Takshshila Rawat

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EDUCATION

Arizona State University (Tempe, AZ) Aug. 2021 – May 2023
Master of Science in Computer Science GPA: 4.0

National Institute of Technology (Hamirpur, India) Aug. 2012 – May 2016
Bachelor of Technology in Computer Science

SKILLS

Languages: Python, Cuda-Programming, C++, Java, JavaScript (AngularJS, React.js), HTML/CSS, SQL, Neo4j, D3.js, C#/.Net
Tools: Git, Jenkins, MySQL, Docker, Flask, Postman, Elasticsearch, MQTT, Boto3, Linux, Jupyter Labs, VSCode, Eclipse
Miscellaneous: Rest APIs, Web-sockets PyTorch, Scikit-Learn, TensorFlow, Keras, NumPy, Pandas, NLTK, Pycuda, MQTT, Networkx

EXPERIENCE

WP Carey Tempe, AZ
Machine Learning Research Aide: [Linux, C++, Python, Pycuda, Pandas, Numpy, Jupyterlabs, MQTT, Flask] June 2022 – May 2023

- Designed a robust Python Flask architecture enabling independent task execution at any phase through unique session IDs.
- Delivered a sustainable alternative to traditional Machine Learning strategies to solve function approximation, classification, and clustering tasks using self-organizing maps (Kohonen-nets).
- Created ETL pipeline to stream data from IOT device (using MQTT protocol), transformed the data columns w.r.t ranked features, and performed online training by reducing the overhead of saving sensitive data
- Implemented cuda-kernels for feature ranking and model training which reduced execution time by 140%.
- Explored an explainable AI for real-time object detection in drone images. Trained CNN and ResNet models on XAI dataset.

Reliance Jio Mumbai, India
Manager: [Java, Javascript, Python, AngularJS, Rest APIs, Neo4j, Microservices] April 2019 - Aug. 2021

- Led User Interface team for 5G Fulfilment Management System that performs Network Provision on Bare metal and the cloud using a set of workflows. Designed workflows, stored data in Neo4j, and executes workflows sequentially.
- Mentored a team of 8 to develop Machine Learning as a Service consisting of an Anomaly Detection and Forecasting Engine, provided first real-time training, predicting user performances, analysis and analysis for telecom data
- Designed microservice architecture with load balancers between each microservice and UI. Used REST & WebSockets API for reliable communication among the microservices.

Software Engineer: [Java, Javascript, Elasticsearch, AngularJS, Rest APIs, Apache POI, Jline] June 2016 - March 2019

- Introduced a platform with five microservices to analyze and monitor real-time call data records, implemented a Data Analysis microservice that handles query requests from the UI, executes them on Elasticsearch, and analyzes data from 93 million users.
- Delivered an interactive and responsive UI serving multiple microservices with multiple reusable patterns using MVC patterns
- Developed a microservice that effectively monitors and auto-scales resources such as CPU, RAM, Docker containers, and VNF in the Jio cloud, resulting in a reduction of 45% in man-hours through real-time computational resource allocation.
- Implemented a centralized and dynamic Command Line Interface (CLI) for monitoring 30 microservices in the Jio cloud, providing real-time commands, unique sessions, and secure user/role management. Currently serving 95% of Jio enterprise services.

PROJECTS

Dialog system: Hierarchal Help Me Think - [NLP, PyTorch, HuggingFace, Pandas]

- Customized user-specific output generated by seven large language models using hierarchical prompting techniques
- Developed dataset and fine-tuned the models (Bloom, Flan-T5, XLNET, GPT2, etc.) to generate customized output to help non-expert users to solve any task

Visualizing Cloud Computing Performance using Behavioral Lines - [D3.js, Cloud]

- Developed a system to visualize to show the behavior of different nodes in a distributed cloud using similarity scores on metrics (CPU, Network, Disk read/write, Memory)
- Collected data from AWS instances and visualized the individual and group trends using interactive stacked area, similarity metric, area selector, popup, and tooltip chart. Dedicated control panel to control parameters and display internal values.

Understanding Indirect question and answers - [NLP, NLU, Python, PyTorch, Pandas, BERT, Transformers]

- Fine-tuned BERT model for Natural Language Understanding on MNLI, BOOLQ, and Circa dataset
- Replicated experimental table for relaxed labels and reached comparable accuracies

ACCOMPLISHMENTS

- Achieved the highest grade in the Masters's program at ASU, resulting in the prestigious recognition of receiving the **Gold medal**
- Honored with the **Gargi Prize** by the Indian State Government for high academic scores as a female student and inspiring others