Ronit Nagarapu

📞 +1 847-777-9071 || ✉ ronitnag04@berkeley.edu || **in**/ronit-nagarapu || ronitnag04.github.io

EDUCATION

University of California, Berkeley   **Berkeley, CA**
M.S. Electrical Engineering and Computer Sciences   *Expected Graduation: May 2026*
B.S. Electrical Engineering and Computer Sciences **(GPA: 4.00)**   *Graduated: May 2025*

Coursework: Computer Architecture, Digital Design & Integrated Circuits, FPGA Design, ASIC Design, Cryptography, Microelectronic Devices, Analog Circuits, Data Structures and Algorithms, Control Systems, and Artificial Intelligence

Extracurriculars:
- TA for CS152: Computer Architecture — Developed assignments for architectural modeling and programming
- President of Big Data at Berkeley — Managed 60+ members to execute DS/ML contract projects for companies
- EE Team at Formula Electric at Berkeley — Designed electronics systems for braking and accelerator control
- 2nd place at UC Berkeley's AI Hackathon for Best Knowledge Intensive LLM App
- 3rd place at Cal Hacks 9.0: InterSystems API Division
- 2nd place Data Visualization Award: Data Science Research at UC Berkeley

SKILLS

- Programming: Python, Java, C, C++, Scala, SQL, Assembly, Rust
- Digital Design: Verilog, Chisel, Chipyard, Cadence (Indago, Genus, Innovus, Spectre, Virtuoso), Synopsys VCS
- Electronics: Altium, LTSpice, EasyEDA, Microcontrollers, Embedded Systems, Networking, Data Protocols
- Software Engineering: AWS, Bash, Linux, Git, Flask, React, PostgreSQL, Docker, REST APIs, Bootstrap
- Data Science: Numpy, PyTorch, Pandas, Matplotlib, Seaborn, Scikit-learn, Scipy, Plotly

EXPERIENCE

Amazon (Annapurna Labs): *ML Chip Architect Intern*   *May 2025 - August 2025*
- Prototyped architectural changes to Trainium accelerators to optimize performance for dynamic ML workloads
- Developed hardware and software solutions to boost performance for efficient control flow in MoE kernels
- Applied hardware-software co-design to coordinate requests between software, compiler, and hardware teams

Amazon (Annapurna Labs): *ML Chip Architect Intern*   *September 2024 - December 2024*
- Analyzed novel hardware features for optimizing collective communication algorithms in ML workloads
- Designed monitoring tools for FPGA platforms to extract bandwidth & latency metrics of dataflow emulations
- Collaborated with users of AWS Neuron Kernel Interface to deploy LLM workloads on Tranium devices

Apple: *Design Verification Intern*   *May 2024 - August 2024*
- Developed automated scripts using Cadence Indago to verify unique static properties in hardware security
- Researched optimal algorithms to explore and validate connectivity in cross-chip communication systems
- Prototyped visualization tools for DV workflows using Tableau and integrated static verification test pipelines

UC Berkeley SLICE Lab: *Hardware Design Researcher*   *September 2023 - Current*
- Investigating profile-guided optimization techniques on ML accelerator hardware (AWS Tranium)
- Implemented UCIe 1.1 (Universal Chiplet Interface Express) in Scala and Chisel to optimize VLSI research
- Designed CRC module generator to validate data transfer, parameterizing for throughput and area

PROJECTS

Spot Micro Robot Dog:
- Prototyped robotic quadruped dog for autonomous surveillance and search & rescue in disaster relief scenarios
- Developed embedded system with Raspberry Pi Zero, implemented dynamic control system with gyroscopes

8-Bit Computer:
- Enhanced open-source 8-bit TTL logic gate computer design with bus output multiplexing, active programming
- Designed Intel 6502 equivalent processor using CMOS logic chips with 50+ ISA, I/O ports, 64kB RAM/ROM

Barker Code Light Barrier:
- Developed visible light barrier circuit with Barker-7 code, multiprocessing Arduino Nano MCUs
- Applied autocorrelation property and signal analysis to filter ambient 60Hz interference with non-IR sensor