ERIC BOND

bond15@purdue.edu 317-667-7195 ericbond1/ bond15

EDUCATION

Purdue University Aug. 2018 - Aug. 2019
M.S. Computer Science
Incomplete as of 8-19

Purdue University Aug. 2013 - Dec. 2017
B.S. Computer Science

EMPLOYMENT

Galois
Research Software Engineer Intern Portland, OR, May 2019 - Aug. 2019

- Contributed to projects aimed at delivering provably secure software via formal methods.
- Designed and implemented an automata-based API usage checker for the Crucible symbolic simulator.
- Technologies: Haskell, LLVM, Crucible.

Lawrence Livermore National Lab
Graduate Research Intern Livermore, CA, May 2018 - Aug. 2018

- Member of the 2018 Data Science Summer Institute.
- Participated in a quantum computing working group.
- Built a pipeline to generate simulation data for quantum chemical systems using VASP.
- Prototyped an extension of TopoMS, a tool for topological data analysis of molecular systems, which allowed for the analysis of potential fields.
- Technologies: C++, Python, Keras, TopoMS, VASP, MPI

Amazon
Software Development Engineer Intern Cambridge, MA, May 2017 - Aug. 2017

- Delivered a data access and visualization tool for data scientists and engineers to view critical data for machine learning applications/training.
- Technologies: Java, Javascript, AWS (S3, DynamoDB, Lambda), Mockito

Amazon
Software Development Engineer Intern Seattle, WA, June 2016 - Aug. 2016

- Extended the FBA seller central web application with a widget for aggregating and displaying shipping details.
- Technologies: Java, Javascript, Spring Framework, Mockito

RESEARCH & TEACHING

Coqedille
Masters Thesis Project Nov. 2018 - Current

- Interactive proof assistants represent inductive data and induction principals differently depending on the underlying type theory. The most well-known proof assistant, Coq, utilizes a complicated implementation of an intrinsic calculus of inductive constructions. Cedille is a proof assistant based on a pure extrinsic type theory with a notably small core implementation in which induction principles are generically derivable for data and computation represented as lambda encoded F-algebras.
- We are investigating transformations of proof developments between these two proof assistants to study trustworthiness of formal verifications in either type theory.
- Collaborators/Advisers: Prof. Aaron Stump (Iowa), Prof. Benjamin Delaware (Purdue)

Graduate Teaching Assistant
CS 252 - Systems Programming Jan. 2019 - May 2019

- Taught students entry-level systems programming in C/C++ through labs on creating a web server, memory allocator, and shell.
- Organized, presented, and graded labs as well as aided in exam creation.

Kais Quantum Information and Computation Theory Group
Undergraduate Researcher Aug. 2017 - Oct. 2018

- Investigated mathematical formalizations for quantum programming languages for the quantum gate/circuit model.
- Surveyed various existing languages and frameworks such as Quantomatic, Quipper, QASM, QWire, Qiskit and Q#.

NSF REU
Undergraduate Researcher Jan. 2017 - June 2017

- Researched and implemented methods for task-based self-adaptation reasoning using an RDF ontology (Apache Jena) and semantic networks.
- Publication: A Software Architecture Supporting Self-Adaptation of Wireless Control Networks, IEEE CASE 2017