

PRAKUL

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PROFESSIONAL EXPERIENCE

Amazon.com: Software Development Engineer, Alexa AI

Jun 2022 – Feb 2024

- Reduced Alexa AI's customer-perceived defect rate by ~**1 million/week** by integrating customer interaction embeddings into the main **Java** workflow, improving model training. Led this tier 1 system migration with **zero downtime**, coordinating across teams using **Git** and **CI/CD** pipelines.
- Automated model deployment to save **15+** man-hours per deployment by implementing an Orchestration tool (OEMS) using **REACT**, **Golang REST API**, **Kubernetes** and **EKS**. This was used to automate A/B experiments for Alexa machine learning models.
- Reduced application failure rate by **30%** as measured by ticket count by building a webhook microservice layer for validating on coming requests to OEMS using **Helm Charts**, **Cert Manager** and **AWS EKS**.
- Spearheaded the **CDK** v2 upgrade for the Alexa stack, ensuring seamless migration, compatibility with existing services, and support for new features. Implemented Velero for reliable cluster backups on S3, enabling risk-free upgrades and eliminating concerns for cluster integrity. This facilitated the **EKS** upgrade from version 1.19 to 1.24, making OEMS security compliant and ready for new capabilities.
- Engineered and deployed an ETL pipeline using **AWS Lambda** function, utilizing typescript CDK, for model data ingestion, streamlining the training process for new models.
- Enhanced test coverage by approximately **9%** by adding several tests including unit, integration, load, and chaos tests. Leveraged AWS services like **EC2**, **S3**, and **CloudWatch** for streamlined system monitoring and optimization, ensuring heightened reliability.

NTT DATA services: Software Developer, JLL project

Aug 2017 – Mar 2019

- Developed client-side **hashing** for an internal job portal using Javascript which was used company-wide.
- Optimized client report runtime from 1hr to under 2 mins by creating efficient **bash** scripts.
- Developed a web app using **Python Flask** and **SQL**, exposing APIs for generating business reports.
- Monitored 55+ applications' health checks for the Asia region, including data warehousing, incident management and change management through **ITIL**. Certified in **ITIL** and **C#.net** development.
- Implemented a spam detection system using Logistic Regression to enhance email security. Achieved 97.3% accuracy by applying ridge regression, and improved data quality through NLP processes like tokenization, stemming, and stopword removal.

INTERNSHIP AND FREELANCE WORK

EITACIES INC Software Services: Data science Intern, Marketplace team

Sep 2021 – Jan 2022

- Implemented Emotion Detection from Voice Audio Files using transfer learning from the ResNet34 architecture with 93% accuracy. Developed a voice transcriber using Mozilla DeepSpeech for streaming transcription. Collaborated on an Agile (Scrum) team to deliver regular updates to business stakeholders and project managers.

MyProductionWork: Freelance Software Developer, Tooling team

Apr 2024 – Sep 2024

- Developed a **REACT**-based web application to digitize film slate, featuring note-taking and automated file renaming using **OpenCV** QR models in **Python**. This reduced manual effort, maintained structured file organization, and lowered costs by automating tasks traditionally handled by multiple assistants.
- Developed a React-based web application to streamline access to Amazon S3 for viewing, uploading, downloading, and archiving files by integrating a **Spring Gradle**-powered Java REST API backend service hosted on a **Kubernetes** cluster. Achieved seamless file management by implementing functionality for listing file types, retrieving folder contents, and generating pre-signed URLs for secure uploads.

EDUCATION

MS in Engineering Science, Data science | *State University of New York at Buffalo* – 3.78 GPA

Aug 2020 – Feb 2022

B. Tech in Electronics & Communication | *Guru Gobind Singh Indraprastha University* – 3.68 GPA

Aug 2013 – Jul 2017

TECHNICAL SKILLS:

Languages and Database: Python, Java, C#, Go, HTML, Bootstrap, MySQL, MongoDB, Postgresql, JavaScript, Ruby, R programming.

Frameworks and Tools: Kubernetes, Docker, Helm, CDK, Git, CI/CD Pipelines, React, Python Flask, Django, RESTful APIs, Kafka, Apache Spark, ETL pipelines, SQL/NoSQL Databases, Spring, AWS (EC2, S3, EKS, Lambda, CloudWatch, CDK), DataDog, Prometheus, Postman, NLP, Machine Learning, Model inferencing, TensorFlow, PyTorch, Scrum, Agile, ITIL, Test Driven Development, Bash scripting, Hadoop, HDFS, DevOps.