Manish Vemula

Machine Learning Engineer
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Machine Learning Engineer with hands-on experience in full-cycle ML and software development using Agile methodologies. Proficient in building and deploying scalable models with Python, TensorFlow, Scikit-learn, and cloud platforms (AWS, Azure). Skilled in NLP, predictive analytics, data engineering, and CI/CD automation, with a strong track record of improving model accuracy, system performance, and business outcomes through innovative solutions.

EXPERIENCE

ML Engineer **| Discover Financial Services, TX – USA** **September 2024 – Present**

- Developed and deployed end-to-end machine learning workflows using Python frameworks such as FastAPI and Flask, along with TensorFlow and PyTorch, resulting in a 30% reduction in model deployment time through streamlined architecture and automation.
- Engineered scalable Natural Language Processing (NLP) pipelines leveraging Hugging Face Transformers, NLTK, and BERT-based models, which significantly improved sentiment analysis and text classification accuracy by 25% across multiple domains.
- Improved fraud detection capabilities by designing and training Variational Autoencoders (VAEs) and LSTM-based anomaly detection models, achieving a 30% increase in detection accuracy through advanced deep learning techniques.
- Deployed ML models on cloud platforms including AWS SageMaker, Google Cloud Vertex AI, and BigQuery, optimizing infrastructure and resource allocation to deliver 25% cost savings in production environments.
- Automated CI/CD pipelines (Jenkins, GitHub Actions) and built Power BI dashboards, ensuring reliable model delivery and actionable insights for business teams.
- Integrated Generative AI and LLMs (Hugging Face, GPT, LangChain) into NLP pipelines, enhancing text summarization, query handling, and customer insights by 20%.
- Integrated and optimized relational databases such as PostgreSQL and MySQL, enhancing data storage efficiency and enabling faster query performance for real-time analytics and model training.

Associate Machine Learning Engineer **| Nexova – India** **May 2020 – July 2022**

- Managed full-cycle software and ML development projects using Agile methodologies, fostering effective cross-functional collaboration and ensuring on-time delivery of scalable solutions.
- Led the development of a customer churn prediction model utilizing Random Forest and XGBoost, achieving 90% accuracy and helping retain high-value clients through proactive engagement strategies.
- Applied ensemble learning techniques including Random Forest, XGBoost, and CatBoost to enhance predictive model accuracy and robustness, driving better business forecasting and decision-making.
- Implemented deep learning NLP models such as LSTM networks and word embeddings, resulting in an 18% improvement in chatbot sentiment classification and user experience.
- Designed and automated ETL pipelines and ML workflows using Python, SQL, and Scikit-learn, streamlining data preprocessing and model training processes.
- Built scalable machine learning models with Scikit-learn and TensorFlow, optimizing performance for high-volume data applications and real-time predictions.
- Created interactive dashboards and visualizations in Tableau, effectively communicating complex data insights to stakeholders and supporting strategic business decisions.
- Cleaned and prepared structured and unstructured data using NumPy and managed relational databases with MySQL, ensuring high-quality inputs for model training and analytics.
- Deployed ML models on cloud platforms including AWS Lambda, S3, and Azure ML, optimizing infrastructure for cost-efficiency and performance scalability.
- Led migration of legacy systems to microservices architecture, utilizing Docker for containerization, which resulted in 15% reduction in compute costs and 20% improvement in system uptime.
- Automated CI/CD pipelines using GitHub Actions, enabling continuous integration and delivery with faster deployment cycles and reduced manual errors.

SKILLS

Software Methodologies: Agile, Scrum, SDLC Waterfall

Machine Learning & Deep Learning: TensorFlow, PyTorch, Keras, Scikit-learn, Hugging Face, XGBoost, LightGBM, CNNs, LSTMs, Transformers

Cloud Platforms: AWS SageMaker, AWS S3, AWS Lambda, GCP Vertex AI, GCP BigQuery, Azure ML, Terraform, CloudFormation, AWS EC2

Data Engineering & Databases: Pandas, NumPy, OpenCV, SQL (PostgreSQL, MySQL), MongoDB, ETL Pipelines, Data Warehousing, Data Lake

MLOps & DevOps: MLflow, Kubeflow, Weights & Biases, Docker, Kubernetes, Jenkins, GitHub Actions, GitLab CI, Drift Detection

Statistical Methods: Hypothesis Testing, A/B Testing, Time Series Analysis, Regression, Classification, Clustering, Dimensionality Reduction

EDUCATION

Master of Business Administration (MBA) | Central Michigan University, Mount Pleasant, MI **| 2024 – 2025**

Masters of Science in Information Systems| Central Michigan University, Mount Pleasant, MI **| 2022 – 2024**

Bachelor of Computer Science | Jawaharlal Nehru Technological University, Hyderabad, IND **| 2017 – 2021**

CERTIFICATIONS

Microsoft Certified: Azure Data Scientist Associate

AWS Certified Machine Learning - Specialty