

Harrod Tang

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WORK EXPERIENCE

Nielsen

Software Engineer – Platform Tools DevOps Team

July 2022 – Present

- Platform Tools Console - a next-gen resource manager for Platform services
 - Led the inception and development of the application, from architecture to deployment at scale.
 - Used by 100+ internal teams to onboard onto our Platform services and self-manage resources that these services create.
 - Developed as three separate microservices for modularity - a **React** frontend, **Golang (Gin)** backend, and a **Python** microservice.
 - Utilized **AWS SQS** for message queueing and asynchronous processing, enhancing system reliability and scalability.
 - Established multiple **PostgreSQL** tables for efficient data storage and retrieval.
 - Constructed images with **Docker** and deployed onto **Kubernetes clusters** via **Helm charts** for scalable deployments.
 - Developed **GitLab CI/CD** pipelines to automate image builds and deployments.
 - Ensured code stability and reliable versioning through **unit tests** and **semantic release**.
- Internal Generative AI Chatbot - Nielsen's ChatGPT replacement for security reasons
 - Released company-wide and used by 3000 monthly users.
 - Provides employees with an internal generative AI application with access to company specific knowledge.
 - Used by multiple teams to onboard new employees, streamlining the training process and improving efficiency.
 - Created a horizontally scalable solution by implementing the storage of conversation history and summarization into an external store (**AWS DocumentDB**).
 - Leveraged the **LangChain** library in a **FastAPI** backend to interact with multiple **large language models (LLMs)** provided by various model providers - **Amazon Bedrock** and **Google Vertex AI**.
- Platform's Identity and Access Management Application
 - Developed the **Flask** application from the ground up, from design, to development, to deployment.
 - Used to safely and seamlessly migrate 280+ Okta groups and 1000+ users from one Okta tenant to another.
 - Abstracts and exposes **Okta API** operations to other Platform services as **REST** endpoints.
 - Implemented **system-wide auditing** by leveraging **SQLAlchemy** to record all operations into a **PostgreSQL** table.
 - Developed the entire **CI/CD** pipeline, including: image construction via **Docker**, deployment onto **Kubernetes clusters** using **Helm charts**, and version control with **semantic release**.

Software Engineering Intern – Platform Tools DevOps Team

June 2021 – August 2021

- Server Resource Optimization Algorithm
 - Designed and implemented an algorithm that identifies optimal hours to scale server resources.
 - Projected to save the team over \$200,000 annually.
 - Integrated the algorithm into the backend **Spring Boot** application as a **Java REST API**.
 - Built a **React** frontend to help visualize the data.
- Kubernetes Pod Restart Plugin for Apache Airflow
 - Provides admins on other teams with the ability to immediately restart their Airflow instances themselves.
 - Wrote a **Java REST API** that deletes specified **Kubernetes** pods running in the **Airflow** cluster.
 - Leveraged **Python**, **Flask**, and **HTML** to build the plugin into the UI.

TECHNICAL SKILLS

Expertise: Cloud Computing, Full Stack Development, DevOps, Generative AI, Unit Testing, REST

Tools: AWS, Kubernetes, Docker, GitLab CI/CD, Helm, Git, Okta, Apache Airflow, PostgreSQL, Apache Spark

Languages: Python, JavaScript, Golang, Java, YAML

Frameworks: React, Flask, FastAPI, LangChain, Material-UI, Gin, Pytest, Testify, Mockery, Svelte

EDUCATION

University of California, Davis

Bachelor of Science in Computer Science (GPA: 3.768)

Davis, California

September 2018 – June 2022

EXTRACURRICULARS

Star Kids: Volunteered to teach Python, HTML, and CSS to kids from underserved communities.

September 2022 – Present

Tau Kappa Epsilon: Secretary and Vice President.

February 2020 - December 2021

Youth on Course/First Tee: Youth on Course scholarship recipient. Mentored inner-city youth in life skills through the game of golf.