Vikas Reddy Venkannagari

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Experience

Research Assistant — Baltimore, USA

Deep Learning and Signal Processing Projects — *Jan. 2023 – Present*

- Engineered a multi-modal emotion detection system utilizing transformers for EEG feature extraction and ConvLSTM for facial feature analysis, achieving 97% accuracy; research accepted at BSN Conference.
- Developed EmoFormer, a SegFormer-based architecture for image classification, achieving benchmark accuracies of 77.34% on FER2013 and 67.71% on AffectNet, setting new benchmarks in facial emotion recognition.
- Collaborated with Brainwave Science on lie detection, enhancing EEG signal processing through CNN-based models (e.g., EEG-Inception, ChronoNet), improving accuracy from 86% to 91%.
- Designed and implemented a data collection protocol for EEG signals, gathering data from 25 participants, creating a benchmark dataset for lie detection research and deep learning applications.

Epam Systems — Hyderabad, India

Spring Intern, Software Development Engineer in Test (SDET) — *Jan. 2023 – June 2023*

- Authored and executed over 200 automated test scripts using Java and Selenium WebDriver, increasing test coverage by 35% and reducing manual testing time by 40%.
- Validated backend data with SQL queries, resolving over 60 defects and improving data reliability by 25%.
- Set up CI/CD pipelines with Jenkins and Git, cutting build times by 30% and automating deployments.
- Worked with Agile teams using JIRA to deliver 3 projects on time, boosting team productivity by 20%.

IndicWiki Project — Hyderabad, India

Data Analyst Intern — *Mar. 2022 – June. 2022*

- Built a scalable data pipeline to scrape, preprocess, and clean datasets of over 10,000+ articles, enabling the translation of English Wikipedia content into Telugu and Hindi, increasing accessibility for 50M+ native speakers.
- Streamlined data processing workflows using Python and SQL, reducing preprocessing time by 30% and ensuring 98% data accuracy for multilingual datasets.
- Authored comprehensive documentation for data pipeline processes, enhancing team efficiency and reducing onboarding time for new members by 40%.
- Performed in-depth data analysis using statistical methods and visualization tools (e.g., Tableau, Matplotlib) to identify translation trends and improve content quality by 20%.

Projects

Stock Price Prediction | *Python, TensorFlow, LSTM, NumPy, Matplotlib* — GitHub

- Engineered and deployed an LSTM-based deep learning model for stock price prediction, ensuring 84.39% of predictions were within ±10% accuracy of the true values, demonstrating robust forecasting capabilities.
- Optimized the model's performance through data preprocessing, hyperparameter tuning, and cross-validation, effectively addressing time-series challenges in financial datasets.

Lexically Constrained Beam Search for Machine Translation | *Python, PyTorch, Hugging Face* — GitHub

- Implemented lexically constrained beam search from scratch for machine translation, incorporating techniques to enforce pre-defined lexical constraints in output sequences.
- Evaluated the machine translation model's performance on TR-EN tasks using WMT data, achieving notable quality improvements validated by over 300 successful test cases and BLEU score analysis.

Technical Skills

Languages & Frameworks: Python, Java, SQL, R, C/C++, PySpark, PyTorch, Keras, Flask, FastAPI, Hugging Face
Developer Tools: Docker, Kubernetes, Jenkins, Git, Selenium, TestNG, AWS, VS Code, JIRA, Tableau, Power BI
Libraries: NumPy, Pandas, Matplotlib, React, Seaborn, Scikit-learn, OpenCV, Transformers, LangChain, LlamaIndex
Others: Data Modeling, API modeling, Agile, SOLID, Design Patterns, AWS, Azure Cloud, SQL Server, Azure DevOps

Education

University of Maryland Baltimore County (UMBC) — Baltimore, MD

Master's of Professional Studies in Data Science; GPA: 4.0 — *Aug. 2023 – May 2025*

Institute of Aeronautical Engineering (IARE) — Hyderabad, India

Bachelor's of Technology in Computer Science and Engineering; GPA: 3.41 — *May 2019 – May 2023*