Kenny Ballou

PhD Candidate

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Education

2020–2024 **Ph.D. Computing, Computer Science**, *Boise State University*, Boise, Idaho
Dissertation Advisor: Dr. Elena Sherman
Dissertation: Exploiting Incrementality of Data-Flow Analysis to Reason about Zonotope Abstract Domains
Anticipated Graduation: May 2024

2010–2014 **B.S., Applied Mathematics**, *Boise State University*, Boise, Idaho
Minor in Computer Science

Publications

Conference Proceedings

Oct 2023 ***Minimally Comparing Relational Abstract Domains***, *Kenny Ballou and Elena Sherman*, In: Automatic Technologies for Verification and Analysis
DOI: 10.1007/978-3-031-45332-8_8

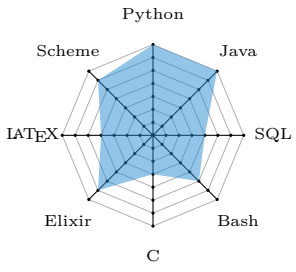
Jul 2023 ***Identifying Minimal Changes in the Zone Abstract Domain***, *Kenny Ballou and Elena Sherman*, In: Theoretical Aspects of Software Engineering
DOI: 10.1007/978-3-031-35257-7_13

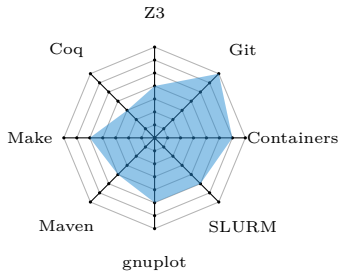
May 2022 ***Incremental Transitive Closure for Zonal Abstract Domain***, *Kenny Ballou and Elena Sherman*, In: NASA Formal Methods
DOI: 10.1007/978-3-031-06773-0_43

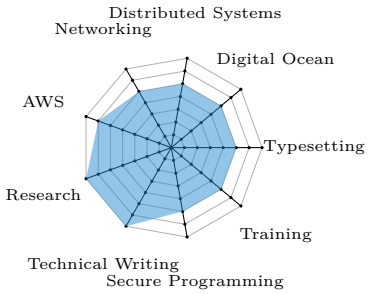
Books and Chapters

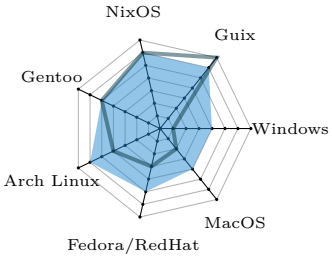
Jan 2016 ***Learning Elixir***, *Kenny Ballou*

Technical Skills









Industry Experience

Aug 2020 – *Present* **Graduate Research Assistant**, *Boise State University*, Boise, Idaho
Research Focus: Numerical Abstract Interpretation, Static Program Analysis, Software Engineering

Employment History

Mar 2017 – Aug 2020 **Site Reliability Engineer**, *HomeCU*, Boise, Idaho
Developed and maintained Amazon Web Services (AWS) infrastructure and container environments using infrastructure as code.

Jan 2016 – Jan 2017 **Software Engineer**, *zData*, Boise, Idaho
Developed and maintained a data platform for managed services.

Jul 2015 – Dec 2015 **Software Engineer**, *Clearwater Analytics*, Boise, Idaho
Developed and maintained a suite of web applications for Asset Managers.

Jan 2015 – Jul 2015 **Data Solution Architect**, *Alpine Data Labs*, Remote
Developed and maintained an SDK for remote installations and diagnostics. Provided technical support to sales and account managers.

Student Internships

Jan 2014 – Jan 2015 **Intern Big Data Engineer**, *zData*, Boise, Idaho
Provided back-office support and training for big data products such as Greenplum, PostgreSQL, Hadoop, Kafka, Apache Storm, and Apache Spark.

Jan 2013 – Dec 2013 **Undergraduate Research Assistant**, *Boise State University*, Boise, Idaho
Researched and developed an MPI+CUDA framework for heterogeneous GPU HPC environments.

May 2013 – Aug 2013 **Student HPC Admin Assistant**, *Boise State University*, Boise, Idaho
Managed several HPC environments using Sun Grid Engine (SGE), added GPU resource scheduling to SGE.

Sep 2008 – May 2013 **Software Engineer Intern**, *POWER Engineers*, Boise, Idaho
Developed and maintained web applications for operations. Developed and maintained several utilities for network/host management.

Talks

Oct 2023 ***Minimally Comparing Relational Abstract Domains***, *Automated Technologies for Verification and Analysis*, Singapore

Jul 2023 ***Identifying Minimal Changes in the Zone Abstract Domain***, *Theoretical Aspects of Software Engineering*, Bristol, UK

May 2022 ***Incremental Transitive Closure for Zonal Abstract Domain***, *NASA Formal Methods*, Pasadena, CA

Mar 2017 **Learning Git in Reverse**, *Boise Code Camp*, Boise, ID

Elixir/Erlang Hot Loading Code, *Boise Code Camp*, Boise, ID

Mar 2016 **Learning Git in Reverse**, *Boise Code Camp*, Boise, ID

Functional Programming with Elixir, *Boise Code Camp*, Boise, ID

Teaching

Spring 2023 **Theory of Computation**, *Guest Lecture*, Boise State University
Introduction to Finite Automata

Spring 2022 **Theory of Computation**, *Guest Lecture*, Boise State University
Regular Languages and Operations of DFA

Fall 2022 **Static Program Analysis**, *Guest Lecture*, Boise State University
Introduction to Numerical Abstract Domains

Fall 2013 **Discrete Mathematics**, *Lab Assistant*, Boise State University

Spring 2013 **Android App Development**, *Teaching Assistant*, Boise State University
Gave guest lecture on Git

Fall 2011 **Computer Science I and II**, *Lab Assistant*, Boise State University

Professional Service

PLDI 2022 Student Volunteer Session Chair

Honors and Awards

2013 Student Research Initiative Fellowship Recipient