Aaron Weiss

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Research Interests

Type systems; program analysis and verification; compilers and compiler verification; security; program synthesis; programming language design and implementation

Education

Northeastern University, *Boston, MA.* 2017 – Present
Doctor of Philosophy in Computer Science
Advisor: *Amal Ahmed*

University of Massachusetts, *Amherst, MA.* 2014 – 2017
Bachelor of Science in Computer Science, *Summa Cum Laude*

Refereed Publications

Rust Distilled: An Expressive Tower of Languages ML 2018
Aaron Weiss, Daniel Patterson, Amal Ahmed
In *ML Family Workshop*, St. Louis, MO, September 2018.

Tortoise: Interactive System Configuration Repair ASE 2017
Aaron Weiss, Arjun Guha, Yuriy Brun
In *IEEE/ACM International Conference on Automated Software Engineering*, Urbana, IL, October 2017.

Rehearsal: A Configuration Verification Tool for Puppet PLDI 2016
Rian Shambaugh, Aaron Weiss, Arjun Guha
In *ACM SIGPLAN Conference on Programming Language Design and Implementation*, Santa Barbara, CA, June 2016.

Work Experience

Visiting Researcher, *Inria.* 2017 – 2018
Host: *Cătălin Hriţcu*

Undergraduate Course Assistant, *University of Massachusetts.* 2016 – 2017
CMPSCI 220 *Programming Methodology*
Spring 2016, Fall 2016, Spring 2017

Research Assistant, *University of Massachusetts.* 2015 – 2017
Advisor: *Arjun Guha*

Developed novel techniques in static analysis and program synthesis for system configuration languages. Built open source tools that identify and repair bugs in real world Puppet manifests.

Software Developer, *ProtoIPO, Inc.* 2014 – 2015
Designed user interfaces and experiences for platform and clients. Wrote middleware modules for portal software in C#. Developed systems to allow users to control page and module layout.

Skills

Rust • Scala • OCaml • Java • C • Haskell • JavaScript • HTML • CSS • PHP
Bootstrap • Git • Linux • macOS • PostgreSQL • LaTeX • Puppet • SMTLIB2

Volunteer Experience

Hiring Committee Member, *Northeastern University* — 2018 – 2019

Student Volunteer, *SPLASH.* — 2018

Problem Writer, *sCTF.* — 2015 – 2017
Developed problems for an international computer science competition reaching over 3,000 participants.

Co-Founder, *HSCTF.* — 2014
Founded the first ever computer science capture-the-flag competition run by high schoolers and reached over 2,700 participants.

Presentations

Oxide: The Essence of Rust, *POPL SRC .* — January 2019
Presented an updated high-level, conceptually-focused view of $Oxide_0$, a formally-defined language aiming to capture the semantics of ownership and borrowing in Rust.

Rust Distilled: An Expressive Tower of Languages, *ML.* — September 2018
Presented a high-level, conceptually-focused view of *Oxide*, a family of formally-defined languages aiming to capture the semantics of ownership and borrowing in Rust.

Tortoise: Interactive System Configuration Repair, *ASE.* — October 2017
Presented *Tortoise* and *imperative configuration repair* as a technique for live programming with Puppet and the shell at an academic conference on automated software engineering.

Automated System Configuration Repair, *NEPLS.* — June 2017
Presented and motivated a novel approach to program editing called *imperative configuration repair* and a corresponding prototype implementation for Puppet named *Tortoise*.

Awards

POPL '19 Student Research Competition, First Place	2019
CMMRS '17 Travel Award	2017
RSSL '17 Travel Award	2017
OPLSS '17 Travel Award	2017
PLISS '17 Travel Award	2017
Outstanding Undergraduate Course Assistant	2017
NSF Graduate Research Fellowship	2017 – 2022
Northeastern University Fellowship	2017 – 2018
PLDI '16 Distinguished Artifact Award	2016
PLMW at ICFP 2015 Travel Scholarship	2015
University of Massachusetts Chancellor's Scholarship	2014 – 2017