Takshshila Rawat

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Education

- **Arizona State University, Arizona** **Aug 2021 – May 2023**
  Master of Science in Computer Science ***CGPA: 3.96/4***
- **National Institute of Technology Hamirpur, India** **Aug 2012 – May 2016**
  Bachelor of Technology in Computer Science ***CGPA: 7.56/10***

Skills Summary

- **Programming** Python, Cuda-Programming, Java, AngularJS, JavaScript, HTML, CSS
- **ML Technologies** PyTorch, Scikit-Learn,TensorFlow, Keras, NumPy, Pandas, NLTK, Networkx
- **Tools and libs** Jupyter Labs, AWS (EC2, Lambda, S3, SQS, DynamoDB), D3, HuggingFace
- **DevOps Technologies** Git, Jenkins, MySQL, Docker, Flask, Postman, Neo4j, Elasticsearch

Professional Experience

- **Machine Learning Research Aide - [Python, Cuda, MQTT, Pandas, CNN, Flask] W P Carey** June-22 - Current
  - Worked on self-organizing maps and provided an alternative method to traditional ML algorithms for function approximation, classification, and clustering, resulting in better or similar to a decision tree, random forest, gradient boosting, etc.
  - Used MQTT protocol to communicate with multiple sensors of IoT(Internet of Things) service.
  - Utilized computational resources using cuda-programming and edge computing on Nvidia Jetson and Ngx.
  - Worked on explainable AI focusing on drone object detection (XAI dataset) using CNN, ResNet, etc.
- **Senior Software Developer - Reliance Jio, India** April-19 - August-21
  - **Integrated Performance Manager -[Java, Kafka, AngularJS, HTML, Elasticsearch]**
    - Led a team of 10 people to develop a 5G service Integrated Performance Manager that predicts and monitors real-time network performances, replaced 100% dependency on vendor service, and became self-sufficient.
    - Used Elastic search as a NoSQL database to effectively utilize its text-search and log-analysis features.
    - Delivered compact UI to develop and execute workflows and plans using Neo4j, transparently displaying project phases, generating scheduled reports using cron schedular, etc.
  - **Machine Learning as a Service -[Python, Keras, Scikit-Learn, AngularJS, HTML, Elasticsearch]**
    - Managed a team of 8 to develop Machine Learning as a Service consisting of an Anomaly Detection and Forecasting Engine, providing real-time analysis and reducing 60% man-hours.
    - Delivered an interactive web interface having different dashboards to visualize the overall process, planning, data collection, preprocessing, training, and displaying comparative results.
    - Users can choose algorithms (SVM, KNN, Random Forest, Decision Tree, Gradient Boosting, etc.) and features for analysis.
- **Software Developer - Reliance Jio, India** June-16 - March-19
  - **Adaptive Troubleshooting and Operation Manager -[Java, AngularJS, Elasticsearch, Neo4j]**
    - Introduced a platform to analyze and monitor business call data records turned into a real-time analysis of 93 million users.
    - Developed interactive dashboards displaying real-time analysis such as the How India Talks, workflow/query management, etc.
    - Provided highly scalable architecture interactive with the five microservices elastic load balancer, data collection, preprocessor, analyzer, and Identity and Authorization manager.
  - **Capacity Manager - [Java, Elasticsearch, AngularJS, HTML]**
    - Developed a microservice to monitor resources usage(CPU, RAM, Docker containers, VNF) in NFV/SDN (Network Function Virtualization and Software-defined network) cloud
    - Provided real-time autoscaling of computational resources by de-provisioning or provisioning on need reduces 45% man-hours.

Academic Project

- **Dialog system: Hierarchal Help Me Think -**[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 custom output and help non-expert users to solve any task.
- **Understanding Indirect question and answers -** [PyTorch, HuggingFace, Pandas]
  - Fine-tuned BERT model for Natural Language Understanding on MNLI, BOOLQ, and Circa dataset
  - Replicated experimental table for relaxed labels and reached comparable accuracies.
- **Face Recognition on Raspberry Pi using AWS -** [PyTorch, Python, Lambda, SQS, SNS, EC2, S3, DynmoDB]
  - Developed highly scalable IAAS and PAAS services for real-time face recognition on edge devices, Raspberry Pi
  - Trained resnet model using real-time images captured through Raspberry Pi resulted in 98.18% test accuracy
- **Pointer Generator Text Summarization -** [Python, PyTorch, Pandas, Transformers]
  - Implemented encoder-decoder transformer architecture for pointer generator text-summarization on CNN Daily Mail dataset
  - Enhanced the architecture by achieving a ROUGE F1-score of 39.2 and METEOR score of 17.4 on the test dataset