Koorous Vargha

kvargha.com | koorousvargha@gmail.com | linkedin.com/in/kvargha | github.com/kvargha

Experience

Software Developer Aug. 2021 – Present

UC Santa Cruz Genomics Institute *Santa Cruz, CA*

- Developed a secure full-stack application enabling epidemiologists to link patient data (PHI) to sequence data. This decreased COVID-19 outbreak investigation time by over 90% from 8 hours to less than 1 hour. It uses **React.js**, **Material-UI**, **Express.js**, **Node.js**, **Datastore (NoSQL)**, and **Snowflake (SQL)** deployed to **Google App Engine**.
- Designed a **Kubernetes** cluster decreasing response times by 200% to 30ms by optimizing auto-scaling metrics, leading to a 50% reduction in hosting costs. Ensured a 99.99% uptime by utilizing liveness probes.
- Built CI/CD pipelines halving deployment times to 20 minutes using **GitHub Actions** and **Google Cloud Build**.
- Successfully integrated Single Sign-On (SSO) with **AzureAD** using **React MSAL** and Sign In With Google using **Identity-Aware Proxy (IAP)**, resulting in zero security breaches.
- Created a REST API for epidemiologists to easily generate phylogenetic trees by eliminating the need for command-line interface (CLI) tools by using **Flask**, **Gunicorn**, and **Docker**.
- Wrote unit tests with a 100% code coverage rate using **Cypress** and the **Python unittest** framework.
- Automated daily data collection, saving 14 hours/week, by setting up a web scraper using **Selenium**.
- Authored comprehensive **system design** documents that substantially improved the team's understanding of project architecture and implementation details, resulting in increased productivity.
- Led the initiative to maintain detailed documentation, significantly decreasing onboarding time, on Confluence.

Lead Programmer Intern Oct. 2020 – Aug. 2021

UC Santa Cruz LEEPS Lab *Santa Cruz, CA*

- Developed a performant full-stack multiplayer high-frequency trading platform, supporting up to 1000 transactions/s with a 1ms response time, using **Django**, **Polymer**, **PostgreSQL**, and **Redis**.
- Optimized legacy stock market simulation applications, resulting in a 15x performance improvement from 2.5 hours to 10 minutes, by utilizing parallelism techniques.
- Facilitated timely project completion by conducting weekly standups and mentoring a team of 5 interns.
- Decreased meetings by over 80% through creating comprehensive documentation using **reStructuredText (rST)**.

Programmer Intern *May 2020 - Oct. 2020*

- Migrated economic experiments to the cloud, boosting concurrent studies by 3x, using **DigitalOcean** Linux servers.
- Improved server efficiency by consolidating processes into bash scripts and automating them using **CRON**.
- Visualized stock market simulation data, decreasing analysis time, using **Matplotlib**, **Pandas**, and **Numpy**.

Projects

Gmail Clone | *React.js, Material-UI, Express.js, Node.js, Docker, PostgreSQL* Dec. 2020

- Built a responsive full-stack email application using **React** and **Material-UI**, packaged in a **Docker** container.
- Implemented automated unit tests with 100% code coverage using **Jest**.
- Integrated JSON Web Tokens (JWT) for secure user authentication, improving user privacy and security.
- Created a REST API defined by **OpenAPI**, utilizing **Express.js** to communicate with a **PostgreSQL** database.

AmberDash | *Python, Flask, HTML, CSS, JavaScript, Firebase (NoSQL)* Jan. 2020

- Awarded "Best Use of Google Cloud" out of 300+ projects by Google at CruzHacks 2020.
- Developed an Android app that leveraged **Google Vision** to match nearby cars with active amber alerts.
- Built a dynamic dashboard showcasing recent amber alert sightings visualized onto Google Maps using **HTML**, **CSS**, **JavaScript**, **Flask**, and **Firebase**.

Technical Skills

Languages: Python, JavaScript, TypeScript, HTML, CSS, SQL (Postgres), NoSQL, GoLang, Java, C, C++
Frameworks: Kubernetes, Docker, Node.js, React.js, Material-UI, Express.js, Django, Flask, Jest, Polymer.js, Terraform
Cloud Services: Google Cloud Platform (GCP), Amazon Web Services (AWS), Snowflake, Cloudflare, DigitalOcean

Education

University of California, Santa Cruz Santa Cruz, CA

Bachelor of Science in Computer Science *Sept. 2017 – March 2021*