Joel Hanson

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Summary

Software Engineer with 5+ years of experience building and scaling complex distributed systems and cloud products. Collaborated with platform infrastructure teams, data scientists, and machine learning engineers to create reliable, scalable, and user-friendly platforms that increased ML-Ops velocity across the organization. Worked with four startups to create products with extensive machine learning, micro-services, and container-driven architecture.

Skills

- **Languages**: Python, JavaScript, SQL, Bash, JAVA, GoLang, TypeScript
- **Frameworks**: Django, Flask, Pandas, SQLAlchemy, FastAPI, Celery, NodeJS
- **Tools**: Docker, Kubernetes, Openshift, GIT, PostgreSQL, Operator pattern - Kubernetes
- **Platforms**: Linux, Web, AWS, GCP, IBM Cloud
- **Cloud Services**: EC2, ECS, CDK, Fargate, lambda functions, RDS, S3, etc..
- **Soft Skills**: Leadership, Writing, Team Work, Time Management, Analytical and Problem-solving

Work Experience

- **IBM - International Business Machines**
  Software Engineer *August 2021 - Present*
  - **IBM Event Streams - Apache Kafka for the enterprise**: Engineered innovative cloud architecture to gather billions of events while keeping contemporary information security in mind and partnering with open-source project Strimzi Apache Kafka on Kubernetes.
  - **Gateway For Events - Component to capture analytical insights**: Integrated a proxy microservice to monitor events and provide broad analytical insights. This is a one-of-a-kind gateway feature that is integrated into event-based products to gather information from events and deliver a 360-degree view
  - **Kubectl Plugin Creation**: Contributed to a Golang CLI project by adding new features and building a custom kubectl plugin to interact with the project's APIs.
  - **Jenkins Nightly Pipeline**: Designed and implemented more than 15 Jenkins components to run as a nightly routine to maintain a healthy codebase.
  - **Mentoring And Leadership**: Educated and mentored 6 candidates for the future generation of developers, IT professionals, and CIOs in collaboration with two academic institutions.
  - **Skills**: IBM Cloud, Kubernetes, Docker, Kubernetes Operators, Kafka, Java, GoLang, Openshift, Jenkins and Bash.
- **Impress.ai** Start-Up
  AI Engineer / Software Engineer *September 2018 - August 2021*
  - **Automated Candidate Evaluation - Chatbot-based pipeline for applicant assessment**: Led design and implementation of a project to use machine learning to evaluate candidates. This was employed by one of Singapore's renowned schools to cut the time needed to assess more than 4,000 applications from 470 hours to only 2 hours.
  - **Automated Data Migration - Migrated client assets from the user acceptance testing platform to production using ETL methods**: Reduced the time required for releasing the product by 90% using a tool to automate the process of moving required data from one server to another.
  - **Refactoring And Unit Testing**: Reorganized the platform to offer considerable improvements and added unit tests to cover the platform's key areas, increasing test coverage from 4% to 29%.
  - **Skills**: Microservices, Functional Programming, Head First Design Patterns, Clean Code, Numpy, Django, Celery, Pandas, Pytorch, Machine Learning Model Deployment, ML Model Training Pipeline, and Data cleaning was also carried out, custom CI/CD in GitHub Actions, CircleCI, and Agile methodology
- **Travidux Technologies** Start-Up
  Software Engineer *October 2017 - September 2018*
  - **Booking Platform**: Created an online travel booking portal in collaboration with the Kerala Tourism Development Cooperation(KTDC). Additionally, integrated a secure payment gateway for the application.
  - **Source Code Management And CI/CD Pipelines**: Restructured 3 projects to have version control using git and implemented processes to deploy websites from locally hosted GitLab with continuous integration and code style checks.
  - **Skills**: Python, Django, Flask, Git, Angular 2+, Digital ocean, CI/CD processes using Gitlab runners, PostgreSQL, SQL, SQLAlchemy, HTML and CSS

Education

- **Calicut University** **(Sahrdaya College of Engineering)** Kerala, India
  Bachelor of Technology - Computer Science And Engineering; *June 2013 – June 2017*

Projects

- **Webservice for Pycaret AutoML**: Developed a webservice for Pycaret AutoML, a RESTful API web application that runs classification and regression on structured data. Created a central ML model store with versioning to collaboratively manage the full lifecycle of an ML model, and implemented advanced features such as deploying models using Kubernetes API. Technologies used: Python, Azure Cloud, Celery, Redis, Pandas, Numpy, Scipy, Docker. (January 2022)
- **Health Informatics (OCR, NLP: Entity Recognition and Relation extraction, Neo4j and Elasticsearch.)**: Created a health informatics project that uses OCR and NLP for entity recognition and relation extraction, and integrates with Neo4j and Elasticsearch to analyze patient journeys and treatment and disease patterns based on health care data. Technologies used: Python, Neo4j, FastAPI, Celery, Redis, Docker, MicroServices. (November 2021)
- **Large Scale ETL Pipeline**: Developed a large scale ETL pipeline to extract, transform, and load data from a huge file to Redshift, able to scale the processing of files with a size of more than 10GB. Technologies used: Python, SQL, AWS S3, Lambda Functions, Redshift, Bash. (July 2021)
- **Autonomize.ai (Healthcare data insights at scale)**: Worked on Autonomize.ai, a project that processes millions of files to automate the process of extracting medical data from reports and making it searchable. Technologies used: Elasticsearch, Python, AWS Lambda, SQS, SNS, AWS Glue, Opensearch (Elasticsearch, Kibana), Typescript, Cloudformation, CDK. (August 2021)
- **Speech-To-Text Microservice Demo Application**: Built a demo of a Speech To Text application using a microservice architecture with a REST API, allowing users to upload an audio file and receive recognized text output on the frontend.Technologies used: Django, Celery, RESTful API, Redis, RabbitMQ, PostgresSQL, etc...
- **ML Experiment Tracker using Django and Celery**: Created an ML experiment tracking tool using Django, Celery, and Django Rest Framework, with results stored in Django Celery Results and monitored using Flower. Authored a related blog post on Medium

Publications

- **”Survey On Image Processing Based Plant Leaf Disease Detection” (2016)**: Conducted a survey on some of the existing image processing methods for leaf disease detection and examined common machine learning methods.
- **”Plant Leaf Disease Detection Using Deep Learning And Convolutional Neural Network” (2017)**: A solution to solve this using transfer learning. We came up with a production-ready web application to detect diseases from plant leaf images.