, USENIX Conference on File and Storage Technologies, February 2010
Departmental Achievement Award, 2007.
Co-Author, Best student paper, ACM Workshop on Wireless Security, September 2005
Vulcans Education Excellence Award, 2005
Ruth and Joel Spira Outstanding Teaching Award, 2004
Morris Wellman Faculty Development Chair, University of Michigan, College of Engineering, 2002—2004.
Co-author, Best Student Paper, MobiCom 2002
National Science Foundation CAREER Award, 2000
AT&T Graduate Fellowship, 1993—1998
Graduate Student Teaching Award, 1995
Computer Measurement Group Graduate Fellowship, 1994-1995
Author, Best Student Paper, SIGMETRICS 1994
National Science Foundation Graduate Fellowship, 1991—1993
Member, Tau Beta Pi, 1990
University Scholarship, 1987—1991

Professional Employment: Research, Development, and Education

EECS Department, College of Engineering, University of Michigan, Ann Arbor

Associate Professor	9/2004—current
Morris Wellman Faculty Development Assistant Professor	9/2002—8/2004
Assistant Professor	7/1998—8/2002

Duties include teaching at the undergraduate and graduate levels, academic advising for graduate and

undergraduate students, research advisor for undergraduate, M.S., and Ph.D. level students in the areas of mobile computing, distributed systems, file systems, and security.

Consultant

Weil, Gotshal, & Manges, LLP, New York, NY	10/2010—present
	2/2009—3/2010
Wilmer, Cutler, Pickering, Hale, and Dorr, LLP	4/2010—6/2011
Dickinson Wright, PLLC, Bloomfield Hills, MI	1/2008—8/2008
Intel Research, Seattle, WA	6/2004—7/2005
Sullivan & Cromwell LLP, New York, NY	7/2003—3/2004
DragonFly Wireless Inc., Ann Arbor, MI	6/2000—12/2000

Systems Research Center, Digital Equipment Corporation, Palo Alto, CA

Research Intern   5/94—8/94
Design and implement the continuous monitoring infrastructure as part of the performance specification project. Supervised by Sharon Perl and William Weihl.

Financial Engineering Associates, Berkeley, CA

Software Systems Developer   1/91—8/91
Implemented and optimized software to model and analyze price, risk, etc. of global commodity options.

New Student Services, University of California, Berkeley, CA

Coordinator of Freshman Orientations   11/89—8/90
Responsible for orientation of incoming class of approximately 3500 students. Co-supervised team of approximately 30 orientation counselors

Orientations Counselor   1/89—8/89
2-day orientations of groups of students and parents as part of the university's orientation program.

Software Engineering Laboratory, Communications Sector, Motorola Inc., Schaumburg, IL

Summer Intern   5/88—8/88
Implemented a tool to compile software and hardware specifications into Smalltalk for simulation and verification/testing of radio products.

Teaching Experience

University of Michigan, Ann Arbor

Student ratings are given, evaluating the course and my performance as an instructor: each shows (instructor rating/median college rating) for that level course. UM ratings range from 1-5.

Programming and Introductory Data Structures, EECS 280
Winter 2011 (4.70/4.08, 4.85/4.30)
Winter 2010 (4.68/4.06, 4.88/4.33)
Winter 2009, (4.64/4.0, 4.90/4.14)
Fall 2008, (4.40/3.93, 4.85/4.03)
Winter 2007, (4.74/3.91, 4.90/4.00)
Fall 2006, (4.44/3.92, 4.73/3.92)
Winter 2006, (4.70/3.92, 4.83/3.92)
Fall 2005, (4.38/3.89, 4.79/4.07)
Winter 2004, (4.12/3.76, 4.65/3.99)

Special Topics: Cloud Computing for the Commute, EECS 498
Winter 2011 (3.75/4.10, 3.67/4.30)
Winter 2010 (4.71/4.00, 4.50/4.17)

Internet Scale Computing, EECS 382
Fall 2010, (4.39/4.17, 4.75/4.38)
Fall 2009, (4.38/4.17, 4.75/4.26)

Special Topics (Concurrent and Parallel Programming), EECS 498
Winter 2008, (4.11/4.04, 4.53/4.19)

Introduction to Operating Systems, EECS 482
Fall 2007, (4.64/4.04, 4.83/4.20)
Fall 2003, (4.33/4.03, 4.48/4.23)
Winter 2003, section 1 (4.28/3.29, 4.29/3.44)
Winter 2003, section 2 (4.55/3.29, 4.80/3.44)
Fall 2000 (4.06/3.69, 4.56/3.92)
Fall 1999 (3.96/3.79, 4.07/3.90)
Fall 1998 (4.29/3.85, 4.36/4.08)

Advanced Operating Systems, EECS 582
Winter 2002 (4.46/4.24, 4.38/4.34)
Winter 2001 (4.35/4.15, 4.65/4.29)
Winter 2000 (4.32/4.21, 4.73/4.37)
Winter 1999 (4.15/4.18, 4.68/4.34)

Data Structures and Algorithms, EECS 281
Fall 2001 (3.94/3.81, 4.42/4.01)

Carnegie Mellon University

Graduate Student Instructor: Distributed Systems
Graduate Student Instructor: Fundamental Structures of Computer Science II

University of California, Berkeley

Instructor: Special Topics in Education
Grader: Efficient Algorithms and Intractable Problems
Grader: The Structure and Interpretation of Computer Programs
Tutor: various math, science, and engineering courses.

Research Advising

Eleven doctoral students: Eight graduated, three active.

- Samir Shah, *Leveraging Context for Personal File Search and Organization.* Currently at LinkedIn. May 2009.

- Anthony Nicholson, *Systems-Level Support for Mobile Device Connectivity.* Currently at Google. August 2008.

- James Mickens, *Exploiting Host Availability in Distributed Systems.* Currently at Microsoft Research, Redmond. February 2008.

- Jungkeun Yoon, *Mobility Modeling of Mobile Users.* August, 2007. Currently pursuing a law degree in Korea. Co-advised with Mingyan Liu.

- Landon Cox, *Collaborative Backup for Self-Interested Hosts.* December, 2005. Currently Assistant Professor of Computer Science, Duke University.

- Thomas Hacker, *Improving End-to-End Reliable Transport Using Parallel Transmission Protocol Sessions.* August, 2004. Currently Assistant Professor of Computer and Information Technology, Purdue University. Co-advised with Brian Athey.

- Minkyong Kim, *Providing Safety and Visibility for Mobile Users.* June, 2004. Currently at IBM Research.

- Mark Corner, *Transient Authentication for Mobile Devices.* July, 2003. Currently Associate Professor of Computer Science, University of Massachusetts Amherst.

Five masters students, all graduated.

Nine undergraduate research students: all graduated

Publications and Talks

Journal Publications

Kaushik Veeraraghavan, Jason Flinn, Edmund B. Nightingale, Brian Noble. *quFiles: The right file at the right time.* ACM Transactions on Storage 6(3), Article 12, 28pgs, September 2010. A shorter version appeared in The 8th USENIX Conference on File and Storage Technologies (FAST '10). February 2010. p. 1—14. (Acceptance rate: 20%). Selected as a Best Paper.

Anthony J. Nicholson, Scott Wolchok, Brian D. Noble, "Juggler: Virtual Networks for Fun and Profit," IEEE Transactions on Mobile Computing 9(1), pp. 31-43, January, 2010.

S. Shah and B. D. Noble. *A study of email patterns.* Software: Practice & Experience, 37(14), November 2007; p 1515—1538.

A. J. Nicholson and M. D. Corner and B. D. Noble. *Mobile device security using Transient Authentication.* IEEE Transactions on Mobile Computing, 5(11), November, 2006; p. 1489—1502.

J. Yoon, M. Liu, and B. D. Noble. *A general framework to construct stationary mobility models for the simulation of mobile networks.* IEEE Transactions on Mobile Computing, 5(7), July 2006; p. 860—871.

M. D. Corner and B. D. Noble. *Protecting file systems with transient authentication.* ACM/Springer Wireless Networks. 11(1-2), January, 2005; p. 7—19.

B. Noble. *System support for mobile, adaptive applications.* IEEE Personal Communications. 7(1); February, 2000; p. 44-49

B. D. Noble and M. Satyanarayanan. *Experience with adaptive mobile applications in Odyssey.* Mobile Networks and Applications. 4(4); 1999; p. 245-254.

B. D. Noble, M. Price, and M. Satyanarayanan, *A programming interface for application-aware adaptation in mobile computing*, Computing Systems, 8(4), p. 345-363, 1995. Also in Proceedings of the 2nd USENIX Symposium on Mobile and Location Independent Computing, April 1995, p. 57-66.

Refereed Conference Publications

Azarias Reda, Quang Duong, Timur Alperovich, Brian Noble, and Yidnekachew Haile. *Robit*: *An Extensible Auction-based Market Platform for Challenged Environments.* Proceedings of the International Conference on Information and Communication Technologies and Development 2010 (ICTD). London, UK. December 2010. (Acceptance rate: 14%)

Brett D. Higgins, Azarias Reda, Timur Alperovich, Jason Flinn, Thomas J. Giuli, Brian D. Noble, and David Watson. *Intentional Networking: Opportunistic Exploitation of Mobile Network Diversity.* In the 16th Annual International Conference on Mobile Computing and Networking (MobiCom). September, 2010. Chicago, IL. p. 73—84. (Acceptance rate: 14%).

Azarias Reda, Brian Noble, Yidnekachew Haile. *Distributing private data in challenged network environments.* Proceedings of the 19th International World Wide Web conference (WWW). April 2010. p. 801—810. (Acceptance rate: 14%).

James Mickens, John Douceur, Bill Bolosky, and Brian Noble. *StrobeLight: Lightweight Availability Mapping and Anomaly Detection*. In Proceedings of The 2009 USENIX Annual Technical Conference (USENIX), June 2009. p. 57—70. (Acceptance rate: 17%).

A. Nicholson and B. D. Noble. *BreadCrumbs: Forecasting Mobile Connectivity*. In the 14th International Conference on Mobile Computing and Networking (MobiCom). September, 2008. p. 46-57. (Acceptance rate: 12%)

J. Mickens and B. D. Noble. *Concillium: Collaborative diagnosis of broken overlay routes*. In Proceedings of the International Conference on Dependable Systems and Networks (DSN). Edinburgh, Scotland. June 2007. p. 225-234. (Acceptance rate: 25%).

S. Shah, C. A. N. Soules, G. R. Ganger, and B. D. Noble. *Using provenance to aid in personal file search*. In Proceedings of the 2007 USENIX Annual Technical Conference. Santa Clara, CA. June 2007. p. 171—184. (Acceptance rate: 24%)

J. Yoon, B. D. Noble, and M. Liu. *Surface street traffic estimation.* In Proceedings of the 5th Annual ACM/USENIX Conference on Mobile Systems, Applications, and Services (MobiSys). San Juan, PR. June 2007. p. 220—232. (Acceptance rate: 21%)

J. Yoon, B. D. Noble, M. Liu, and M. Kim. *Building realistic mobility models from coarse-grained traces.* In Proceedings of the 4th Annual ACM/USENIX Conference on Mobile Systems, Applications, and Services (MobiSys). Uppsala, Sweden. June 2006. p. 177—190. (Acceptance rate: 16%)

A. J. Nicholson, Y. Chawathe, M. Y. Chen, B. D. Noble, and D. Wetherall. *Improved Access Point Selection.* In Proceedings of the 4th Annual ACM/USENIX Conference on Mobile Systems, Applications, and Services (MobiSys). Uppsala, Sweden. June 2006. p. 233—245. (Acceptance rate: 16%)

A. J. Nicholson, I. E. Smith, J. Hughes, and B. D. Noble. *LoKey: leveraging the SMS network in decentralized, end-to-end trust establishment.* The 4th International Conference on Pervasive Computing (Pervasive). Dublin, Ireland. May, 2006. p. 202—219. (Acceptance rate: 13%)

J. W. Mickens and B. D. Noble. *Exploiting Availability Prediction in Distributed Systems.* In Proceedings of the 3rd USENIX/ACM Symposium on Networked Systems Design and Implementation (NSDI). San Jose, CA. May 2006. p. 73—86. (Acceptance rate: 25%)

T. J. Hacker, B. D. Noble, and B. D. Athey, *Data Block Scheduling for Parallel TCP Streams*, in Proceedings of 14th IEEE International Symposium on High Performance Distributed Computing (HPDC-14), Research Triangle Park, NC, July, 2005. (Acceptance rate: 18%)

T. J. Hacker, B. D. Noble, and B. D. Athey. *Improving Throughput and Maintaining Fairness using Parallel TCP*. The 23rd Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM). Hong Kong, China. March 2004. (Acceptance rate: 18%)

L. P. Cox and B. D. Noble. *Samsara: honor among thieves in peer-to-peer storage.* Proceedings of the Nineteenth ACM Symposium on Operating Systems Principles (SOSP). October, 2003. Lake George, NY. p. 120—132. (Acceptance rate: 17%)

J. Yoon, M. Liu, and B. D. Noble. *Sound mobility models.* Proceedings of the Ninth ACM Conference on Mobile Computing and Networking (MobiCom). September 2003. San Diego, CA. p. 205—216. (Acceptance rate: 10%)

M. D. Corner and B. D. Noble. *Protecting applications with transient authentication.* The first ACM/USENIX International Conference on Mobile Systems, Applications, and Services (MobiSys). May 2003, San Francisco, CA. p. 57—70. (Acceptance rate: 15%)

J. Yoon, M. Liu, and B. D. Noble. *Random waypoint considered harmful.* The 22nd Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM), April 2003, San Francisco, CA. p. 1312—1321 (Acceptance rate: 21%)

L. P. Cox, C. D. Murray, and B. D. Noble. *Pastiche: making backup cheap and easy.* The Fifth ACM/USENIX Symposium on Operating System Design and Implementation. December, 2002. Boston, MA. p. 285—298. (Acceptance rate: 18%)

T. J. Hacker, B. D. Noble, and B. D. Athey. *The effects of systemic packet loss on aggregate TCP flow*s. ACM/IEEE SC2002: High Performance Networking and Computing. November, 2002. Baltimore, MD. (Acceptance rate: 29%)

M. D. Corner and B. D. Noble. *Zero-Interaction Authentication.* The Eighth ACM Conference on Mobile Computing and Networking. September 2002. Atlanta, GA. p. 1—11. (Best Student Paper Award. Acceptance rate: 7%).

T. J. Hacker, B. D. Athey and B. D. Noble. *The end-to-end performance effects of parallel TCP sockets on a lossy wide-area network.* Proceedings of the 16th International Parallel & Distributed Processing Symposium. April, 2002. Fort Lauderdale, FL. (Acceptance rate: 38%)

M. Kim, L. P. Cox, and B. D. Noble. *Safety, visibility, and performance in a wide-area file system.* The USENIX Conference on File and Storage Technologies. January, 2002. Monterey, CA. p. 131—144. (Acceptance rate: 19%)

M. Kim, and B. D. Noble. *Mobile Network Estimation.* The Seventh ACM Conference on Mobile Computing and Networking. July, 2001. Rome, Italy. p. 298—309. (Acceptance rate: 11%)

L. P. Cox and B. D. Noble. *Fast reconciliations in Fluid Replication.* Proceedings of the 21st IEEE International Conference on Distributed Computing Systems (ICDCS). April, 2001. Mesa, AZ. p. 449—458. (Acceptance rate: 34%)

M. D. Corner and B. D. Noble and K. M. Wasserman, *Fugue: time scales in adaptive mobile video.* In Proceedings of SPIE Multimedia Computing and Networking. January, 2001. San Jose, CA. p. 75—87.

B. D. Noble, M. Satyanarayanan, D. Narayanan, J. E. Tilton, J. Flinn, and K. R. Walker. *Agile application-aware adaptation for mobility.* Proceedings of the Sixteenth ACM Symposium on Operating Systems Principles. October, 1997. Saint-Malo, France. p. 276—287. (Acceptance rate: 21%)

B. D. Noble, M. Satyanarayanan, G. T. Nguyen, R. H. Katz, *Trace-based mobile network emulation*, in Proceedings of the 1997 ACM Conference on Applications, Technologies, Architectures,and Protocols for Computer Communication (SIGCOMM), September, 1997, Cannes, France, p. 51—61. (Acceptance rate: 11%)

B. D. Noble and M. Satyanarayanan, *An empirical study of a highly available file system*, in Proceedings of the 1994 ACM Joint International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS), Nashville, TN. May 1994, p. 138—149. (Best student paper award. Acceptance rate: 23%)

Papers and Presentations in Refereed Workshops

Azarias Reda, Edward Cutrell, and Brian Noble. *Towards improved web acceleration: leveraging the personal web*. Networked Systems for Developing Regions (NSDR). June 2011.

Ben-Alexander Cassell, Timur Alperovich, Michael Wellman and Brian Noble. *Access Point Selection under Emerging Wireless Technologies*. In the Sixth Workshop on the Economics of Networks, Systems, and Computation. (NetEcon) June 2011. San Jose, CA

Timur Alperovich and Brian Noble. *The Case for Elastic Access*. In the The Fifth ACM International Workshop on Mobility in the Evolving Internet Architecture (MobiArch). September, 2010. Chicago, IL.

Jason Flinn, T. J. Giuli, Brett Higgins, Brian Noble, Azarias Reda and David Watson. *The Case for Intentional Networking*. In The Tenth International Workshop on Mobile Computing Systems and Applications (HotMobile). February 2009. Santa Cruz, CA.

K. Veeraraghavan, E. Nightingale, J. Flinn, and B. Noble. *quFiles: A Unifying Abstraction for Mobile Data Management*. In The Ninth International Workshop on Mobile Computing Systems and Applications (HotMobile). February 2008. Napa Valley, CA.

J. Mickens and B. D. Noble. *Analytical models for epidemics in mobile networks*. In Proceedings of the IEEE WiMob 2007 Special Session on Security in Mobile Ad hoc Networks and Wireless Sensor Networks. October 2007. New York , NY.

A. J. Nicholson, J. Han, D. Watson, and B. D. Noble. *Exploiting mobility for key establishment*. Proceedings of the 7th IEEE Workshop on Mobile Computing Systems and Applications. April 2006. Semiahmoo Resort, Washington. p. 61—68.

A. J. Nicholson and B. D. Noble. *Automatic network management for mobile devices*. Proceedings of the 7th IEEE Workshop on Mobile Computing Systems and Applications. April 2006. Semiahmoo Resort, Washington. p. 47.

J. W. Mickens and B. D. Noble. *Predicting node availability in peer-to-peer networks*. Proceedings of the 2005 ACM SIGMETRICS international conference on Measurement and modeling of computer systems. June 2005. Banff, Alberta, Canada. p. 378—379. *Extended abstract/poster presentation*. Also appears in Performance Evaluation Review, September, 2006, 34(2), p. 16—18.

J. W. Mickens and B. D. Noble. *Modeling epidemic spreading in mobile environment*. In the Proceedings of the 4th ACM workshop on Wireless security. September, 2005. Cologne, Germany. p. 77—86. Best student paper award.

M. Jayapandian, B. Noble, J. Mickens and H. V. Jagadish. *Using Delay to Defend Against Database Extraction*. In Proceedings of SDM 2004, LNCS 3178, pp. 202-218, Aug. 2004.

B. D. Noble and M. D. Corner. *The Case for Transient Authentication*. Proceedings of the Tenth ACM SIGOPS European Workshop. September, 2002. St. Emillion, France.

P. M. Chen and B. D. Noble. *When virtual is better than real*. Proceedings of the Eighth IEEE Workshop on Hot Topics in Operating Systems. May, 2001. Elmau, Germany p. 133—138.

B. D. Noble, L. B. Fleis, and L. P. Cox, *Deferring Trust in Fluid Replication*. Proceedings of the Ninth ACM SIGOPS European Workshop. September, 2000. Kolding, Denmark

B. D. Noble, Li Li, and A. Prakash. *The case for better throughput estimation*. Proceedings of the Seventh IEEE Workshop on Hot Topics in Operating Systems. March, 1999. Rio Rico, AZ. p. 70—75.

B. Noble, B. Fleis, M. Kim, and J. Zajkowski. *Fluid Replication*. Proceedings of the Internet2 Network Storage Symposium (NetStore). October, 1999. Seattle, WA

M. Satyanarayanan, B. Noble, *The role of trace-based modulation in building mobile computing systems*, in Proceedings of the Sixth IEEE Workshop on Hot Topics in Operating Systems. May, 1997. Cape Cod, MA. p. 135—139.

M. Satyanarayanan, B. Noble, P. Kumar, and M. Price, *Application-aware adaptation for mobile computing*, Proceedings of the Sixth ACM SIGOPS European Workshop*, September, 1994. Dagstuhl Castle, Germany. Appears as Operating Systems Review, 29(1), p. 52—55, 1995.

Invited Papers

G. T. Nguyen, R. H. Katz, B. Noble, and M. Satyanarayanan, *A trace-based approach for modeling wireless channel behavior*, in Proceedings of the 1996 Winter Simulation Conference. December., 1996. Coronado, CA, p. 597—604.

B. D. Noble, M. Satyanarayanan, *A research status report on adaptation for mobile data access*, SIGMOD Record, 24(4), p. 10—15, 1995.

Government, University, or Industrial Reports (not appearing elsewhere)

B. D. Noble and J. Flinn. *Wireless, self-organizing cyber-physical systems.* NSF Workshop on Cyber-Physical Systems. Austin, TX. October 2006.

X. Zhao, A. Prakash, B. Noble, and K. Borders. *Improving distributed file system performance in virtual machine environments.* Technical Report number CSE-TR-526-06, Department of Electrical Engineering and Computer Science, University of Michigan, September 2006.

M. Kim, B. Noble, X. Chen, and D. Tilbury. *Data propagation in a distributed file system.* Technical Report number CSE-TR-490-04. July, 2004.

J. Liebeherr and N. Shroff (editors), *Report of NSF Workshop on Fundamental Research in Networking*, Airlie House, VA, April 2003.

M. Kim and B. D. Noble. *SANE: Stable Agile Network Estimation.* Technical Report number CSE-TR-432-00, Department of Electrical Engineering and Computer Science, University of Michigan, August, 2000.

S. E. Perl, W. E. Weihl, and B. Noble, *Continuous monitoring and performance specification*, Research Report 153, Digital Equipment Corporation Systems Research Center, Palo Alto, CA, June 1998.

B. Noble, G. Nguyen, M. Satyanarayanan, R. Katz, Mobile network tracing, Internet RFC 2041, Oct. 1996.

Conference and Workshop Presentations

"Surface street traffic estimation." MobiSys 2007. San Juan, PR. June, 2007.

"Building realistic mobility models from coarse-grained traces." MobiSys 2006. Uppsala, Sweden. June 2006.

"The case for transient authentication." Tenth SIGOPS European Workshop. St. Emillion, France. September 2002.

"When virtual is better than real." Eighth Workshop on Hot Topics in Operating Systems. Elmau, Germany. May 2001.

B. Noble, B. Fleis, M. Kim, and J. Zajkowski. *Fluid Replication*. Proceedings of the Network Storage Symposium. Seattle, WA. October 1999.

"Agile Application-Aware Adaptation for Mobility," 16th ACM Symposium on Operating Systems Principles., Saint-Malo, France, September 1997.

"The Role of Trace Modulation in Building Mobile Computing Systems," 6th Workshop on Hot Topics in Operating Systems, Cape Cod, MA, May 1997.

"A Programming Interface for Application-Aware Adaptation in Mobile Computing," Second USENIX Symposium on Mobile and Location-Independent Computing, Ann Arbor, MI, April 1995

"Application-Aware Adaptation for Mobile Computing," Sixth SIGOPS European Workshop on Matching Operating Systems to Application Needs, Dagstuhl Castle, Germany, September 1994

"An Empirical Study of a Highly Available File System," 1994 ACM SIGMETRICS Conference on Measurement and Modeling, Nashville, TN, May 1994.

Invited Talks

"Intentional networking: opportunistic exploitation of mobile network diversity." Distinguished Lecture Series, College of William and Mary. November 2010.

"Intentional Networking." Microsoft Research Networking Summit. June 2010.

"Information Pedigree" Seminar Series, Intel Research, Seattle. June 2005.

"Mobile Adaptation Doesn't Work (Yet)". The DARPA Application-Private Networks Workshop. Philadelphia, PA. December 2003.

"Research Challenges in Wireless Security" The National Science Foundation Wireless Networking Workshop, Chicago, IL, July 2003.

"Zero-Interaction Authentication"

Dartmouth College. Computer Science Colloquium, December 2002.
University of California, Los Angeles. Computer Science Seminar, October 2002.
IBM Research, Hawthorne, NY. Mobile Computing/Security Seminar, February 2002.
University of California, Berkeley. Security Seminar, February 2002.
Rice University. Computer Science Colloquium, December 2001.

"Secure Computing Systems" University of Michigan, Electrical Engineering and Computer Science National Advisory Council, March, 2002.

"Secure, Reliable Information Systems" University of Michigan, College of Engineering National Advisory Council, November, 2001.

"Mobile Network Estimation" Carnegie Mellon University, Pittsburgh, PA. Systems Design and Implementation Seminar. June 2001

"Odyssey/Pyxis: Application-Aware Adaptation for Mobile Video" DARPA GloMo PI meeting, Eatontown, NJ. July 2000

"Pyxis: Interactive Mobile Video" DARPA GloMo PI meeting, Hilton Head, SC. March, 2000

"Interactive Mobile Video: Pyxis/Odyssey" DARPA GloMo PI meeting, Augusta, GA, July 1999

"Mobile Computing at the University of Michigan" Workshop on Intelligent Internet Infrastructure, IBM T. J. Watson Labs, Yorktown, NY, March 1999

"Mobile Data Access"

Brown University,. Spring, 1998
Cornell University. Spring, 1998
Dartmouth College. Spring, 1998
DEC Systems Research Center, Palo Alto, CA. Spring 1998
Duke University. Spring, 1998
Harvard University. Spring, 1998
IBM T. J. Watson Laboratory, Yorktown/Hawthorne, NY. Spring 1998
Johns Hopkins University. Spring, 1998
Lucent Technologies, Murray Hill, NJ. Spring 1998
Massachusetts Institute of Technology. Spring, 1998
Princeton University. Spring, 1998
University of Illinois, Urbana-Champaign. Spring, 1998
University of Maryland, College Park. Spring 1998
University of Michigan. Spring, 1998
University of Virginia. Spring, 1998

"How to Survive as a Graduate Student." Immigration Course, Carnegie Mellon University, Pittsburgh, PA, 1997, 1996

"Odyssey: An API for Application-Aware Adaptation," DARPA GloMo PI Meeting, Long Branch, NJ, July 1997.

"Adaptation in Mobile Computing Systems and Applications," DARPA ITO General PI Meeting, Dallas, TX, October 7-8 1996.

 "The Design and Evolution of a Distributed Measurement Framework." The 21st International Conference on Resource Management and Performance Evaluation of Enterprise Computing Systems, Nashville, TN, December 1995. Fellowship recipient presentation.

Research Grants

Government Support

DARPA. *Seamless Mobility of Data and Services for Dismounted Warfighters*. September 2010—July 2013. $1,399,956. Co-PI.

National Science Foundation. *CSR-PDOS: Availability-Aware Services.* August 2006—August 2008. $300,000 PI

National Science Foundation. *CSR-PDOS: Information Pedigree.* July 2005—July 2010. $400,000. PI.

National Science Foundation. *RI: An Infrastructure for Wide Area Pervasive Computing.* September, 2003—August, 2005. $275,000. Co-PI

National Science Foundation. *ITR: Feedback Control of Dynamic Computing Systems.* September, 2002—August, 2005. $350,000. Co-PI.

National Science Foundation/National Security Agency. *Transient Authentication for Mobile Devices*. September, 2002—August 2004. $259,000 (initial contract of $180,000 from NSF plus additional increment of $79,000 from NSA). PI.

National Science Foundation. *CAREER: Fluid Replication*. May, 2000—April, 2004. $200,038. PI

DARPA. *Specifying and Enforcing Security Policies in Multi-Party Communication Systems*. March, 2000—March, 2003. $1,430,745. Co-PI.

DARPA. *Integrating Peer-to-Peer Multimedia Capabilities into Odyssey*. January, 1999—April, 2000. $100,040. PI.

Industrial Support

General Electric, 2011. *Mobile Travel Intelligence*. $100,000. Co-PI

Intel, 2010. *Embedded Curriculum Development*. $27,000. PI

Ford, 2009. *AutoMake*. $145,000 PI

Ford, 2007. *AutoMedia*. $200,000 PI

Novell, 1999. *Fluid Replication*. $163,000. PI

IBM University Partnership, 1998. *Mobile Computing*. $40,000. PI

IBM University Partnership, 1997. *Internet 2*. $70,000. Co-PI

Technology Transfer

Patents Issued:

Brian D. Noble and Mark D. Corner. *Method and System to Maintain Application Data Secure and Authentication Token for Use Therein*. US Patent 7,299,364. To the Regents of the University of Michigan. US Patent and Trademark Office, 2007.

Brian D. Noble and Mark D. Corner. *Method and System to Maintain Portable Computer Data Secure and Authentication Token for Use Therein*. US Patent 7,302,571. To the Regents of the University of Michigan. US Patent and Trademark Office, 2007.

Brian D. Noble and Landon P. Cox. *Peer to Peer Method and System for Performing and Managing Backups in a Network of Notes*. US Patent 7,424,514. To the Regents of the University of Michigan. US Patent and Trademark Office, 2008.

Professional Service

Board Member:

USENIX Board of Directors, Treasurer: 2008—present.

Steering Committee Member:

USENIX/ACM Symposium on Networked Systems Design and Implementation: 2009—present.
ACM/USENIX International Conference on Mobile Systems, Applications, and Services (MobiSys): 2009—present.
ACM SIGPLAN Virtual Execution Environments (VEE): 2009—present.

General Chair:

Thrust leader and Principal Investigator. NSF Workshop on the Future Directions of Computer Systems Research, March 2010. Arlington, VA.

Program Chair:

ACM/USENIX International Conference on Mobile Systems, Applications, and Services: 2005
USENIX Annual Technical Conference: 2003
IEEE Workshop on Mobile Computing Systems and Applications (WMCSA): 2002

Program Committee:

USENIX/ACM Symposium on Networked Systems Design and Implementation (NSDI): 2012.
ACM/USENIX Workshop on Hot Topics in Operating Systems (HotOS): 2011.
ACM International Conference on Mobile Computing and Communication (Mobicom): 2011, 2009, 2006, 2005, 2004, 2002, 2001
USENIX Symposium on File and Storage Technologies (FAST): 2011, 2008
ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS): 2011
ACM/USENIX International Conference on Mobile Systems, Applications, and Services (MobiSys): 2010, 2007, 2006, 2004
IEEE International Conference on Distributed Computing Systems (ICDCS): 2010, 2009, 1999
ACM/USENIX Workshop on Hot Topics in Storage Systems (HotStorage): 2009
USENIX Annual Technical Conference (USENIX): 2007
Pervasive: 2006
Workshop on Economics of Peer to Peer Systems: 2006, 2004
IEEE Workshop on Mobile Computing Systems and Applications (WMCSA): 2004, 2003, 2000 (also demonstrations chair, 2000)
ACM Workshop on Wireless Security (WiSe): 2003, 2002
ACM Conference on Ubiquitous Computing (UBICOMP): 2003 (tech note track), 2002, 2001
ACM Symposium on Operating Systems Principles (SOSP): 2001
IEEE Symposium on Applications and the Internet (SAINT): 2001
IEEE Workshop on Research Issues in Data Engineering (RIDE): 2000
IEEE Workshop on Parallel and Distributed Real-Time Systems (WPDRTS): 1999

Editorial Service:

Guest Editor, IEEE Pervasive Computing: *Special Issue on Automotive Pervasive Computing.* 2011.
Associate Editor, IEEE Transactions on Mobile Computing: 2001-2005.
Guest Editor, IEEE Pervasive Computing: *Special issue on Challenges and Technologies of Ubiquitous Software.* 2004.
Feature Editor, ACM Mobile Computing and Communications Review: 2000-2002

Institutional Service

Departmental Service:

Computer Science and Engineering Executive Committee: 2005-2007, 2010-current.
CS Programs Ad Hoc Committee: 2010-present.
Computer Science Curriculum Committee: Chair 2005-2009, Member, 2009-current.
CS/LSA Chief Program Advisor: 2009-2010
EECS Curriculum Committee: member 2001-2004, 2005-2009.
Computer Science and Engineering Faculty Search Committee: member 2007-2008
EECS Undergraduate Committee: member 2003-2004
Eta Kappa Nu Faculty Advisor: 1999-2003
Computer Engineering Undergraduate Advisor: 1999-2001

College Service:

Commission on Engineering Undergraduate Education: member 2008-2009.
Computer Science and Engineering Chair Search Committee: member 2007-2008
College of Engineering Diversity and Outreach Council, member 2005-2008
EECS Internal Review Committee: member 2004
College of Engineering Curriculum Committee: member 2002-2003

University Service:

Information Technology Council: Member, 2010-present.
Information and Infrastructure Assurance: Domain Steward, 2010-present.
Cloud Service Privacy and Data Security Task Force: member, 2009-2010.