ROHIT NEMA

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EDUCATION

University of California, Los Angeles | Bachelor of Science in **Computer Science** | **GPA: 4.00**
Year: 2022 | Minor in **Mathematics**

SKILLS

- C/C++
- Python
- Shell/Bash
- iOS (Swift)
- Google Cloud
- Go
- SQL
- Node.js
- **React** / JavaScript
- Flask
- Git
- Docker
- AWS
- Vector Design

COURSES TAKEN

C++ | Algorithms and Complexity | Computer Architecture & Organization | Software Construction | Cryptography | A.I. | Linear Algebra (Hons.) | Graph Theory | Probability | Real Analysis | Computer Networking | Operating Systems | Programming Languages | Algebra (Hons.) | Logic Design & Systems

EXPERIENCE

Independent Research | with Dr. Rafail Ostrovsky — August 2020 - Present
Used SEAL (homomorphic encryption) and SCALE-MAMBA to implement the Mitchell-Zimmerman and Falk-Ostrovsky algorithms for Stable Compaction for real-world performance analysis. Currently working on implementing a linear-time Secure Merge algorithm under specific assumptions such as homomorphic encryption.

Officer, Content Lead | ACM ICPC at UCLA — October 2019 - Present
Create and teach workshops for Competitive Programming and Technical Interview preparation. Taught nearly 25-30 regular students Competitive Programming at a beginner-level weekly last Spring. Developed the website for the club using React. Created a Discord bot for strict moderation on server of 1000+ members to facilitate and foster an online community for ACM. Content Lead for Bruin Quest, a puzzle hunt and one of the biggest collaborations between three clubs under ACM.

Software Engineer, Research Intern | Stealth Software Technologies Inc., Los Angeles, CA — June 2019 - August 2020
Learned crypto frameworks and languages. Analyzed and implemented algorithms for Secure Multi-party Computation for statistics such as Linear Regression and Crosstabs. Benchmarked existing secure frameworks to analyze factors such as communication cost and time taken. Deployed multiple instances of an application on AWS instances that are only able to communicate with each based on a real-time constructed expander graph. Automated the entire task from deploying to stopping the containers and instances with robust error handling.

Co-Tech Director | LA Hacks 2020 tech team | UCLA — October 2018 - April 2020
Lead a team of 4 in various collaborative projects including teaching the various tools and frameworks used. Follow professional coding practice and version control (Git) to manage codebase. Use React and SCSS to implement frontend. Develop backend in Go. Use industry tools like Docker to containerize micro-services. Manage and maintain frameworks used by more than 3000 people every year.

PROJECTS

Discord Verification Bot
Built a robust Discord bot in less than 72 hours to verify members on ACM at UCLA's Official Discord server using Node.js, SQLite and SendGrid API. Verifies users using their UCLA email address and support various commands such as lookup for moderation purposes. It currently handles more than 1000 members and features automatic restarting on crash and automatic backups using system cron jobs. Hosted on an AWS EC2 instance.

uSwitch
Created a wireless, smartphone-controlled home switch. Modeled the exterior body on a CAD software and 3D printed it. Existing switches could be controlled using a smartphone through Bluetooth or WiFi. Implemented on an ATMega16 micro-controller. Learnt the in and out of product development and team management. Adhered to a strict timeline culminating with prototype launch.

HONORS AND AWARDS

Winner at Hacktech 2019 | Caltech hackathon — March 2019
Built an iOS app (Swift) using Google Cloud's Vision API and eBay's Finding and Browse APIs. User could query products based on an image and certain filters. The image would be further processed by Google's Vision API to return cropped objects. Increased image searching power and accuracy manifold. Products were also filtered out based on suspicion analyzed by a trained ML model (built in Keras). Won sponsored prize by eBay.

Winner at HackUCI 2019 | University of California, Irvine hackathon — February 2019
Created a web app that implements the find functionality for audio files. Playback an audio file from any instance of a word you type. The app also summarizes the audio file by giving keywords (based on their importance to the context) that acted as an executive summary. Made using Jinja (frontend), Flask and Python (backend) with the Google Cloud Platform's APIs for speech-to-text, Natural Language Processing, and Cloud Storage.