UTTAM SINGH

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EXPERIENCE

Software Engineer(SDE-2) GE Healthcare Oct 2020 - Aug 2024

Distributed Data Platform

- Pioneered the development of a low-cost,fault-tolerant, cloud-native real-time streaming architecture, integrating private data centres and cloud to stream 25 Mbps of data with round-trip latency of **under 300ms**
- Collaborated closely with the CTO to spearhead the integration of AI advancements in healthcare, significantly boosting GenAI adoption across multiple industry portfolios.
- Developed a robust, data-agnostic template for Flink-based Kafka consumers, enabling dynamic, multi-tenant topic management with zero downtime
- Drove a **72%** reduction in cloud infrastructure costs by introducing a cloud-native operator-based monitoring stack, enhancing resource efficiency and scaling capabilities
- Designed a scalable, fault-tolerant, Quarkus based API to query data from Azure CosmosDB
- Introduced Tilt, an open-source tool at the organizational level, slashing developer feature integration time by 40 minutes per engineer, accelerating the pace of innovation and deployment.
- Successfully shipped 2 major products with platform adoption within 6 months of launching the platform
- Developed a highly optimized U-Net-based tumor detection algorithm for MRI scans, streamlining post-processing and rendering pipelines to deliver fast, accurate visualizations with enhanced model performance.

Notification Middleware On Cloud

- Owned end-to-end microservice development for Notification-Middleware on Cloud consuming message from kafka broker, transforming it and sending the message to Azure IoTHub

Reverse Engineer - GEHC Cyberlab

- Performed reverse engineering for 9 GEHC's flagship digital products using bufferoverflow and other attacks

Undergrad Intern University of Western Ontario, London, Canada Apr 2019 - Jul 2019

- Delivered an IOT-based solution and developed a dashboard in NodeRed for Smart City applications

EDUCATION

MS in Computer Science, New York University, NY	Grade:- 4.0/4.0	2024 - 2026
B.Tech in CSE, National Institute of Technology, Rourkela	Grade:- 9.13/10	2016 - 2020

PROJECTS

GenAI for ROS2: A LLM-RAG application for Robotics
Technology: LLM, Ollama, RAG, Python, MongoDB, Qdrant, Docker, ClearML
Description: Developed a Retrieval-Augmented Generation (RAG) system leveraging LLM for neural retrieval and context-aware response generation. Implemented data scrappers to collect real-time data from internet, dense vector search utilizing Qdrant optimized pipeline orchestration and experiment tracking with ClearML. Fine-tuned generative models for domain-specific knowledge retrieval and integrated the system with scalable APIs for real-time, context-driven question answering

Transformer-Based Multimodal Sentiment Detection
Technology: Transformers, Pytorch, Python

Description: Researched multi-modal models with sentiment analysis domain. Developed a text and image based sentiment classifier using a transformer-based fusion model to classify single annotation-based sentiments on MVSA dataset accurately

Grid Artifact Correction in Mamogram images (NDA)
Technology: C++, Image Processing, Software Optimization
Description: Developed a highly optimized grid artifact correction algorithm in Mammogram using classic Image Processing techniques(patent filed) with optimizations incorporated for intel drivers to run in a low resource device

Classification of Human Emotions using EEG Data Python, Deep learning Technology: Python, Keras, Recommender Systems, Deep learning
Description: This research project focuses on emotion recognition using EEG signals, a multi-domain problem(AI, Maths, Signal processing), addressing challenges related to large datasets and channel selection by focusing on statistical methods for data representation, signal decomposition method for augmentation and deep learning methods for classification.

SKILLS AND STRENGTHS

Programming Languages	Java, C, C++, Python, Matlab, Quarkus, SpringBoot, SQL, Javascript
Cloud Native Technologies	Azure IoTHub, Kubernetes, Docker, Helm, KEDA, AWS, Azure, GCP
Other Technologies	PostgreSQL, Data Mesh, Flink, Kafka, Redpanda, Tilt, Git, GitOps

KEY ACCOMPLISHMENTS

- 1st Runner-up in GE Healthcare Annual Tech Awards under the category **" Delivering the future healthtech with a business growth mindset"**
- 11 Impact Awards for ownership, stakeholder management and delivering impactful solutions
- Winner of GE's Global Innovate Hackathon
- 2 Academic Excellence Award in CSE department
- 3 research papers published in journals