Benno Stein

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EDUCATION

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

University of Colorado, Boulder, CO
Master of Science, Computer Science — 2015 – 2017

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

EXPERIENCE (INDUSTRY)

Software Engineer — SkipLabs
September 2023 – present — London, UK (remote)
Working on infrastructure for incremental and reactive systems using the Skip programming language. SkipLabs is an early-stage startup at which I am the fifth engineer.

Software Engineer — Meta
Feb. 2022 – August 2023 — London, UK
Worked on incremental algorithms and infrastructure for the Infer static analyzer, as a member of the Research on Analysis and Languages at Meta (ReaLM) team and goal-directed symbolic execution of LLVM bitcode as a member of the Incorrectness Logic Lab.

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.

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.

REFEREED PUBLICATIONS

Interactive Abstract Interpretation with Demanded Summarization
Benno Stein, Bor-Yuh Evan Chang, and Manu Sridharan. 2024. In *ACM Transactions on Programming Languages and Systems (TOPLAS).*

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

Infer Workshop, PLDI '23	June 2023
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, com-

piled 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:

- **Infer Workshop 2023** Program Committee
- **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