

# 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

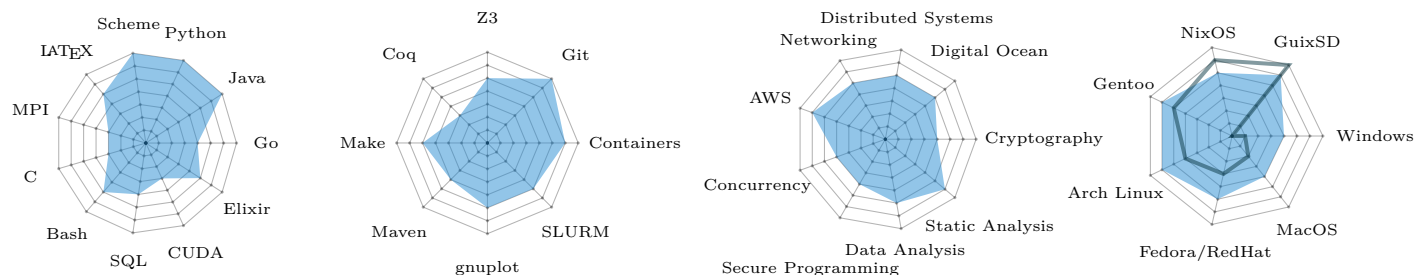
### Conference Proceedings

- 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



## Experience

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

### Industry Employment

- Mar 2017 – **Site Reliability Engineer**, *HomeCU*, Boise, Idaho
- Aug 2020 Developed and maintained Amazon Web Services (AWS) infrastructure and container environments using infrastructure as code.
- Jan 2016 – **Software Engineer**, *zData*, Boise, Idaho
- Jan 2017 Developed and maintained a data platform for managed services.

- Jul 2015 – **Software Engineer**, *Clearwater Analytics*, Boise, Idaho  
Dec 2015 Developed and maintained a suite of web applications for Asset Managers.
- Jan 2015 – **Data Solution Architect**, *Alpine Data Labs*, Remote  
Jul 2015 Developed and maintained an SDK for remote installations and diagnostics. Provided technical support to sales and account managers.

### Student Internships

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- Jan 2014 – **Intern Big Data Engineer**, *zData*, Boise, Idaho  
Jan 2015 Provided back-office support and training for big data products such as Greenplum, PostgreSQL, Hadoop, Kafka, Apache Storm, and Apache Spark.
- Jan 2013 – **Undergraduate Research Assistant**, *Boise State University*, Boise, Idaho  
Dec 2013 Researched and developed an MPI+CUDA framework for heterogeneous GPU HPC environments.
- May 2013 – **Student HPC Admin Assistant**, *Boise State University*, Boise, Idaho  
Aug 2013 Managed several HPC environments using Sun Grid Engine (SGE), added GPU resource scheduling to SGE.
- Sep 2008 – **Software Engineer Intern**, *POWER Engineers*, Boise, Idaho  
May 2013 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