

Scott M. Nettles

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Austin, TX 78746

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Email: Scott.M.Nettles@gmail.com

Research Interests

Experimental computer science and engineering. Networking, operating, and transaction systems. Programming languages. Wireless and mobile networking. Design and implementation of wireless node prototypes. Cross-layer network design and implementation. Active networking and mobile code. Memory management and high-performance garbage collection. Persistent storage management.

Education

- 1988 – 1995, Carnegie Mellon University** **Pittsburgh, PA**
Ph.D. in Computer Science, 1996.
Thesis: *Safe and Efficient Persistent Heaps*
Advisor: Jeannette Wing

M.S. in Computer Science, 1992.
- 1981 – 1984, Department of Chemistry, Stanford University** **Palo Alto, CA**
Ph.D. candidate. Research focus - statistical mechanics and computational chemistry.
- 1977 – 1981, Michigan State University** **East Lansing, MI**
B.S. in Chemistry (Honors College), 1981.

Awards

- 2008** Grand Prize Award for WinCool Wireless Networking Demo Contest WiNTECH Workshop at ACM MobiCom 2008, San Francisco, CA for Hydra demonstration.
- 2005** Outstanding Faculty Software Engineering Masters Program.
- 2002** First PhD student, Michael Hicks, winner of the 2002 ACM SIGPLAN Doctoral Dissertation award.
- 1997 – 2001**, NSF CAREER award for “CAREER: Advancing Experimental Computer Science in Storage Management and Education.”
- 1977 – 1981**, Merit Scholar, Alumni Distinguished Scholar, Michigan State University.

Work Experience

- May 2013 – Present,** **Austin, TX**
Consultant.
- May 2013 – Present, The University of Texas at Austin** **Austin, TX**
Adjunct Associate Professor, Department of Electrical and Computer Engineering.
- September 2005 – May 2013, The University of Texas at Austin** **Austin, TX**
Associate Professor, Department of Electrical and Computer Engineering.
- September 1999 – August 2005, The University of Texas at Austin** **Austin, TX**
Assistant Professor, Department of Electrical and Computer Engineering.
- March 2001 – December 2004 University of Pennsylvania** **Philadelphia, PA**
Adjunct Assistant Professor, Department of Computer and Information Science.

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- August 1998 – August 1999, The University of Arizona** Tucson, AZ
Visiting Assistant Professor, Department of Computer Science.
- January 1995 – August 1999, University of Pennsylvania** Philadelphia, PA
Assistant Professor, Department of Computer and Information Science.
- Summer 1990, DEC Systems Research Center** Palo Alto, CA
Wrote formal specification of copying garbage collection in Larch specification language.
- September 1988 – December 1994, Carnegie Mellon University** Pittsburgh, PA
Research Assistant, School of Computer Science.
- May 1985 – August 1988, DEC Western Research Laboratory** Palo Alto, CA
Designed and implemented CAD software, including Artemis, a graphics editor, and WCHCK, a well checker for the Magic VLSI layout system.
- June 1984 – April 1985, Silicon Solutions, Inc.** Menlo Park, CA
Designed and implemented novel algorithms for VLSI mask generation.
- Summers 1978, 1979, 1980, 1981, Michigan State University** East Lansing, MI
Research Assistant, Department of Chemistry.

Teaching Experience

- September 1999 – Present** The University of Texas at Austin
- Spring 2011:
EE422C, Data Structures.
EE382N-5, Communication Networks: Technology/Architecture/Protocols.
EE372N, Telecommunication Networks.
- Fall 2010:
EE422C, Data Structures.
- Spring 2010:
EE322C, Data Structures.
EE382V, Wireless and Mobile Networking.
- Fall 2009:
EE322C, Data Structures.
EE382N-5, Communication Networks: Technology/Architecture/Protocols.
- Spring 2009:
EE382N-5, Communication Networks: Technology/Architecture/Protocols (ESE).
- Fall 2008:
EE322C, Data Structures.
EE382N-5, Communication Networks: Technology/Architecture/Protocols.
- Summer 2008:
Group Independent Study - Reading in Wireless and Mobile Networking.
- Spring 2008:
EE382N-5, Communication Networks: Technology/Architecture/Protocols (ESE).
EE382V, Wireless and Mobile Networking.
- Fall 2007:
EE322C, Data Structures.
EE382N-5, Communication Networks: Technology/Architecture/Protocols.
- Summer 2007:
Group Independent Study - Reading in Wireless and Mobile Networking.

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Spring 2007:

EE382N-5, Communication Networks: Technology/Architecture/Protocols (ESE).
EE382V, Wireless and Mobile Networking.

Fall 2006:

EE322C, Data Structures.
EE382N-5, Communication Networks: Technology/Architecture/Protocols.

Summer 2006:

Group Independent Study - Reading in Wireless and Mobile Networking.

Spring 2006:

EE382N-5, Communication Networks: Technology/Architecture/Protocols (ESE).

Fall 2005:

EE322C, Data Structures.
EE382N-5, Communication Networks: Technology/Architecture/Protocols.

Summer 2005:

Group Independent Study - Reading in Wireless and Mobile Networking.

Spring 2005:

EE372N, Telecommunication Networks.
EE382N-5, Communication Networks: Technology/Architecture/Protocols (ESE).

Fall 2004:

EE382N-5, Communication Networks: Technology/Architecture/Protocols.

Summer 2004:

Group Independent Study - Reading in Wireless and Mobile Networking.

Spring 2004:

EE372N, Telecommunication Networks.
EE382N-5, Communication Networks: Technology/Architecture/Protocols (ESE).
EE382V, Advanced Topics in Mobile Networking.

Previously:

9 terms (4 ESE), EE382N-5, Communication Networks: Technology/Architecture/Protocols.
3 terms, EE360P, Operating Systems.
2 terms, EE397K, Advanced Topics in Mobile Networking.
1 term, EE382N, Active and Mobile Networking.
1 term, EE397K, Advanced Topics in Active Networking.

August 1998 – August 1999

The University of Arizona

Spring 1999, CS 425/525, Principles of Computer Networking.
Fall 1998, CS 576, Graduate Introduction to Computer Architecture.

January 1995 – May 1998

University of Pennsylvania

4 terms, CIS 501, Graduate Introduction to Computer Architecture.
1 term, CIS 570, Advanced Programming Language Implementation.
1 term, CSE 385 (Honors), Experimental Computer Science Laboratory.

Fall 1988 – Fall 1994, School of Computer Science

Carnegie Mellon University

Teaching assistant for Analysis of Algorithms and Introduction to Programming Languages.

Fall 1981 – Spring 1984, Department of Chemistry

Stanford University

Teaching assistant for Freshman Chemistry, Physical Chemistry and Advanced Physical Chemistry Laboratory. Head teaching assistant Freshman Chemistry.

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Fall 1980 – Spring 1981, Department of Chemistry Michigan State University
Teaching assistant for Honors Freshman Chemistry.

Fall 1979 – Spring 1980, Lyman Briggs College Michigan State University
Head teaching assistant for Introductory APL and Introductory Fortran.

Funding

Past

“NeTS-ProWiN: Practical Use of Channel Information in Multihop Wireless Networks,” 9/06-8/10, NSF, \$725,802, PI: Scott Nettles, Co-PI: Robert Heath

“Cooperative Communication and Architectures for Cross-Layer Coordination,” 6/06-12/06, The Department of Defense (Air Force), \$118,401, PI: Scott Nettles Co-PI: Christine Julien

“NeTS - ProWiN: Collaborative Research: Exploiting Flexible PHYs in Networks: Prototype and Algorithms,” 9/04-8/06, NSF, \$500,000, PI: Scott Nettles, Co-PIs: Jeffrey Andrews, Sanjay Shakkottai, Robert Heath, Gustavo de Veciana, Co-Collaborator: Kapil Dandekar, Drexel University.

“MIMO Ad Hoc Battlefield Networks in Dense Urban Environments,” 6/04-5/05, National Instruments, \$52,500, PI: Robert Heath, Co-PIs: Scott Nettles, Jeff Andrews, Kapil Dandekar (Drexel University).

“ITR: Collaborative Research: Resource Allocation and Denial of Service Prevention in Active Networks,” 9/00-8/04, NSF (CSE-0081360), \$417,746, PI: Scott M. Nettles, Co-PI: Gustavo de Veciana, Co-Collaborator: Jonathan Smith, The University of Pennsylvania.

“CISE Research Instrumentation,” 3/00-2/03, NSF, \$139,481, with Doug Burger, Steve Keckler, Harrick Vin, Inderjit Dhillon, and Tandy Warnow.

“SCOUT: Scientific Computing Cluster of UT,” 8/00-7/01, IBM Shared University Research Grant, \$430,000, with Doug Burger, Steve Keckler, Harrick Vin, Inderjit Dhillon, and Tandy Warnow.

“Accelerating Network Evolution with a Software Switch for Active Networks,” 8/96-7/00, DARPA, \$3,175,688, PI: J. M. Smith, Co-PIs: D. J. Farber, C. A. Gunter, S. M Nettles, D. C. Feldmeier, and W. D. Sincoskie.

“Undergraduate Education in High Performance Computing,” 7/96-6/98, NSF, \$98,955, PI: V. Tannen, Co-PIs: I. Lee, S. Nettles, E. Simoncelli, I. Winston.

“A Storage Management Test-Bed,” 6/97-5/98, Penn Research Foundation, \$8,000, PI: S. Nettles.

“CAREER: Advancing Experimental Computer Science in Storage Management and Education,” 6/97-5/00, NSF, \$205,000, PI: S. Nettles.

“Intel Technology for Education 2000: ENIAC 2000,” 12/97-12/00, Intel, \$1,900.00, PI: David Farber. Note: Although we choose not to have Co-PIs on this grant, I was one of the primary authors.

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Completed PhD Students

Michael Hicks (“Dynamic Software Updating”, May 2001, University of Pennsylvania. Winner of the 2002 ACM SIGPLAN Doctoral Dissertation Award.) (Currently, Associate Professor, University of Maryland CS, CAREER Award 2004).

Jon Moore (“Practical Programmable Packets”, July 2002, University of Pennsylvania)).

Seong-kyu Song (“Applying Active Network Adaptability to Wireless Networks,” December 2004, The University of Texas at Austin).

Alex Garthwaite (“Making the Trains Run on Time”, December 2004, University of Pennsylvania)).

Minyoung Park (“Designing Medium Access Control Protocols for Multiple-Input Multiple-Output Wireless Networks,” July 2005, The University of Texas at Austin)

Yihong Zhou (“Spatial Usage and Power Control in Multihop Wireless Networks,” December 2006, The University of Texas at Austin)

Soon Hyeok Choi (“A Software Architecture for Cross-Layer Wireless Networks,” May 2008, The University of Texas at Austin)

Wonsoo Kim (“Improving the Performance of Wireless Networks using Frame Aggregation and Rate Adaptation,” December 2010, The University of Texas at Austin)

Ketan Mandke (“Validating Wireless Network Simulations Using Direct Execution,” February 2012, The University of Texas at Austin)

Karen Watkins (“Beam-Enabled Acoustic Link Establishment (BEALE) for Underwater Acoustic Networks, ” April 2013, The University of Texas at Austin)

UT Master’s Students

MS Thesis Completed - Stephen Shannon, Sangyoo Ha, Vijaylaxmi Chakravarty, Anish Jacob, Hari Sankar.

MS Report Completed -

Vivek Kumar, Jay Shah, Manoj Agarwal, Harold Zhu, Divya Madhusudhan, Jaewoo Kim, Chatchawan Dejithirat, Vijay Hampapur, Tatiana Garban, Diane Flemming, Anant Badrayani, Nikolaus Brauer, Omar Cardona, Edward Doan, Elton Faggett, Jermel Kyon Holman, Vijaya Jas, Adriana Lopez Prieto, Sanjay Mishra, Louis Orenstein, Nicholas Orrick, S. V. N. Vavilikolanu, Madeline Vega.

Former Post Doctoral Fellows

University of Pennsylvania - Luke Hornoff.

Completed Plan II Honors Thesis

Matthew Augustine (Also Senior Project).

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