Alison N. Norman

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Education

Ph.D. Computer Sciences, **The University of Texas at Austin**, August 2010
Dissertation Title: "Compiler-Assisted Staggered Checkpointing"
Advisor and Committee Chair: Calvin Lin
Committee: Sung-Eun Choi, Lorenzo Alvisi, Kathryn S. McKinley, Keshav Pingali

M.S. Computer Sciences, **The University of Texas at Austin**, December 2006.

B.S. Computer Science with High Honor, **Georgia Institute of Technology**, May 2000

Teaching Experience

The University of Texas at Austin

Lecturer, CS439: Principles of Computer Systems *Fall 2012-current*
Currently teaching this course to approximately 200 students each term. CS439 material includes: processes, threads, mutual exclusion, synchronization, virtual memory, heap memory management, I/O interfaces, disks, file systems, networks, and then a taste of distributed file systems, distributed computing, and security. I am responsible for the entire course, including the lectures, the labs, and the course staff, which typically consists of 4 other people.

Lab Director, First Bytes Summer Camp for High School Girls *Summer 2012-current*
Developed Project Illuminate and led approximately 60 high school girls through its development for one week each summer. Project Illuminate uses the Arduino board to control strands of color-changing LED lights. The campers' programming experience ranges from none to a few years of high school courses (usually in Java), so all of them must learn the C syntax used by Arduino and some of them must also learn basic programming. At the end of the week, the campers have worked in groups to create light shows that they then present to each other and their parents.

Lecturer, CS372: Introduction to Operating Systems *Spring 2012*
Designed course and taught 154 students about the internals of operating systems including memory management, file systems, processes, threads, scheduling, and synchronization. Managed course staff members.

Lecturer, CS303E: Elements of Computers and Programming *Fall 2011 and Spring 2012*
Taught large sections (125 and 93) of students about the basics of computers and programming using Python. Managed course staff members.

Teaching Assistant, CS307: Foundations of Computer Science *Fall 2001, Fall 2004, Fall 2006, Spring 2007*
Led discussion sections on beginning Java programming, held office hours to assist students, graded homeworks and exams, and substituted for instructor in lecture when necessary.

Teaching Assistant, CS303E Elements of Computers and Programming *Fall 2000, Spring 2001*
Led discussion sections on beginning programming, held office hours to assist students, and graded exams.

Georgia Institute of Technology
Teaching Assistant, CS2430: Control and Concurrency *Spring 1998-Spring 2000*
Led discussion sections on operating system concepts, held office hours to assist students, and graded homeworks and exams.

Research Experience

The University of Texas at Austin
Graduate Research Assistant with Dr. Calvin Lin *Jan 2002-August 2010*
Developed checkpointing techniques for parallel programs executing on supercomputers. Created a scalable algorithm to statically identify safe places for processes to checkpoint during execution without runtime global coordination, implemented an infrastructure to perform the static analysis and place the checkpoints, and designed and developed an efficient simulator to quickly simulate large-scale parallel applications including the effects of network and file system contention.

Los Alamos National Laboratory
Graduate Intern with Dr. Sung-Eun Choi *Summer 2003*
Developed preliminary infrastructure for efficient staggered checkpointing research.

IBM Research, Austin
Graduate Intern *Summer 2002*
Explored compilation techniques for conserving power during application runtime, including conducting a literature survey of existing techniques and experimenting with new techniques.

Graduate Intern *Summer 2001*
Investigated power-aware request distribution for web-servers, and developed a technique for web servers to send requests to back-end nodes in a power-aware manner without performance degradation for the user.

Publications

Refereed Conference Papers

Alison N. Norman and Mary Esther Middleton. "First Bytes and Project Illuminate: Recruiting Girls to Computer Science", Grace Hopper Celebration of Women in Computing, October 2013.

Alison N. Norman and Calvin Lin. "A Scalable Algorithm for Compiler-Placed Staggered Checkpointing", Parallel and Distributed Computing and Systems Conference, December 2011.

James A. Ozment, Alison N. Smith[1], and Wendy Newstetter."Causes for Cheating: Unclear Expectations in the Classroom", American Society for Engineering Education 2000 Annual Conference Proceedings, July 2000.

Refereed Workshop Paper

Alison N. Norman, Sung-Eun Choi and Calvin Lin, "Compiler-Generated Staggered Checkpointing", 7th ACM Workshop on Languages, Compilers, and Runtime Support for Scalable Systems, pages 1-8, October 2004.

[1] My maiden name

Refereed Poster

Alison N. Norman, Sung-Eun Choi, and Calvin Lin, "Compiler-Assisted Efficient Checkpointing", Poster Presentation at Grace Hopper Celebration of Women in Computing, Chicago, Illinois, 2004.

Invited Talks

Students, Students, and More Students: Gracefully Handling Increasing Class Sizes, Birds of a Feather at Grace Hopper Celebration of Women in Computing, Houston, Texas, October 2015.

Towards Scalable Checkpointing in Supercomputing Applications, Swarthmore College Computer Science Department, Swarthmore, Pennsylvania, February 2011.

Towards Scalable Checkpointing for Supercomputing Applications, MIT Lincoln Laboratory, Lexington, Massachusetts, December 2010.

Towards Scalable Checkpointing for High Performance Computing Applications, University of Georgia Computer Science Department, Athens, Georgia, October 2010.

Compiler-Assisted Checkpointing for MPI Programs, Sandia National Laboratory, Livermore, California, April 2003.

Undergraduate Research Papers

Eric Aschner and Alison N. Norman, "The Effects of Dynamic Delays of Staggered Checkpoints", Undergraduate Research Paper, CS370 at UT Austin, Fall 2013.

Alexis Emperador and Alison N. Norman, "Analyzing ChromeOS's Boot Performance", Undergraduate Research Paper, CS370 at UT Austin, Spring 2013.

Alexis Emperador and Alison N. Norman, "Analyzing ChromeOS's Boot Performance", Poster, College of Natural Sciences Undergraduate Research Forum at UT Austin, Spring 2013.

Miguel Diaz and Alison N. Norman, "Comparison of Techniques within Android and OpenGL ES 2.0", Undergraduate Research Paper, CS370 at UT Austin, Summer 2012.

Service

Faculty Advisor, Women in Computer Science (WiCS), Department of Computer Science, The University of Texas at Austin, 2013-2015. Consult with the leadership of WiCS on an ongoing and as-needed basis about programming and outreach opportunities.

Member, Grace Hopper Celebration of Women in Computing Faculty Track Committee, 2015. Member of the committee that reviewed submissions to the Grace Hopper Faculty Track, including panels, talks, and Birds of a Feather, and designed from those submissions a selection of events that will appeal to female CS faculty from diverse backgrounds and environments.

Member, Undergraduate Curriculum Committee, Department of Computer Science, The University of Texas at Austin, 2014-2016. Member of a committee that evaluates and recommends for adoption (or otherwise) curriculum changes for the UT Computer Science undergraduate curriculum.

Reviewer, NCWIT Collegiate Award Applications, 2015.

Reviewer, Grace Hopper Celebration Scholarship Applications, 2015.

ExploreUT Exhibit Chair (2013-2015) Designed and presented a hands-on computing exhibit to the general public. The exhibit included demonstrations of programming projects and allowing the visitors to program flashing

lights.

Presenter, Breakfast Bytes workshop for middle and high school students, Department of Computer Science, The University of Texas at Austin, November 23, 2013.

Member, Faculty Evaluation Committee, Department of Computer Science, The University of Texas at Austin, Fall 2013

Judge, The University of Texas at Austin College of Natural Sciences Undergraduate Research Forum (April 2013)

Elements Committee Member (Fall 2012)
Member of a committee that evaluated the department's current offerings to non-majors and adjusted the curriculum as necessary to better reflect the changing environment of computing.

Session Chair, Parallel and Distributed Computing and Systems Conference (December 2011)

Graduate Women in Computing, co-founder, board member (2007-2008)
Founded and led an organization to provide encouragement and support to graduate women in computing. One of the goals of this organization is to bring together women seeking graduate degrees in computing regardless of their official department within the university.

Computer Science Roadshow (2007-2008)
Member of a team that travels to middle and high schools giving presentations that introduce computer science.

Women in Natural Sciences Mentoring Program (2005-2008)
Mentored an undergraduate female computer science student from her freshman year to her graduation.

GradFest Organizing Committee (2002-2003)
Student member of the graduate student recruiting weekend organizing committee for The University of Texas at Austin Department of Computer Science.

Graduate Representative Association in Computer Science (2002)
Revitalized committee by recruiting nominees, holding elections, and recruiting departmental support.

EXITE Camp Counselor (2000-2002)
Acted as a counselor at a day camp on an IBM campus that introduced technology and engineering to middle school girls.

Professional Activities

Participant, Grace Hopper Celebration of Women in Computing, 2013.

Participant, 43rd ACM Technical Symposium on Computer Science Education, March 2012.

Reviewer, *Distributed and Cloud Computing* by Kai Hwang, Geoffrey Fox, and Jack Dongarra, May 2011.

Participant, 42nd ACM Technical Symposium on Computer Science Education, March 2011.

Selected Participant, CRA-W Workshop, Managing the Academic Career for Women Faculty in Undergraduate Computing Programs, March 2011.

Participant, Grace Hopper Celebration of Women in Computing, October, 2010.

Awards and Honors

Grace Hopper Celebration of Women in Computer, scholarship recipient, October 2013.

National Science Foundation Graduate Research Fellowship Honorable Mention, 2002

National Defense Science and Engineering Graduate Fellowship Honorable Mention, 2001

The University of Texas at Austin Department of Computer Sciences Teaching Assistant Service Commendation,

2000

Upsilon Phi Epsilon, International Honor Society for Computing and Information Disciplines, inducted 2001

Georgia Institute of Technology President's Scholar, 1996-2000