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| Eric Bond  108 Rush Court, Fishers IN · 317-667-7195  Bond15@purdue.edu · linkedin.com/in/ericbond1 |
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# Education

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| 2018 - 2020M.S. Computer Science, Purdue |
| 2013 - 2017B.S. Computer Science, Purdue |

# Work Experience

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| May 2019 – August 2019Graduate Research intern, Galois  * Worked on various projects related to formal verification of software. * Aided in the initial design and development of an automata-based API usage checker for the Crucible symbolic simulator. * Technologies: Haskell, Crucible. |
| May 2018 – August 2019Graduate Research Intern, Lawrence LIvermore National Lab  * Member of the 2018 Data Science Summer Institute. * Aided in the generation of 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  May 2017 – August 2017Software Development Engineer intern, Amazon (Alexa ML platform)  * Designed and implemented 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  June 2016 – August 2016Software Development Engineer intern, Amazon (FBA, Seller Central)  * Extended an FBA seller central web applications with a widget for aggregating and displaying shipping details. * Technologies: Java, Javascript, Spring Framework, Mockito |

# Research Experience

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| November 2018 – CurrentMasters Thesis, Purdue  * 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 transformation 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)  August 2017 – October 2018Undergraduate Researcher, Purdue  * Member of Kais Quantum Information and Computation Theory Group * 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 others.  January 2017 – June 2017Undergraduate Researcher NSF REU, Purdue  * 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 |

# Teaching Experience

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| January 2019 – May 2019Graduate Teaching ASSISTANT, CS 252 – Systems Programming  * Taught students entry level systems programming in C/C++ * Organized, presented, and graded labs as well as aided in exam creation.  January 2019 – May 2019UnderGraduate Teaching ASSISTANT, CNIT 105 – INtro C Programming  * Taught students fundamentals of programming in C, graded labs and homework. |

# Presentations

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| * Modeling Automata with Coalgebras -- presented as course project May 2019 * F-algebras and Cedille -- presented to PurPL March 2019 * Topological Exploration of Sans-Li Potential -- poster at LLNL student symposium August 2018 * Introduction to Quantum Computing -- presented to PurPL and Purdue ACM March 2018 * Quantum Languages -- presented to Kais QIQC group February 2018 |  |