

Benjamin Darnell

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EDUCATION

B.S. in Computer Science 2022
College of Creative Studies, University of California, Santa Barbara GPA: 3.96/4.0

High School Diploma 2018
Kehillah Jewish High School, Palo Alto, CA

RESEARCH EXPERIENCE

Research Assistant June 2021—Present
UCSB ArchLab

- Currently working with Prof. Jonathan Balkind on applications of PL in hardware design.
- Contributed to a paper using program synthesis for processor development. Extended an HDL to support holes for sketch-based program synthesis.
- Created [Sootty](#), a VCD waveform viewer for viewing hardware simulations in the terminal. Added support for integration with PyRTL. Currently mentoring undergraduate students on this project.
- Worked with a graduate student to create a formalization for system-on-chip protocols.

Research Assistant June 2020—2021
UCSB Programming Languages Lab

- Assisted Prof. Ben Hardekopf on creating tools for teaching CS Theory.
- Extended MOSEL, a language of monadic second-order logic on strings, to describe DFA, NFA, and regex problems. Designed and created a C++ command-line tool to automate problem generation for use in upper-division Formal Languages classes. Presented poster at RACA-CON 2020.

POSTERS & PAPERS

Benjamin Darnell. [Automatic Problem Creation](#). Poster presented at: 2020 Research and Creative Activities Conference (RACA-CON); 2020 Nov. 21; Santa Barbara, CA

In Progress:

Zachary D. Sisco, **Benjamin Darnell**, Jonathan Balkind, Timothy Sherwood, Ben Hardekopf. (2021). Program Synthesis for Sketch-Based Development of Processor Control Logic.

HONORS & AWARDS

UCEAP Global Scholarship 2021

University of California Regents Scholarship 2018—2022
Top 1% of applicants.

CCS Summer Undergraduate Research Fellowship 2020

TEACHING EXPERIENCE

Undergraduate Learning Assistant

2020—Present

Department of Computer Science, University of California, Santa Barbara

- Tutored advanced undergraduate classes in Object-Oriented Programming, Data Structures and Algorithms over five quarters.
- Graded assignments and gave personalized feedback to students.
- Led group review sessions and provided one-on-one support.

WORK EXPERIENCE

Undergraduate Research Assistant

Summer 2021

Department of Computer Science, University of California, Santa Barbara

- Paid research assistant for Jonathan Balkind in UCSB ArchLab.

Software Development Intern

Summer 2019

Jobvite, Inc., San Mateo, CA

- Built a framework for Automation testing of Jobvite's Candidate Self-Scheduling web-interface in Java using the Selenium webdriver, and automated a suite of QA test cases.
- Learned agile development style, collaborated with other developers using git.

VR Engineering Intern

Summer 2018

Baobab Studios, Redwood Shores, CA

- Performed QA testing on scenes in *Crow: the Legend*, a Oculus Virtual Reality game.
- Wrote scripts to automate audio/video conversion with ffmpeg to support mobile platforms.

Laboratory Assistant

Summer 2017

Los Alamos National Laboratory, NM

- Synthesizing a quantum dot display for the Bradbury Science Museum and performed data analytics programming using Igor.

PROJECTS

Algorithmic Redistricting using Markov Chains

Fall 2021

- Project for graduate-level Markov Chain Algorithms class (CS 292A), randomly sample possible redistricting plans to detect gerrymandering.

Python-to-C translation ([github](#))

Spring 2021

- Wrote a compiler from python bytecode to C for graduate-level Runtime Systems class project.

EXTRACURRICULARS

Logistics Lead Coordinator, SB Hacks

2020—Present

- Managed budget, venue, catering, and website for UCSB's inclusive student-run hackathon.

CCS Undergraduate Mentor

2021—Present

Member, UCSB IEEE Chapter

2020—Present

President, Juggling Club at UCSB

2020—Present