Robert S. Utterback

CONTACT INFORMATION

Washington University in St. Louis
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EDUCATION

2017 Washington University in St. Louis — PhD in Computer Science
GPA: 3.95
Dissertation Title
Easier Parallel Programming with Provably-Efficient Runtime Schedulers
Advisors
Kunal Agrawal, Angelina Lee

2012 Truman State University — BS in Mathematics, BS in Computer Science
GPA: 4.0

TEACHING EXPERIENCE

Spring 2017 (Upcoming) *Analysis of Algorithms*
Instructor

Fall 2016 *Parallel Algorithms*
Guest Lecturer

Fall 2014 *Parallel Algorithms*
Teaching Assistant
[Received 6.0/7.0 overall rating from students]

Spring 2013 *Parallel Algorithms*
Teaching Assistant – weekly recitation
[Received 6.3/7.0 overall rating from students]

2013 — 2016 Teaching Center pedagogical workshops:
Designing Inclusive STEM Materials (2016)
Structuring Opportunities for Active Learning During Lectures (2016)
Mentoring Undergraduate Research (2016)
Teaching in Review Sessions and Office Hours (2013)
Designing and Facilitating Group Work (2013)

RESEARCH INTERESTS

Parallel Computing, Algorithms and Data Structures, Parallel Scheduling, Dynamic Multithreading, Computational Complexity

PUBLICATIONS

Robert Utterback, Kunal Agrawal, I-Ting Angelina Lee, Milind Kulkarni. "Processor-Oblivious Record and Replay". In the *Proceedings of the Symposium on Principles and Practices of Parallel Programming (PPoPP)* 2017 (to appear).

Robert Utterback, Kunal Agrawal, Jeremy Fineman, I-Ting Angelina Lee. "Provably Good and Practically Efficient Parallel Race Detection for Fork-Join Programs". In the *Proceedings of the Symposium on Parallelism in Algorithms and Architectures (SPAA)* 2016.

Kunal Agrawal, Jeremy Fineman, Kefu Lu, Brendan Sheridan, Jim Sukha, Robert Utterback. "Provably Good Scheduling for Parallel Programs that Use Data Structures through Implicit Batching". In the *Proceedings of the Symposium on Parallelism in Algorithms and Architectures (SPAA)* 2014.

TECHNICAL TALKS

2016	"Provably good and practically efficient parallel race detection" Symposium on Parallelism in Algorithms and Architectures (SPAA)
2016	"Parallel Divide and Conquer Algorithms" Lecture for Parallel Algorithms
2016	"Luby's Algorithm for Maximal Independent Set" Lecture for Parallel Algorithms
2015	"Detecting Race Conditions in Parallel" Doctoral Student Seminar
2014	"Detecting Race Conditions in Parallel" Doctoral Student Seminar
2013	"Implicitly Batching Parallel Data Structure Operations" Doctoral Student Seminar

RESEARCH EXPERIENCE

2012 — 2017 Research assistant
Washington University in St. Louis
Parallel Computing Technologies Group
St. Louis, MO
Advisors: Kunal Agrawal and Angelina Lee

Projects: Designed and developed several runtime systems to ease parallel programming.
Batcher is a runtime scheduler that allows programmers to write batched data structures but use them as traditional concurrent data structures by implicitly grouping data structure operations and scheduling them efficiently.
CRacer is a runtime system and instrumentation tool to detect determinacy races in Cilk Plus programs. It is asymptotically

optimal and efficient in practice.
PORRidge is a record and replay system designed to handle critical sections in fork-join programs. It is processor-oblivious, i.e. recording may use more or less cores than replay, and is nearly asymptotically optimal for both recording and replaying.

2015 Research Intern
Huawei
Santa Clara, CA
Researched techniques for applying the actor programming model
Built a C pre-processor to handle actor model syntax and applied to a distributed computing framework

AWARDS AND HONORS

2012 Outstanding Senior in Computer Science
Truman State University, Department of Math and Computer Science

2012 Departmental Honors
Truman State University, Department of Math and Computer Science

2008 Truman Leadership Scholarship

PROFESSIONAL SERVICES

2016 Artifact Evaluation Committee
Symposium on Principles and Practices of Parallel Programming 2017 (PPoPP)

2016 (Sub)Reviewer
Symposium on Principles and Practices of Parallel Programming 2017 (PPoPP)

2013 (Sub)Reviewer
Supercomputing Conference (SC)

GENERAL EXPERIENCE

Programming Languages (in alphabetical order)
Bash, C/C++, Java, LaTeX, Make, Python, R

Software technologies and systems
Compilers (GCC, LLVM, flex, bison), Linux, Cilk Plus runtime

NONACADEMIC WORK

2011 Software Engineering Intern
Cerner Corporation
Developed unit testing and continuopus integration framework

PROFESSIONAL MEMBERSHIPS OR AFFILIATIONS

ACM
Member

REFERENCES

Kunal Agrawal
Department of Computer Science and Engineering
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