

R. Sean Bowman

<http://seanbowman.me>

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SUMMARY

- Experienced software engineer, mathematician, and teacher
- 15+ years of development experience in C/C++, Python, and Java on Linux
- Spoken to audiences ranging from 5-year-olds to world experts on technical subjects
- Published over 10 papers including several in Machine Learning and related subjects
- Taught over 1000 undergraduates in classes ranging in size from 20 to 120 students
- Technically minded, people focused, driven by working with others to solve tough problems

EDUCATION

Ph.D., Mathematics, May 2012
University of Texas, Austin

B.A., Mathematics, May 2000
Washington University in St. Louis

PROFESSIONAL EXPERIENCE

Software Engineer JULY 2015–SEPT. 2017
Epoch Labs, Inc. Austin, TX

- Built high performance distributed systems in C++11 on Linux on x86 and ARM
- Tested the software with a large suite of unit and functional tests in C++, Python, and Clojure
- Benchmarked and recorded performance data on every commit as part of CI
- Visualized this data using Python and Javascript (D3) to assess and facilitate improvement

Visiting Assistant Professor of Mathematics AUG. 2012–MAY 2015
Oklahoma State University Stillwater, OK

- Developed novel methods for clustering in graphs based on ideas from 3-dimensional topology
- Implemented these, improving on existing results; Python interfacing with existing C++ code
- Research in low-dimensional topology, machine learning, and topological data analysis

Graduate Student AUG. 2005–MAY 2012
University of Texas, Austin Austin, TX

- Theoretical work in topological data analysis, as well as implementations in C++ and Python

Software Developer MAY 2004–AUG. 2004
Rocket Software Bentonville, AR

- Worked on server provisioning system in C++, C, and Python on Linux for zSeries mainframes

Graduate Research Assistant AUG. 2002–AUG. 2005
University of Arkansas Fayetteville, AR

- Analyzed data using Python and R for Department of Institutional Research
- Developed two Aspect Oriented Programming systems, one using Python metaobject protocol

Software Developer, Co-founder MAY 2000–AUG. 2002
Open Software Services, LLC Little Rock, AR

- Designed and developed dynamic websites using Python/Zope/RDBMS on Linux

Software Developer MAY 1999–AUG. 1999
University of Arkansas Computing Services Fayetteville, AR

- Implemented web based system in Java to simplify the software site licensing process

TECHNICAL SKILLS

- **Languages:** C/C++, Python, Javascript, Java. Language junkie, some experience with R, ML/OCaml, Scala, Haskell, Rust, Go, Coq, Mathematica, Clojure, Erlang, Prolog, SQL
- **SCM tools:** Make, SCons, CVS, Subversion, Mercurial, Git
- Familiarity with Agile methodologies such as XP and Scrum, methodical unit tester

TEACHING EXPERIENCE

Visiting Assistant Professor AUG. 2012–PRESENT
Oklahoma State University Stillwater, OK

- Led students at the undergraduate level, explaining difficult concepts in a simple manner
- Supervised undergraduate class assistants in the Supplemental Instruction program

Teaching Assistant/Assistant Instructor AUG. 2005–MAY 2012
University of Texas, Austin Austin, TX

- Guided students toward success in class, teaching course material as well as study skills

Teaching Assistant AUG. 2004–MAY 2005
University of Arkansas Fayetteville, AR

- Provided remedial education for low performing students, college algebra and discrete math

SELECTED INVITED TALKS

- *Knots in handlebodies*, given at **Caltech**, 2012, **University of Texas**, 2013, **Nihon University (Tokyo)**, 2014
- *Thin position, graph clustering, and applications*, given at the **University of Iowa**, **Miami University**, **Colby College**, 2014

SELECTED PUBLICATIONS

- R. Sean Bowman, Doug Heisterkamp, Jesse Johnson, and Danielle O'Donnol. **An application of topological graph clustering to protein function prediction**, 2014.
- R. Sean Bowman, Doug Heisterkamp, and Jesse Johnson. **Thin tree position**, 2014.
- R. Sean Bowman and Stephen B. McCaul. **Fast Searching for Andrews-Curtis Trivializations**. *Experimental Mathematics*, 15(2), 2006.
- Kyle Cranmer and R. Sean Bowman. **PhysicsGP: A Genetic Programming Approach to Event Selection**. *Computer Physics Communications*, 2005.
- R. Sean Bowman and Henry Hexmoor. **Agent Collaboration and Social Networks**. *Proceedings of Knowledge Intensive Multiagent Systems (KIMAS)*, 2005.

LEADERSHIP AND MANAGEMENT

UT Graduate Student Assembly AUG. 2008–MAY 2010

- Represented math department in student government group acting as liaison between graduate students, university administrators, and the larger university community

Co-organizer, 2015 Redbud topology conference APR. 2014–PRESENT

- Organizer for topology conference with participants from around the world, co-administrator of \$25,108 NSF grant

Reviewer, Mathematical Reviews MAY 2014–JULY 2015
Member, American Mathematical Society AUG. 2005–PRESENT