ASHWIN UNNIKRISHNAN

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EDUCATION

Master of Science in Artificial Intelligence | Northeastern University | ***Boston, MA*** (GPA – 3.97/4.0) Dec 2023
Courses: Machine Learning, Computer Vision, Deep Learning, NLP, AI for Human-Computer Interaction, Algorithms (Teaching Assistant)
Master of Technology in Computer Science | National Institute of Technology | ***Warangal, India*** (GPA – 3.57/4.0) Dec 2017

TECHNICAL SKILLS

Languages: Python, C++, Perl, Java, JavaScript, Bash, R, SQL, MySQL, PostgreSQL, NoSQL, MongoDB, Snowflake, Redis, JSON, HTML
Libraries: PyTorch, Huggingface, TensorFlow, Keras, OpenCV, Scikit-Learn, Pandas, NumPy, Matplotlib, Flask, MLflow, Langchain, MxNet
Frameworks: GitHub, Spark, Docker, Tableau, Streamlit, AutoML, AWS, Kubeflow, Hadoop, Azure, Grafana, Kubernetes, Mediapipe
Skills: Data Science, Statistical Analysis, Clustering, Data Visualization, Predictive Modelling, Data Mining, LLM, Generative AI, MLOps, Data Analytic, Data Modelling, Problem-Solving, Cloud Computing, Explainable AI, Computer Science, Communication Skill, Project Management

WORK EXPERIENCE

Machine Learning Engineer Intern at Raysecur | Boston, USA Jan 2023 - Aug 2023

- Fine-tuned **Convolutional Neural Network** MobileNetV2 for detecting abnormal items for terahertz imaging. Leveraged CUDA and used cross validation and class weighing to achieve model accuracy of 97% and recall of 0.95. Explored quantization aware training technique.
- Improved accuracy of abnormal item detection by 12% through research and **exploratory data analysis** on terahertz imaging, focusing on pixel intensity distribution and advanced image processing techniques, utilized AWS Sagemaker for running multiple experiments.
- Orchestrated end-to-end machine learning **model development pipeline**, including data processing, dataset generation, hyperparameter tuning, model training. Reduced model experimentation and development time by 60%, adopted GitHub for model version control.
- Streamlined data ingestion with **ETL data pipeline,** Apache Airflow to integrate images from diverse repositories, using AWS lambda, S3.
- Implemented **Data Drift Detection** pipeline using **statistical hypothesis** testing to monitor pixel intensity variation ensuring robustness.
- Designed multivariate time series model for demand forecasting, optimized supply management and reduced production time by 20%.
- Models were dockerized and deployed on AWS EC2 cloud infrastructure, with Apache Kafka for **real time streaming** and rapid scalability.

Senior Software Engineer at Qualcomm | Hyderabad, India July 2017 - Feb 2021

- Spearheaded 7-member team developing and designing automation architectures following Agile methodology and integrating **machine learning** into various tasks. Enabled cross-functional collaboration with stakeholders for successful strategy execution.
- Built novel Code Maintenance tool using reinforcement learning(**Q-learning)**. Reduced UI automation code maintenance time by **70%**.
- Engineered **NLP** microservice using Scikit-learn to interpret chatbot queries with **TF-IDF** and **Naïve-Bayes**, improving chatbot experience.
- Developed tool to detect duplicate bug Jira ticket using **NLP**, utilizing **word2vec** and **cosine similarity**, improved work estimation by **20%.**
- Developed machine learning model using **BERT and LSTM** for product feedback analysis. Helped improve testing coverage by **5**%.
- Implemented Python-based **log diagnostic analysis** workflow for initial root cause analysis, reducing manual intervention by **25**%.
- Deployed **microservices** based web application with FastAPI to schedule runs for optimal device usage. Built **dashboards** with **Logstash, Elasticsearch, Kibana** to visualize **KPIs** and conducted **data analytics,** saving time by 7**0%** and facilitating data-driven decision-making.
- Performed **data analytics** using **SQL** on legacy tests run to map functional domains covered and augment test coverage metrics by **10%**.
- Applied **Markov Chain Statistical Model** in command management tool, enhanced user experience and efficiency, reducing time by **20%**.

PROJECTS

Stock market Portfolio Management [JAVA, TIMESERIES FORECASTING, STOCK, INVESTMENT, PORTFOLIO MANAGEMENT, FINTECH, REGRESSION]

- Developed portfolio management tool using MVC modeling in Java and utilized **MongoDB** as the database to store user details.
- Integrated Tableau to facilitate **dynamic visualization** of user portfolios, offering insights into diverse stock growth trajectories.
- Incorporated **LSTM networks** for stock price forecasting, empowering users with **predictive analytics** to optimize investment decisions.

Social Media Profile Classifier [DEEP LEARNING, OBJECT DETECTION, MACHINE LEARNING, CLASSIFICATION, NATURAL LANGUAGE PROCESSING]

- Trained **Convolutional Neural Network** models Resnet50, MobileNetV2 to detect objects in images and create user profile documents.
- Developed **Naïve Bayes, Random Forest** classification to classify the documents into predefined profile types with **TF-IDF** vectorization.
- **A/B testing** with randomized output and model classification output, aided in understanding user preferences and hypothesis testing.

Churn Prediction [DATA ANALYSIS, CLASSIFICATION, FEATURE ENGINEERING, MACHINE LEARNING, BUSINESS ANALYSIS, PYCARET, JUPYTER NOTEBOOK]

- Conducted extensive exploratory data analysis and **feature engineering** for credit card churn and hotel cancellation prediction.
- Performed data analytics with PyCaret and trained classification model **Logistic Regression**, **Random Forest, Decision Trees, XGBoost.**
- Increased churn prediction accuracy by 19%, using **cost-sensitive learning** with adjusted weights on various machine learning models.

LLM-Optimized Student Q&A chatbot [LLM, GOOGLE PALM, LANGCHAIN, STREAMLIT, HUGGING FACE, CHATBOT, PROMPT ENGINEERING]

- Designed **Conversational AI** chatbot instructor using **RAG** with Google PaLM, reduced student wait time by 90% for historical questions.
- Utilized Hugging Face Instructor embeddings and stored Historical Q&A in vector database for efficient similarity search.
- Designed and implemented Streamlit front-end chatbot for user-friendly question input, answers, and archive URL retrieval.

Connactify – Connect introverts through activity [COLLABORATIVE FILTERING, RECOMMENDER SYSTEM, UI/UX DESIGN]

- Built **recommender system** using memory-based collaborative filtering for personalized activity suggestions and matching users.
- Administered user survey and interview, providing valuable insight for business requirement, helped **feature engineering** from scratch.