VARUN ANUNSHEEL VIKRAM SHA

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EDUCATION

Northeastern University, Khoury College of Computer Sciences, Boston May 2025
Master of Science in Artificial Intelligence CGPA: 4.0/4.0
Coursework: Pattern Recognition and Computer Vision, Foundations of AI, Algorithms, Programming Design Paradigm

Manipal Institute Of Technology, Manipal, India Oct 2021
Bachelor of Technology in Computer and Communication Engineering with a minor in Soft Computing CGPA: 7.98/10
Coursework: Computer Vision, Artificial Intelligence, Neural Network and Fuzzy Logic, Natural Computing, Cloud Computing, Data Mining & Predictive Analysis, Reinforcement Learning, Parallel Programming, Data Structures, Algorithms, Database Systems

SKILLS

Languages:	Java, Python, C++, C, Dart, R
Libraries & Frameworks:	PyTorch, Matlab, Tensorflow, Keras, Cuda, Numpy, Spicy, Scikit-Learn, OpenCV, NodeJs, Spacy, NLTK, JQuery, Oracle DB, MySQL, Langchain, Llamaindex, Hugging Face, Ollama
Cloud Technologies:	Google Cloud Platform, AWS EC2, AWS Sage Maker, Heroku, AWS Lambda, Azure
Skills:	AI, CV, NLP, Machine Learning, Deep Learning, Data Mining, Generative AI, LLMs, Docker

PROFESSIONAL EXPERIENCE

General Electric, Bengaluru, India Jun 2021- Aug 2022
DevOps Engineer - Sourcing & Logistics Team

- Spearheaded a team of 5 to build a chatbot using AWS, Oracle BI publisher and Postman and integrated it into Microsoft Teams to directly retrieve user required data data from the Oracle database resulting in a ~8% reduction in query tickets.
- Investigated and resolved integration bugs in OTM by analyzing Tableau reports and automating issues, resulting in a 10% productivity boost and decreasing tickets raised by ~18%.
- Collaborated with Oracle to build Rest APIs for OTM so multiple other projects can utilize this technology effectively.

General Electric, Greenville, USA Jan 2021 - May 2021
Co–op–OTHSAL, Internship - Lean Performance Management Team

- Identified production inefficiencies leading to an ~11% in waste in Gas Turbines, and implemented lean manufacturing techniques, resulting in a 50% reduction in waste produced and substantial annual cost savings.
- Enhanced factory workers' productivity by 9% through the creation and deployment of the ReactJS based application for lean manufacturing processes using JavaScript, AWS & Mosquito MQTT which is displayed across the production site.

PROJECTS

LLM Medical Langchain Project

- Developed the project using LangChain to optimize patient-doctor interactions through Monte Carlo Tree Search (MCTS), resulting in enhanced decision-making and improved patient outcomes.
- Integrated a FAISS-based retrieval system within the project, utilizing HuggingFace models to generate embeddings of medical text data for efficient retrieval of relevant patient cases and medical literature.

MLOps with CI/CD Pipeline

- Developed a deep learning-based object detection and segmentation pipeline from scratch with an overall accuracy of 87% that can identify, track, and count multiple objects in real time using Mask R-CNN.
- Deployed on Google Kubernetes Engine (GKE) by creating a Streamlit app and then Dockerizing it. Automated the build and deployment process by linking Cloud Build to the GitHub repository, where GitHub is used for version control. The deployed application can be accessed through an endpoint for testing and use.

MLflow with AWS Deployment

- Developed and deployed a kidney disease classification project using ML, deep learning frameworks like TensorFlow, and workflow management tools such as MLflow and DVC, demonstrating proficiency in model development and version control.
- Implemented AWS CI/CD deployment using GitHub Actions, configuring EC2 instances, Docker containers, and ECR repositories, showcasing expertise in cloud computing, DevOps practices, and automated deployment pipelines.

Movie Recommendation System

- Developed personalized recommendation algorithms using geographic based filtering, collaborative filtering, content-based filtering to provide personalized movie suggestions based on user preferences, viewing history, and demographic data.
- Implemented data preprocessing techniques and feature engineering to optimize model performance resulting in an Root mean square error (RMSE) of approximately 90%.

ACHIEVEMENTS & ACTIVITIES

- Secured 2nd position in the annual guild competition held by GE for developing an AR application that displays models of all the parts and working of various production turbines and production centers in real time on the user's screen.
- Headed a student project called Vision that works to build a Mixed Reality (MR) Headset by getting sponsorships and actively participated in recruiting new team members.