

Joseph Tassarotti

✉ jtassaro@cs.cmu.edu • 🌐 www.cs.cmu.edu/~jtassaro/

Education

Carnegie Mellon University

Ph.D. in Computer Science

2013 – 2018

Advisor: Robert Harper

(Dissertation approved: Jan. 2019)

Harvard College

A.B. in Computer Science, Summa Cum Laude

2009 – 2013

Research Experience

Massachusetts Institute of Technology

Postdoctoral Associate

Jan. 2019 –

Verifying crash-safety of concurrent storage systems. (Unofficial start in Oct. 2018).

Advisor: M. Frans Kaashoek

Max Planck Institute for Software Systems

Intern

Summer 2014

Proved correctness of read-copy-update algorithm.

Advisors: Derek Dreyer and Viktor Vafeiadis

Oracle Labs

Intern

Summer 2013

Helped develop compiler for a new probabilistic programming language.

Advisors: Jean-Baptiste Tristan and Guy Steele

INRIA Paris-Rocquencourt

Intern

Summer 2012

Worked on optimizations in CompCert, a verified C compiler.

Advisor: Xavier Leroy

Harvard University

Research Assistant

2010 – 2012

Helped formalize semantics of x86 processor in the *Coq* proof assistant.

Advisor: Greg Morrisett

Teaching Experience

Carnegie Mellon University

Course Assistant

2014 – 2015

Led recitations, graded and designed problem sets.

Courses: Constructive Logic, Foundations of Programming Languages

Instructor: Karl Cray

Harvard University

Course Assistant

Fall 2011

Led recitations, graded and designed problem sets.
Course: Introduction to the Theory of Computation
Instructor: Harry R. Lewis

Publications

Argosy: Verifying Layered Storage Systems with Recovery Refinement.

Tej Chajed, Joseph Tassarotti, M. Frans Kaashoek, and Nickolai Zeldovich.
In *Programming Language Design and Implementation (PLDI)*, 2019 (to appear).

Scaling Hierarchical Coreference with Homomorphic Compression.

Michael L. Wick, Swetasudha Panda, Joseph Tassarotti, and Jean-Baptiste Tristan.
In *Conference on Automated Knowledge Base Construction (AKBC)*, 2019 (to appear).

Sketching for Latent Dirichlet-Categorical Models.

Joseph Tassarotti, Jean-Baptiste Tristan, and Michael Wick.
In *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2019 (to appear).

A Separation Logic for Concurrent Randomized Programs.

Joseph Tassarotti and Robert Harper.
In *Principles of Programming Languages (POPL)*, 2019.

MoSeL: A General, Extensible Modal Framework for Interactive Proofs in Separation Logic.

Robbert Krebbers, Jacques-Henri Jourdan, Ralf Jung, Joseph Tassarotti, Jan-Oliver Kaiser, Amin Timany, Arthur Charguéraud, and Derek Dreyer.
In *International Conference on Functional Programming (ICFP)*, 2018.

Verified Tail Bounds for Randomized Programs.

Joseph Tassarotti and Robert Harper.
In *International Conference on Interactive Theorem Proving (ITP)*, 2018.

A Higher-Order Logic for Concurrent Termination-Preserving Refinement.

Joseph Tassarotti, Ralf Jung, and Robert Harper.
In *European Symposium on Programming (ESOP)*, 2017.

Efficient Training of LDA on a GPU by Mean-for-Mode Estimation.

Jean-Baptiste Tristan, Joseph Tassarotti, and Guy L. Steele Jr.
In *International Conference on Machine Learning (ICML)*, 2015.

Verifying Read-Copy-Update in a Logic for Weak Memory.

Joseph Tassarotti, Derek Dreyer, and Viktor Vafeiadis.
In *Programming Language Design and Implementation (PLDI)*, 2015.

Augur: Data-Parallel Probabilistic Modeling.

Jean-Baptiste Tristan, Daniel Huang, Joseph Tassarotti, Adam Craig Pockock, Stephen J. Green, and Guy L. Steele Jr.
In *Neural Information Processing Systems (NIPS)*, 2014.

RockSalt: better, faster, stronger SFI for the x86.

Greg Morrisett, Gang Tan, Joseph Tassarotti, Jean-Baptiste Tristan, and Edward Gan.

In *Programming Language Design and Implementation (PLDI)*, 2012.

Honors and Awards

- Robert C. Byrd Honors Scholarship, 2009
- Detur Book Prize, 2010
- Harvard College Program for Research in Science and Engineering Fellow, 2011
- Herchel Smith-Harvard Undergraduate Science Research Program Fellow, 2012
- Member of Phi Beta Kappa, Alpha-Iota Chapter, 2013
- NSF Graduate Research Fellowship Program Honorable Mention, 2013 and 2014
- Achievement Rewards for College Scientists Foundation (ARCS) Scholar, 2013-2016
- National Defense Science and Engineering Graduate (NDSEG) Fellow, 2014-2017
- Invited to Dagstuhl Seminar on *Compositional Verification Methods for Next-Generation Concurrency*, 2015
- Carnegie Mellon University Presidential Fellowship, 2018

Academic Service

- External reviews for Foundations of Software Science and Computation Structures (FoSSaCS), Logic in Computer Science (LICS), Interactive Theorem Proving (ITP), Principles of Programming Languages (POPL), Theoretical Computer Science.
- CMU CS Department Doctoral Review Committee Member, 2015-2017
 - Committee monitors courses and requirements of the Ph.D. program, and discusses problems faced by the student body.
- CMU CS Department Speaker's Club Evaluator, 2015-2017
 - Rated and provided feedback on talks given by Ph.D. students.
- CMU CS Department Open House Student Co-Organizer, 2015
 - Helped organize events to recruit prospective Ph.D. students.

Patents

Sparse and data-parallel inference method and system for the latent Dirichlet allocation model.
Jean-Baptiste Tristan, Guy L. Steele Jr., and Joseph Tassarotti.
Number 9767416, 2017.