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Nayan Bhatia

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PhD student in Computer Science and Engineering with hands-on experience in distributed systems, cloud infrastructure automation, and debugging complex systems. Proven ability to manage and optimize cloud-based tools and infrastructure, with a focus on performance tuning and system diagnostics.

EDUCATION

University of California, Santa Cruz

PhD in Computer Science and Engineering (CSE)

Sep 2021 - Jun 2026 (Exp)

GPA: 3.52/4.00

K. J. Somaiya Institute of Engineering and IT, University of Mumbai

Bachelor of Engineering in Computer Engineering

Aug 2017 - Jun 2021

CGPA: 8.26/10.00

TECHNICAL SKILLS

Programming languages Python, SQL, C, C++, Java, Scala, Solidity.

Tools and Databases MySQL, MongoDB, CUDA, GlusterFS.

Web Technologies Node.js, React.js, Express.js, GraphQL, PHP, Javascript, HTML, jQuery, D3, Vue.js, Angular.js.

Python libraries TensorFlow, PyTorch, Keras, NumPy, Pandas, Matplotlib, Flask, OpenCV.

Automation and Debugging Ansible, Jenkins, Pytest-Python, Jest, Selenium, Kubernetes, Docker, Git, AWS KMS, SLURM, Github Actions and CI/CD pipelines.

TECHNICAL EXPERIENCE

LLM System Developer

Center for Economic Justice and Action Lab, UCSC

Jun 2024 - Present

Santa Cruz, California

- Developed a LLM-powered system, currently used by **1,000 people** in a controlled environment, for answering university-specific queries across the University of California with a planned expansion to all students.
- Built a web scraping script for resource aggregation and created a pipeline where GPT-4 mini generates quality results, with Llama fine-tuned on the outputs to enable future use of open-source models potentially reducing the cost by **80%**.
- Technologies: Danswer.ai, Ollama, GPT-4 mini, QLoRA, Nginx, RAG.

Web Developer and DevOps

CASFS, UCSC

Oct 2021 - Jun 2024

Santa Cruz, California

- Managed an SQL database, implemented an efficient Continuous Integration/Continuous Deployment (CI/CD) pipeline, and created and maintained more than 100 REST HTTP endpoints using **Pytest-Python**, **Jest**, and **Selenium** for automated testing.
- Leveraged **Google OAuth2** to integrate the authentication with **VueJS** and **Flask**, resulting in a seamless user experience for approximately **3,00,000** students across all **10 UC campuses**.
- Implemented scalable infrastructure using **Apache HTTP Server** and **Gunicorn** on **CentOS** to accommodate the high traffic demands of the **UC BASIC NEEDS** website, resulting in a **30%** increase in website capacity.

Research Associate

Omnifi

Jun 2023 - Sept 2023

Pleasanton, California

- Conducted experiments using two ESP32 devices to collect WiFi telemetry data like RSSI, CSI, and FTM, adjusting device positions and settings to optimize data accuracy.
- Investigated the impact of environmental factors and device settings on accuracy for indoor WiFi localisation, particularly at short distances.
- Tested various CPU frequencies and burst rates on ESP32 devices to assess their impact on timing measurement accuracy, aiming to reduce error margins and improve performance.

Teaching Assistant

CSE, UCSC

Jan 2022 - Jun 2024

Santa Cruz, CA

- Led courses: **Introduction to Scientific Computing**, **Database Systems** **Internet of Things**, **Programming Abstractions (Python)**, **Beginning Programming (Python)**, **Computer Systems Design**, **Systems and C Programming**.
- Developed expertise in Python, C, concurrency, networking, and system-level programming while assisting students in debugging complex code and optimizing performance.

PERSONAL ACCOMPLISHMENTS

- Biodiversity Seed and Agroecology Fellowship**: Awarded \$ 11,000 for contributions to the UC Basic Needs (UCBN) platform, which connects UC students to essential services, promoting health, well-being, and sustainability. Recognized for integrating ecological and sustainable practices, advancing food security and health across UC campuses.
- SIP Mentor**: Led a team of 4 interns on enhancing indoor localization using machine learning models focusing on processing telemetry data and achieving localization accuracy, at around 95.2 % accuracy in test environments.
- NEU**: Completed the 2024 Young Gladiators **Colosseum** training program gaining experience in AI-driven wireless network emulation and dynamic spectrum sharing.