Benno Stein

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EDUCATION

University of Colorado, Boulder, CO
Doctor of Philosophy, Computer Science 2017 to 2021
Advisor: Bor-Yuh Evan Chang

University of Colorado, Boulder, CO
Master of Science, Computer Science 2015 to 2017

Williams College, Williamstown, MA
Bachelor of Arts, Computer Science and Mathematics 2011-2015

EXPERIENCE (ACADEMIA)

Research Assistant University of Colorado, Boulder
2015 - 2021 Boulder, CO
Performed research under Prof. Bor-Yuh Evan Chang in the Programming Languages and Verification Group, studying program analysis and verification with a focus on incremental and demand-driven abstract interpretation.

Course Assistant/Teaching Assistant University of Colorado, Boulder
Fall 2017, Summer 2019, Spring 2020 Boulder, CO
Ran office hours, helped design problem sets and exams, and offered one-on-one tutoring sessions in both graduate and undergraduate level Compiler Design and Programming Languages courses. As a course assistant, additionally designed and taught approximately 10 lectures per semester, in both remote and in-person formats.

Research Assistant University of Michigan
Summer 2014 Ann Arbor, MI
Performed research under Prof. Michael Wellman in the Strategic Reasoning Group, studying machine learning-based high-frequency trading algorithms using empirical game-theoretic models.

EXPERIENCE (INDUSTRY)

Software Engineer Meta
Feb. 2022 — present London, UK
Working in the Continuous Verification Lab on incremental algorithms and infrastructure for the Infer static analyzer. Previously worked on goal-directed symbolic execution of LLVM bitcode.

Software Engineer Intern Facebook
Fall 2019 London, UK
Implemented new abstract domains and formalized correctness guarantees of the SLEdge symbolic executor.

Software Engineer Intern Google
Summer 2018 Sunnyvale, CA
Worked on the open-source Error Prone static analyzer, improving the Java nullability analysis and implementing a novel nullness type inference algorithm.

Software Engineer Intern Uber
Summer 2017 Palo Alto, CA
Designed and built a refinement type-based static analysis to detect threading defects in functional-reactive Android applications.

CONFERENCE PUBLICATIONS

Interactive Abstract Interpretation with Demanded Summarization
Benno Stein, David Flores, Bor-Yuh Evan Chang, and Manu Sridharan. *Under Submission.*

Demanded Abstract Interpretation
Benno Stein, Bor-Yuh Evan Chang, and Manu Sridharan. 2021. In *Proceedings of the ACM SIGPLAN International Conference on Programming Language Design and*

Implementation (PLDI).

Static Analysis with Demand-Driven Value Refinement
Benno Stein, Benjamin Barslev Nielsen, Bor-Yuh Evan Chang, and Anders Møller. 2019. In *Proceedings of the ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA).*

Safe Stream-based Programming with Refinement Types
Benno Stein, Lazaro Clapp, Manu Sridharan, and Bor-Yuh Evan Chang. 2018. In *Proceedings of the IEEE/ACM International Conference on Automated Software Engineering (ASE).*

AWARDS AND HONORS

Ralph J. Slutz Student Excellence Award, CUB CS Dept. 2021-2022
Outstanding Research Award, CUB CS Dept. 2020-2021
Distinguished Student Speaker Award, CUB CS Dept. 2018
Outstanding Service Award, CUB CS Dept. 2017-2018
Dean's Graduate Assistantship, CU Boulder 2015-2016
ACM Student Research Competition, PLDI, 2nd Place 2016

SPEAKING

ConVeY Seminar, TU Munich July 2022
Dissertation Defense, CU Boulder March 2022
Thesis Proposal, CU Boulder Spring 2021
Paper and Poster Presentation, PLDI '21 (virtual) Summer 2021
Paper and Poster Presentation, OOPSLA '19 Fall 2019
Paper Presentation, ASE '18 Summer 2018
Graduate Research Forum, CU Boulder Fall 2017
PL & Verification Seminar, CU Boulder Fall 2017
Student Research Presentation, Oregon PL Summer School Spring 2016
ACM Student Research Competition, PLDI Spring 2016
Math Department Colloquium, Williams College Fall 2014
REU Research Forum, University of Michigan Summer 2014
Hudson River Undergraduate Math Conference Spring 2013

SERVICE

Chair, PhD Student Faculty Search Committee 2016-2017
Organized and participated in student interviews for visiting faculty candidates, compiled PhD student feedback, and served as liaison to faculty search committee.

Member, Computer Science Student Advisory Committee 2013-2014
Met with visiting speakers and job candidates to the Williams computer science department and provided feedback on job candidates. Organized department meetings and social events. Elected by peers as one of two student representatives.

Peer Review
Reviewed papers and participated in committee discussions for the following venues:

- **OOPSLA 2023** Artifact Evaluation Committee
- **OOPSLA 2023** External Review Committee
- **SAS 2022** Program Committee
- **OOPSLA 2022** Artifact Evaluation Committee
- **OOPSLA 2022** External Review Committee
- **CAV 2021** Sub-reviewer
- **SAS 2019** Artifact Evaluation Committee
- **POPL 2019** Sub-reviewer
- **APLAS 2017** Sub-reviewer
- **CAV 2017** Sub-reviewer
- **SAS 2016** Sub-reviewer