Michael P. Robson

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Education

Doctoral Candidate in Computer Science
The University of Illinois at Urbana-Champaign
Thesis: Runtime Mapping of Migratable Tasks to Heterogeneous Hardware
Advisor: Laxmikant V. Kalé
Expected Summer 2019

Bachelor of Science in Computer Science and Mathematics, *summa cum laude*
The University of Alabama
Minor: Computer-Based Honors
May 2012

Teaching Assistantships

Parallel Programming MOOC   Spring 2018
Redeveloped CS 484 Parallel Programming course for online deployment utilizing backwards design. Developed course learning objectives. Redesigned previous lectures for video format. Wrote new lectures on accelerators and manycore architectures. Planned and implemented online assessments. Deployed cloud-based testing environment.

CS 484 Parallel Programming   Spring 2017, Fall 2017
Developed course and lecture learning objectives. Revised and taught lectures on selected topics. Assigned relevant papers as required readings. Created assessments including programming assignments, homeworks, and exams.

CS 598 Parallel Programming with Migratable Objects   Fall 2014, Fall 2016
Prepared slides for classroom presentation and discussion. Wrote and graded programming assignments. Attended and graded final project presentations.

CS 233 Computer Architecture   Fall 2012, Spring 2013, Spring 2015
Led weekly classroom discussions on introductory architecture topics including combinational logic, assembly language, and caching. Created and graded weekly laboratory assignments. Graded several exams.

Mentoring

CS@Illinois PhD Mentor	Fall 2013 - Present
CS@Illinois Graduate Ambassador	Spring 2013 - Present

Graduate Students
- Dong Hun Lee   Fall 2017 - Present
- Jaemin Choi - ACM SRC Poster (SC 2017)   Fall 2016 - Present
- Nitin Bhat   Fall 2015 - Spring 2017
- Harshit Dokania   Summer 2014 - Fall 2016

Research Experience

Parallel Programming Laboratory   August 2012 - Present
Developed a framework for scheduling and load balancing heterogeneous tasks in Charm++. Improved parallel communication of a climate simulation program. Generated dynamic k-shortest paths from stochastic simulation of flight itineraries. Administered lab servers, managed accounts for students, postdocs, and staff, maintained lab website.

Lawrence Livermore National Laboratory   Summer 2013
Composed a MPI profiler for measuring communication contention in HPC applications. Reduced application contention through toplogy-aware mapping suggestions.

Computer Science Undergraduate Thesis   Fall 2011
Surveyed algorithm animation tools to determine distinguishing characteristics and
the presence of any open problems, with the long term goal of utilizing a tool in the
undergraduate curriculum.

Undergraduate Research
- Computer-Based Honors Program Research Project   August 2009 - May 2012
- NSF REU at the University of Illinois Urbana-Champaign   Summer 2011
- NSF REU at the University of New Orleans   Summer 2010

Publications   Halie M. Rando, Marta Farré, **Michael P. Robson**, Naomi B. Won, Jennifer L.
Johnson, Ronak Buch, Estelle R. Bastounes, Xueyan Xiang, Shaohong Feng, Shiping
Liu, Zijun Xiong, Jaebum Kim, Guojie Zhang, Lyudmila N. Trut, Denis M. Larkin,
Anna V. Kukekova. "Construction of Red Fox Chromosomal Fragments from the
Short-Read Genome Assembly." *Genes (Vol. 9, No. 6).* June 2018.

Michael P. Robson, Ronak Buch, Laxmikant V. Kale. "Runtime Coordinated Het-
erogeneous Tasks in Charm++." *International Workshop on Extreme Scale Program-
ming Models and Middleware.* Salt Lake City, UT, November 2016.

Bilge Acun, Abhishek Gupta, Nikhil Jain, Akhil Langer, Harshitha Menon, Eric Mikida,
Xiang Ni, **Michael Robson**, Yanhua Sun, Ehsan Totoni, Lukasz Wesolowski, Laxmikant
Kale. "Parallel Programming with Migratable Objects: Charm++ in Practice." *Inter-
national Conference for High Performance Computing, Networking, Storage and Anal-
ysis.* New Orleans, LA, November 2014.

Phil Miller, **Michael Robson**, Bassil El-Masri, Rahul Barman, Gengbin Zheng, Atul
Jain, Laxmikant Kale. "Scaling the ISAM Land Surface Model Through Parallelization
of Inter-Component Data Transfer." *International Conference on Parallel Processing.*
Minneapolis, MN, September 2014.

Nikhil Jain, Abhinav Bhatele, **Michael P. Robson**, Todd Gamblin, Laxmikant V.
Kale. "Predicting application performance using supervised learning on communication
features." *International Conference for High Performance Computing, Networking,
Storage and Analysis.* Denver, CO, November 2013.

Felecia G. Wood, **Michael P. Robson**, Mallory K. Thompson, Rebecca L. Johnson.
"Selecting the Best Type of Mobile Application for Chronic Disease Self-Management."
Computers, Informatics, Nursing (Vol. 31, No. 5). May 2013.

Oral   "Developing Heterogeneous Codes using Charm++." *OLCF Users Meeting.* Knoxville,
Presentations   TN, May 2017. **Invited.**

"Heterogeneous Computing in Charm++." *15th Annual Workshop on Charm++ and
Its Applications.* Urbana, IL, April 2017.

"Runtime Coordinated Heterogeneous Tasks in Charm++." *International Conference
for High Performance Computing, Networking, Storage and Analysis.* Salt Lake City,
UT, November 2016.

"Heterogeneous Task Frameworks in Charm++." *14th Annual Workshop on Charm++
and Its Applications.* Urbana, IL, April 2016

"Scaling the ISAM Land Surface Model Through Parallelization of Inter-Component Data Transfer." *International Conference on Parallel Processing.* Minneapolis, MN, September 2014.

"Development and Testing of a Native Application to Promote Diabetes Self-Management in Individuals with Low Health Literacy." *Alabama Local Networking Group of the American Association of Diabetes Educators.* Birmingham, AL, January 2012. **Invited.**

"Creating and Piloting an iOS App for Diabetes Self-Management: From Coding to Clinical Practice." *University of Alabama's Undergraduate Research Conference.* Tuscaloosa, AL, April 2012. **2nd Place in the Capstone College of Nursing.**

"Managing Type Two Diabetes with iPod Touch Technology." *University of Alabama's Undergraduate Research Conference.* Tuscaloosa, AL, April 2010. **1st Place in the Capstone College of Nursing.**

Tutorials	**Michael Robson**, Jaemin Choi. "Migratable Objects and Task-Based Parallel Programming with Charm++." *16th Annual Workshop on Charm++ and Its Applications.* Urbana, IL, April 2018.

Laxmikant Kalé, **Michael Robson**. "Charm++: Extreme Scaling with Automatic Load Balancing, Resilience, and More." *Exascale Computing Project Annual Meeting.* Knoxville, TN, February 2018.

Laxmikant Kalé, **Michael Robson**, Ronak Buch, Jaemin Choi. "Migratable Objects and Task-Based Parallel Programming with Charm++." *International Conference for High Performance Computing, Networking, Storage and Analysis.* Denver, CO, November 2017.

Laxmikant Kalé, **Michael Robson**. "Basic Charm++." *15th Annual Workshop on Charm++ and Its Applications.* Urbana, IL, April 2017.

Laxmikant Kalé, **Michael Robson**. "Charm++ Motivations and Basic Ideas." *Argonne Training Program on Extreme-Scale Computing.* St. Charles, IL, August 2016.

Jonathan Lifflander, Eric Mikida, **Michael Robson**. "Charm++ Hands-On." *13th Annual Charm++ Workshop.* Urbana, IL, April 2015.

Nikhil Jain, Laxmikant Kalé, **Michael Robson**. "Parallel Programming with Charm++." *International Conference for High Performance Computing, Networking, Storage and Analysis.* New Orleans, LA, November 2014.

Poster Presentations	**Michael P. Robson**, Abhinav Bhatele, Todd Gamblin, Martin Schulz, Laxmikant V. Kale. "Profiling Applications for Intelligent Communication Analysis." *LLNL Student Poster Session.* Livermore, CA, August 2013.

Michael Robson, Felecia Wood. "Creating an iPhone App for Diabetes Self-Management." *University of Alabama's Undergraduate Research Conference.* Tuscaloosa, AL, April 2011

Honors and Awards	2017	***Mavis Future Faculty Fellow***
		• Competitive engineering program developed to train future professors
	2017	***Graduate Student Outstanding Ambassador***
	2017	***Best GPU Presentation at 15th Annual Charm++ Workshop***
	2012, 2013	***Outstanding Teaching Assistant***
		• Top 10% on List of Teachers Ranked As Excellent by Their Students

Service

Graduate Academy for College Teaching
- CS Concurrent Session Instructor   Spring 2016 - Present
- Small Group Leader   Fall 2014 - Present
- Microteaching Session Facilitator   Fall 2014, Fall 2015, Fall 2017

Panelist on Graduate School Basics / Is Graduate School Right for Me?   Fall 2017
Interviewer for Graduate Advisor for MCS-Data Science Program   Summer 2017
Interviewer for Graduate Academic Advisor for CS Department   Summer 2017
Computer Science Graduate Student Admissions Committee   Fall 2015
General Chair, 14th Annual Charm++ Workshop   Spring 2016
Program Chair, 13th Annual Charm++ Workshop   Spring 2015
Publicity Chair, 11th Annual Charm++ Workshop   Spring 2013
Volunteer, LEGO Robotics
- Champaign, IL   Fall 2014, Spring 2015
- Tuscaloosa, AL   Fall 2011, Spring 2012

Leadership

CS Graduate Student Organization   August 2012 - Present
- President   May 2015 - May 2017

University of Alabama ACM Chapter   January 2010 - May 2012
- Vice President   May 2011 - January 2012
- Secretary   September 2010 - May 2011

University Wide Academic Honor Council   April 2009 - April 2012
- Chair of Academic Misconduct Case Policy Committee   April 2011 - April 2012
- Secretary   February 2010 - April 2011

College of Engineering Academic Honor Council   April 2009 - April 2012
- Chief Justice   April 2010 - April 2011
- Chief Justice Elect   May 2009 - April 2010

Scholarships

Mavis Future Facutly Fellowship
Presidential National Merit Finalist Scholarship Award Recipient
Computer Based Honors Fellowship Award Recipient
Engineering Leadership Scholarship Award Recipient

Organizations

Institute of Electrical and Electronics Engineers
Association for Computing Machinery
Mortar Board Senior Honor Society
Upsilon Pi Epsilon
SIG HPC
SIG CSE

References

Laxmikant V. Kalé, Paul and Cynthia Saylor Professor of Computer Science
College of Engineering University of Illinois at Urbana-Champaign
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Craig Zilles, Associate Professor of Computer Science
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