Koorous Vargha

Full Stack Software Engineer

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Experience

Software Developer Aug. 2021 – Present

UC Santa Cruz Genomics Institute *Santa Cruz, CA*

GCP, Docker, Kubernetes, React.js, Node.js, Flask, Python, JavaScript, TypeScript, HTML, CSS, Express.js, SQL, NoSQL

- Developed a HIPAA-compliant full-stack application that matched positive COVID-19 tests to medical records, decreasing data collection times from hours to 3 seconds. The application utilized React.js, TypeScript, Material-UI, Express.js, Google Cloud Datastore, Snowflake SQL, and Google App Engine.
- Designed Kubernetes clusters that reduced response times by 73% to 38ms by utilizing round-robin load balancing, resulting in a 50% reduction in hosting costs. Achieved a 99.5% uptime by leveraging health checks.
- Built CI/CD pipelines that cut deployment times by 50% to 10 minutes with GitHub Actions and Google Cloud Build.
- Created a REST API microservice that visualized positive COVID-19 tests onto a tree-like structure, enabling scientists to quickly determine if an outbreak occurred, by using Flask, Gunicorn, and Docker.
- Integrated Single Sign-On with AzureAD, simplifying access management, using MSAL React.
- Wrote unit tests with a 100% code coverage rate using Cypress and the Python unit test framework.

Lead Programmer Intern Oct. 2020 – Aug. 2021

UC Santa Cruz LEEPS Lab *Santa Cruz, CA*

Django, Python, JavaScript, HTML, CSS, Polymer.js, PostgreSQL, Redis, DigitalOcean

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

Programmer Intern May 2020 – Oct. 2020

UC Santa Cruz LEEPS Lab *Santa Cruz, CA*

Django, Python, JavaScript, HTML, CSS, Polymer.js, PostgreSQL, DigitalOcean

- Migrated experiments to the cloud, which increased 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 Python, Matplotlib, Pandas, and Numpy.

Education

University of California, Santa Cruz Sept. 2017 – March 2021

Bachelor of Science in Computer Science *3.50 GPA*

Coursework: Distributed Systems, Web Applications, Databases, Computer Networking, Machine Learning

Projects

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

- Built a responsive full-stack email application using React.js and Material-UI, packaged in a Docker container.
- Created a REST API defined by OpenAPI, and utilized Express.js to communicate with a PostgreSQL database.
- Integrated JSON Web Tokens (JWT) for user authentication, improving user privacy and security.

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

- Awarded "Best Use of Google Cloud" out of 300+ projects by Google at CruzHacks 2020.
- Built a dynamic dashboard that showcased recent amber alert sightings, detected by a Google Vision-enabled Android app, plotted onto Google Maps using HTML, CSS, JavaScript, Flask, and Firebase.

Technical Skills

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