Benjamin Darnell

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WORK EXPERIENCE

Graduate Research Assistant
Advised by Prof. Vikram Adve at UIUC
Sept. 2022–Present   *Urbana, IL*

- Architected a high-performance graph partitioning engine in Rust to solve complex, multi-objective partitioning problems using heuristic-based local search; Presented poster at CSL Student Conference '26.
- Led AI research project on developing LLM-based code generation techniques for low-resource programming languages, with applications in IT automation and agriculture; Authored An Empirical Comparison of Code Generation Approaches for Ansible, peer-review paper presented at InteNSE '24 (ACM/IEEE).

Graduate Teaching Assistant
School of Computing, UIUC
Sept. 2023–Jan. 2024   *Urbana, IL*

- CS 421: Developed course material, graded papers, and tutored students in advanced Compilers course.

Undergraduate Research Assistant
UCSB Programming Languages Lab
June 2020–March 2022   *Santa Barbara, CA*

- Created Sootty, an open-source data visualization tool for hardware simulations.
- Co-authored paper on hardware synthesis: Control Logic Synthesis: Drawing the Rest of the OWL
- Designed automated practice-problem generation tools for CS education, focusing on algorithmic logic and student engagement.

Undergraduate Teaching Assistant
Department of Computer Science, UCSB
Jan. 2020–Dec. 2021   *Santa Barbara, CA*

- Mentored students in upper-division Data Structures & Algorithms; led technical review sessions and evaluated complex assignments.

Software Engineering Intern   Jobvite, Inc.
June–Sept. 2019   *San Mateo, CA*

- Built integration testing framework for Jobvite's Candidate Scheduling interface with Selenium webdriver.

EDUCATION

University of Illinois at Urbana-Champaign
M.S., Computer Science (Graduating May 2026)
2022–2026

Technion, Israel Institute of Technology
International Student Exchange Program
March–Aug. 2022

- Coursework in Signal Processing & Automata Theory
- Awarded UCEAP Memorial Scholarship.

University of California, Santa Barbara
College of Creative Studies
B.S. with Highest Honors, Computing
2018–2022

TECHNICAL SKILLS

Specializations: Compiler Design, LLM-Based Code Generation, Algorithm Design & Optimization

Languages & Tools: Python, C/C++, Rust, Java, OCaml, JavaScript & TypeScript, HTML/CSS, Git, Docker, LaTeX, Unix Shell, React, LLVM

Relevant Coursework: Formal Languages & Compilers, Approximation Algorithms, Computational Geometry, Machine Learning & AI, Computer Architecture, Operating Systems, Scalable Web Systems.

LEADERSHIP AND SERVICE

Mentor, Google Summer of Code
Free and Open Source Silicon Foundation
Summer 2022

- Supervised multiple students in the development and release of an open-source CLI-based waveform viewer.

Director, SB Hacks
UC Santa Barbara's inclusive, student-run hackathon
2020–2021   *Santa Barbara, CA*

- Led a cross-functional team of 15 organizers to run a large-scale virtual hackathon; oversaw end-to-end logistics including technical infrastructure, budget management, and stakeholder outreach for 500+ participants.