

PRANEET NADELLA

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EDUCATION

University of California, Berkeley

Aug 2021 – Dec 2024

Bachelor of Arts in Computer Science

GPA: 3.8/4.0

- **Coursework:** Computer Architecture, Optimization Models, Digital Design and Integrated Circuits, Programming Languages and Compilers, Operating Systems, Efficient Algorithms, Databases, Computer Security, Nanorobotics, Discrete Mathematics and Probability Theory, Data Structures, Data Science Techniques

EXPERIENCE

Hewlett Packard Enterprise

Jun 2024 – Aug 2024

HPC Software Engineering Intern

Fort Collins, CO

- Expanded REST and gRPC request routes in Golang, enhancing the functionality of the Datapath API, which manages ClusterStor, a highly-available, redundant, Lustre-based HPC parallel storage system
- **Reduced testing costs and alleviated developmental hardware bottlenecks** by implementing containerized Podman environments with session authentication to emulate secure Datapath API requests
- Streamlined testing by automating emulated environment setup, logging, and teardown with Bash scripting

Berkeley SLICE Lab

Aug 2024 – Dec 2024

Undergraduate Microarchitecture Researcher

Berkeley, CA

- Enhancing FireSim simulations of low-latency, rapid-cycle hardware (e.g., ML accelerators) through optimized inter-chip connects, reducing simulation latency to accurately reflect the network speed of simulated hardware
- Comparing current FireSim network latency with simulations created using NS-3, collecting and analyzing network metrics to evaluate performance and accuracy

Blentech Corporation

Feb 2023 – Dec 2023

Software Engineering Intern

Santa Rosa, CA

- **Cut manufacturing downtime by over 80%** by designing, testing, and deploying an internal ANDON alert system for workers to remotely signal for managerial assistance on the factory floor
- Enhanced software performance and maintainability by managing user data with SQL and migrating legacy code to a cleaner, more functional codebase in Ignition by Inductive Automation with Python
- Centralized financial management by developing a new subscriptions and payments portal with Stripe integration

UC Berkeley Electrical Engineering and Computer Science

Aug 2022 – Jan 2023

Computer Architecture Academic Intern

Berkeley, CA

- **Mentored 40+ students weekly**, providing support on homework, projects, and computer architecture content
- Worked alongside Teaching Assistants during office hours to help students overcome conceptual misunderstandings

Westlight AI

Jun 2020 – Aug 2020

Software Engineering Intern

Palo Alto, CA

- Enhanced performance and security by bypassing macOS kernel restrictions with Apple's **minimally-documented Endpoint Security API** and optimizing client-server communication using Flatbuffers serialization in Swift
- Developed a unique tracking mechanism, **raising \$800k+** in USAF grants and securing patent US 11,295,029 B1

PROJECTS

ChocoPy Compiler

- Developed lexer, parser, declaration analyzer, and type checker to detect errors and output symbol table and AST
- Generated optimized RISC-V assembly code from semantic analysis output, outperforming reference's runtime

PintOS (Custom Linux Operating System)

- Designed and implemented process control functionality, file operations, and synchronization in C from scratch
- Implemented multi-threading and file system capabilities with buffer cache achieving **over a 90% speed increase**

RISC-V Processor

- Designed and implemented a 3-stage RISC-V CPU in Verilog with instruction forwarding and branch prediction
- Reduced memory latency by integrating direct-mapped cache and performed synthesis and PNR to timing analysis

NumC

- Built a small-scale version of Python's NumPy library in C to improve the efficiency of matrix operations
- Applied SIMD instructions, OpenMP multi-threading, and loop unrolling to **gain 1600x function speedup**

SKILLS

Python, C, Java, Go, RISC-V, SQL, C++, Verilog, ASIC Design, Pandas, NumPy, Podman, Docker, Bash Scripting, Version Control (Git), Ignition, Flutter, Dart, MATLAB, Rust, Swift