

# Nathan Guerrero

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## EDUCATION

**University of California, Irvine** - Irvine, CA

Sep 2021-Jun 2025

B.S. in Computer Science, Specialization in Systems and Software

## PROJECTS, EXPERIENCE

**Sapphic Homelab/Home Server** - *Personal Project*

Aug 2024-present

- Architected and administered a comprehensive Proxmox-based homelab, with repurposed hardware to reduce costs
- Provisioned Linux-based virtual machines and Docker containers to host over 13 services, including Home Assistant
- Cultivated practical expertise in virtualization, networking, security, and DevOps principles through hands-on implementation and problem-solving

**COMPSCI 121 (Search Engine) Project** - *Team Member*

Apr 2024-Jun 2025

- Designed and built a scalable search engine in Python, with a team of 4, capable of indexing tens of thousands of webpages and returning query results in <100 ms
- Architected a multithreaded indexing system with disk-backed databases to efficiently handle high-volume reads/writes
- Developed internal tools and libraries to accelerate development and enforce modularity under OOP principles

**Tile-Matching Game Environment** - *Team Member*

Feb 2024-Mar 2024

- Created a Python framework, with a team of 5, to provide a customizable environment for building tile-matching games
- Implemented game-specific logic for 2 example games, Dr. Mario and Puzzle Fighter, showcasing the framework's versatility and object-oriented design
- Authored technical documentation and design specifications to facilitate clear communication and development

## SKILLS

**Programming Languages:** Python, C/C++, Java, HTML/CSS/JS, Bash, Rust

**Concepts:** Software design, full-stack development, automation, networking, distributed computing, databases, containerization, remote development, systems administration

**Software:** Linux, Debian/Ubuntu, React, VS Code, Git, Docker, QEMU, Node.js, OpenWrt, SSH