Harrod Tang

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WORK EXPERIENCE

Nielsen

Software Engineer – Platform Tools DevOps Team   *July 2022 – Present*
- Led the inception and development of Platform's next-gen internal application, an AWS-like console for Platform services.
  - Gives teams the ability to onboard onto our Platform services and self-manage resources that these services create.
  - Developed the frontend in **React**, integrating libraries such as **Material-UI** for a modern and responsive user interface.
  - Built the backend infrastructure with **Golang (Gin)** to handle routes and efficiently process data.
  - Created a **Python microservice** to automate key processes, including interacting with **AWS SQS**, triggering **GitLab** pipelines, and updating **PostgreSQL** tables.
  - Implemented user authentication and token validation using **Okta**.
  - Constructed application images with **Docker,** ensuring production-ready image builds.
  - Deployed images onto **Kubernetes clusters** via **Helm charts**, enhancing scalability and manageability.
  - Developed **GitLab CI/CD** pipelines to automate image builds and deployments, run **unit tests** for code stability, and automate version control with **semantic release**.

- Served as a key contributor in Nielsen's internal generative AI application, a ChatGPT replacement for security reasons.
  - Provides employees with an internal generative AI application that has access to company specific knowledge.
  - Released company-wide and used by 3000 monthly users.
  - Modified an **open source** codebase provided by Hugging Face as the user interface.
  - Leveraged **LangChain** in a **FastAPI** backend to interact with various **large language models (LLMs)** provided by **Amazon Bedrock** and **Google Vertex AI**.
  - Implemented the storage of conversation history and summarization into an external store (**MongoDB**), allowing the application to scale horizontally.

- Developed Platform's Identity and Access Management application.
  - Abstracts and exposes **Okta API** operations to other Platform services as **Flask** endpoints.
  - Integrated an **Okta middleware** to intercept and authenticate every request.
  - Implemented **system-wide auditing** by leveraging **SQLAlchemy** to meticulously track and record all operations into a **PostgreSQL** table.
  - Developed the entire **CI/CD** pipeline for the application, including the image construction via **Docker**, deploying it onto **Kubernetes clusters** with **Helm charts**, and adding **semantic release** for version control.

- Created the end-to-end onboarding process for one of Platform's core services – GitLab Runner as a Service (GRaaS).
  - Issues teams their own GitLab runners, which run their CI/CD pipelines.
  - Utilized by over 30 internal teams.
  - Crafted a multi-step onboarding form and admin panel using **React**.
  - Developed the corresponding **Java Spring Boot REST API** to update **PostgreSQL tables** accordingly.

Software Engineering Intern – Platform Tools DevOps Team   *June 2021 – August 2021*
- 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.

- Developed a plugin that allows users to restart Kubernetes pods from the Apache Airflow webpage.
  - Provides admins on other teams with the ability to immediately restart their Airflow instances themselves without having to contact someone on the Platform Tools Team.
  - 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 user interface.

TECHNICAL SKILLS

Languages: Python, JavaScript, Java, Golang, YAML
Tools: AWS, Kubernetes, Docker, Gen AI, Git, GitLab CI/CD, Helm, Okta, Apache Airflow, PostgreSQL
Frameworks: Flask, FastAPI, LangChain, React, Svelte

EDUCATION

University of California, Davis   **Davis, California**
Bachelor of Science in Computer Science (GPA: 3.768)   *September 2018 – June 2022*