Dakota Barnes

https://dakotazoid56.github.io
858-218-4873 • dakotabarnes@ucsb.edu

Key Qualifications

- Interests: Problem Solving, Agentic Programming, Embedded Systems, Software Development
- Languages: Python, C++, C#, C, Java, Verilog, RISC-V
- Curious, Creative, Analytical, Hard-Working, Proactive, Organized, Spanish Fluent

Education

Masters of Science (MS) - Computer Engineering Anticipated Graduation: June 2026
University of California, Santa Barbara

- Emphasis in Machine Learning, Artificial Intelligence, and Computer Architecture
- Classes: Embedded System Development, Ethics in Machine Learning, AI Agents for the Semiconductor Industry
- Research: UCSB NLP Group with Alfonso Amayuelas (PhD) and William Wang with interest in multi-agent systems

Bachelor of Science (BS) - Computer Engineering July 2021 - June 2025
University of California, Santa Barbara

- 3.7/4.0 GPA in Honors College of Engineering
- Capstone: Program Manager and Radio Lead for 1U CubeSat mission with Angstrom Designs, created firmware, ground station, flat-sat, and DIY Yagi Antenna
- Classes: Computer Science, Electrical Computer Engineering, Machine Learning/Artificial Intelligence, Technology Management Program
- Technology Management Program (TMP) Certificate, and participated in the New Venture Competition as Collective Computing Labs
- Clubs: Coders SB, SB Hacks, IEEE, Beach Volleyball, Scuba Club, Sigma Pi

High School Diploma - Engineering Academy August 2017 - June 2021
Poway High School

- Top 3% School GPA for 2021, 10 Advanced Placement Classes, Robotics Team Spyder, Cross Country, Volleyball, Pole Vaulting
- Engineering Academy: Received diploma certificate from class requirements and developed Arduino locking fishing rod holder

Experience

Research Engineer, Barcelona Supercomputing Center September 2025 - Present

- Collaborating with the Domain-Specific Architecture team and Artificial Intelligence team to create an agent for hardware design and RTL code generation

Student Researcher, Natural Language Processing Lab UCSB December 2024 - Present

- Utilized LangChain to create a self-evolving, self-guided multi-agent system capable of rewriting its own code and agents to learn how to play Catan

Avionics Software Intern, General Atomics June 2025 - August 2025

- Converted test code into production-ready flight software for an interface board on the next-gen aircraft within the Advanced Avionics IRAD division
- Defined system capabilities, authored formal documentation, and developed an automated full test suite using LabVIEW to for aerospace reliability standards.

Software Engineering Intern, Seek Thermal May 2023 - June 2025

- Led design of internal tools for automated testing and grading of QVGA/VGA thermal sensors, including report generation across die, wafer, and lot-level data.
- Prototyped functional firmware and PC Software for high speed communication procedures to novel VGA thermal sensors
- Created a production dashboard to display real time production metrics and issue alerts, and a custom company windows image

Systems Engineer, Marine Science Institute (Oakley Lab) UCSB April 2024 - December 2024

- Developed and integrated embedded software/hardware for SMALLE, an underwater bioluminescence imaging system using NVIDIA Jetson Nano
- Assisted optimization of internal electronics layout in CAD and collaborated on system assembly, and testing, leading to a successful deployment

Research Assistant, Mazer Lab UCSB March 2024 - June 2024

- Created a Machine Learning model to extract the raw phenological data from Clarkia specimen images to reduce manual labor

Technical Support Intern, ShipHawk May 2023 - August 2023

Lifeguard, Swim Instructor, Maintenance, UCSB Aquatics November 2021 - June 2023

Head Soccer Coach, North County Soccer Park March 2020 - June 2021

Other Activities

Machine Learning / Artificial Intelligence

- Multilingual LLM Political Bias: Co-Developed a model agnostic framework and paper to evaluate bias in multilingual LLMs, showcased novel findings
- Encrypted Network Stream Fingerprinting Model: Neural Network/ML Classifier built from UCSB Pinot video streams to identify encrypted videos

Embedded Systems

- Xilinx Nexus A7-100T FPGA Board Trail Grade Monitor with Rotary Encoder, LCD Display, Gyroscope, and Accelerometer using Kalman filter
- Verilog/RISC-V Projects: FPGA Thunderbird Tail-Lights, Verilog 32-Bit ALU and Multi Cycle RISC-V Processor, RISC-V Integer Sort

Other

- Harold Frank Scholarship Recipient from UCSB Department of Technology Management
- Housing Manager: 3D modeled 12 foot tall wooden Tie-Fighter stage, managed 10 person build team, programmed lights with DMX controller
- STEAM Program Volunteer: Assisting teachers and working with kids at Brandon Elementary with Stem projects