Vikas Reddy

Data & Analytics Engineer | ETL Pipelines, Data Warehousing

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Experience

Brain-Machine Interface Lab at UMBC — Baltimore, USA

ML Researcher, Deep Learning and Signal Processing — *Jan. 2024 – Present*

- Engineered a scalable, cloud-based ML system integrating transformers & ConvLSTM for EEG and facial features; achieved 97% accuracy and optimized end-to-end workflows; published at BSN Conference.
- Developed EmoFormer, a SegFormer-based model for facial emotion recognition using Scikit-learn; reached 77.34% (FER2013) and 67.71% (AffectNet) accuracies, setting key benchmarks.
- Built an end-to-end ML pipeline for lie detection (P300) with Brainwave Science; used Kafka for real-time EEG streaming and CNNs for signal processing, hitting 81% accuracy.
- Created a data collection protocol for lie detection; gathered EEG data from 25 participants and applied advanced processing to balance datasets.

Epam Systems — Hyderabad, India

Intern, Software Development Engineer in Test — *Jan. 2023 – June 2023*

- Applied SOLID and design patterns to create scalable automated tests, reducing deployment failures by 30% and reinforcing core OOP principles.
- Engineered backend services and automation tools in Python/Java; utilized Kubernetes in Agile teams to deliver scalable features in two-week cycles.
- Implemented CI/CD pipelines with Jenkins, Git, and Docker, cutting build times by 35% and streamlining deployments.
- Utilized AWS (Lambda, S3, Athena) with Hadoop to build fault-tolerant data systems processing 50GB+ data, showcasing cloud-based distributed computing.

IndicWiki Project — Hyderabad, India

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

- Developed a scalable pipeline to scrape and clean 10,000+ articles, enabling translation of Wikipedia content into Telugu and Hindi for 50M+ users.
- Optimized Python and SQL workflows to cut preprocessing time by 30% while ensuring 98% data accuracy for multilingual datasets.
- Conducted data analysis with statistical methods and tools (Tableau, Matplotlib) to identify trends and boost content quality by 20%. Authored documentation for data processes, reducing onboarding time by 40%.

Projects

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

- Built and deployed an LSTM model for stock price prediction; achieved 84% of predictions within ±10% error, demonstrating robust forecasting.
- Improved model performance via data preprocessing, tuning, and cross-validation for higher prediction reliability.

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

- Fine-tuned LLMs and built constrained beam search to steer lexical output in translation tasks.
- Validated performance on WMT (TR-EN) data, yielding BLEU gains over 300+ tests.

Technical Skills

Languages: Python, Java, SQL, R, C/C++, HTML, CSS, TypeScript, JavaScript, JSON, XML
Frameworks: TensorFlow, PyTorch, Keras, Flask, FastAPI, PySpark, Hugging Face Transformers, LangChain, CrewAI
Developer Tools: Docker, Kubernetes, Jenkins, Git, AWS, VS Code, JIRA, Tableau, Power BI
Libraries: NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn, OpenCV, Transformers, Selenium, TestNG
Others: Data Structures, NLP LLMs, CI/CD, Automated Testing, Design Patterns, SOLID, Agile (Scrum/Kanban)

Education

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

Master's 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*