EMILY FIRST
efirst@cs.umass.edu

EDUCATION

University of Massachusetts, Amherst, MA — September 2017-Present
MS (May 2020) / *PhD* (expected May 2023), *Computer Science*
Advisor: Yuriy Brun
- GPA 3.97

Harvey Mudd College, Claremont, CA — May 2017
B.S., Joint Major in Computer Science and Mathematics
Humanities Concentration in Economics
- GPA 3.5
- Graduated with Distinction

RESEARCH PUBLICATIONS

Alex Sanchez-Stern*, **Emily First***, Timothy Zhou, Zhanna Kaufman, Yuriy Brun, Talia Ringer.
Passport: Improving Automated Formal Verification Using Identifiers (*Co-first authors)
To appear in TOPLAS 2023
Preprint on ArXiv

Arpan Agrawal, **Emily First**, Zhanna Kaufman, Tom Reichel, Shizhuo Zhang, Timothy Zhou, Alex Sanchez-Stern, Talia Ringer, Yuriy Brun.
Proofster: Automated Formal Verification
To appear in ICSE 2023 (Demo Track)

Emily First, Yuriy Brun.
Diversity-Driven Automated Formal Verification
ICSE 2022
ACM SIGSOFT Distinguished Paper Award

Emily First, Yuriy Brun, Arjun Guha.
TacTok: Semantics-Aware Proof Synthesis
OOPSLA 2020

PUBLICATION DRAFTS

Emily First, Markus N. Rabe, Talia Ringer, Yuriy Brun.
Baldur: Whole-Proof Generation and Repair with Large Language Models
Under submission.
Preprint on ArXiv

HONORS & AWARDS

- ACM SIGSOFT Distinguished Paper Award — May 2022
- Jim Gray Computer Science First Year Faculty Fellowship — September 2017
- Wing and Ellen Tam Software Development Award — May 2016

COMMITTEE SERVICE

Coq Workshop PC Member 2022

UMASS CICS DEPARTMENTAL SERVICE

PhD Grad Rep Spring 2022-Fall 2022
Grad CSWomen PhD Co-Chair & Social Events Coordinator 2019-2023
Tea Totaller Fall 2017-Fall 2019

WORK EXPERIENCE

Research Assistant, UMass CICS, Amherst, MA September 2017-Present

- My research is focused on automatic synthesis of Coq proof scripts and tool creation for developers using language models.

Teaching Assistant, UMass CICS, Amherst, MA Fall 2021

- I was a TA for COMPSCI 220 Programming Methodologies, a sophomore-level course in JavaScript.

Student Researcher, Google, Mountain View, CA May 2022-October 2022

- I worked with the N2Formal team on proof synthesis and repair in Isabelle using LLMs.

Research Intern, Raytheon, Woburn, MA May 2019-March 2020

- I worked on multiple NLP projects. The main project was predicting the quality of radar runs using error logs. I also worked on using NLP to predict fixes for bug reports.

Consultant Intern, West Monroe Partners, Chicago, IL Summer 2016

- I developed features for two iOS apps, debugged legacy code, and performed QA.

Undergraduate Research Assistant, Harvard University, Cambridge, MA Summer 2015

- I worked on research on creating a multithreaded translation layer for SMR Drives, which are different from regular hard drives in that they have overlapping tracks, allowing for more data storage but slower write speeds