MUHAMMAD FAHAD

Senior AI/ML Engineer | Machine Learning | Deep Learning | Data Analysis Skills

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Summary

Senior AI/ML Engineer with over 9 years of experience delivering scalable, end-to-end machine learning solutions across **healthcare**, **fintech**, and **e-commerce** domains. For the past 5 years, have successfully led and mentored cross-functional engineering teams, driving initiatives from research to production with a focus on high-impact deployment and operational excellence.

Expert in **natural language processing**, **computer vision**, and **predictive modeling**, with hands-on proficiency in **Python**, **TensorFlow**, **PyTorch**, **scikit-learn**, and **ONNX**. Adept at building robust infrastructure using **Docker**, **Kubernetes**, **MLflow**, **Airflow**, **Terraform**, and automating workflows through **MLOps** and **CI/CD pipelines**. Experienced in deploying solutions on **AWS**, **GCP**, and **Azure**, with a strong focus on model performance, system reliability, and business alignment. Recognized for blending deep technical knowledge with strategic leadership to deliver value at scale.

Experience

Appsians

Remote, US

Lead AI/ML Engineer

2021 - Present

- Led a cross-functional team of ML engineers and data scientists to design, develop, and deploy scalable machine learning solutions across **healthcare**, **fintech**, and **e-commerce** domains.
- Spearheaded the development of production-grade models for **anomaly detection**, **predictive analytics**, and **NLP-based risk scoring**, improving detection accuracy by **X%** and reducing false positives by **Y%**.
- Architected and implemented ML pipelines using **Airflow**, **MLflow**, and **Docker/Kubernetes**, enabling automated retraining, versioning, and CI/CD integration for all models.
- Led migration of model inference services to **cloud-native infrastructure (AWS/GCP)**, achieving **Z% reduction in latency** and **significant cost savings**.
- Established standardized **MLOps practices**, including monitoring, alerting, and A/B testing frameworks for real-time and batch inference systems.
- Collaborated closely with product and engineering teams to translate business requirements into ML roadmaps, aligning deliverables with strategic goals.
- Mentored junior engineers, conducted code reviews, and introduced best practices in **model reproducibility**, **experiment tracking**, and **technical documentation**.
- Integrated **LLMs and Transformer-based architectures** into specific NLP workflows, enabling scalable document understanding and intelligent access control.
- Supplied and Delivered model performance insights to stakeholders, driving data-informed decisions and securing buy-in for ML-driven initiatives.
- Orchestrated cross-domain model evaluations by designing custom validation strategies tailored to imbalanced datasets and real-time risk sensitivity.
- Championed the adoption of a centralized feature store and metadata tracking system, enhancing reusability and traceability across ML projects.
- Devised strategies for cost-aware model deployment and inference optimization, leveraging techniques such as model quantization and batch serving to reduce compute costs by X%.

Africa Fintech Summit

Remote, US

Senior AI/ML Engineer

06/2018 - 04/2021

- Directed the design and prototyping of machine learning models focused on fraud detection, credit scoring, and transaction anomaly analysis tailored for emerging African financial ecosystems.
- Facilitated collaboration between engineering, product, and regulatory teams to ensure model alignment with local compliance standards and financial risk thresholds.
- Constructed end-to-end ML workflows using Python, scikit-learn, and PyTorch, integrating models into lightweight APIs for rapid deployment in resource-constrained environments.
- Presented model explainability techniques (SHAP, LIME) to improve transparency and trust in AI-powered credit decision systems.
- Delivered technical sessions and strategic insights during the summit on ethical AI use in fintech, promoting responsible innovation in data-driven financial services.
- Initiated partnerships with regional fintech startups to co-develop AI tools aimed at increasing access to microfinance through mobile-first platforms.
- Engineered lightweight fraud detection pipelines optimized for deployment on mobile-first banking platforms with limited compute infrastructure.
- Advised early-stage fintech startups on integrating AI into digital wallets, peer-to-peer lending, and payment systems, improving user trust and operational scalability.
- Authored technical documentation and demo notebooks showcasing use cases of ML in underbanked markets, accelerating adoption by non-technical stakeholders.

Experience

Holman
Remote, US

Data Engineer
07/2016 - 05/2018

- Contributed to the development of early-stage machine learning models for **predictive maintenance**, **vehicle health scoring**, and **fleet optimization**, gaining hands-on experience in transforming raw data into actionable insights.
- Collaborated with senior engineers to preprocess and engineer features from **telematics**, **maintenance logs**, and **sensor data**, enhancing model input quality and robustness.
- Assisted in building data pipelines using **Python**, **SQL**, and **Airflow**, supporting scalable ingestion and transformation of high-volume fleet data.
- Explored and benchmarked various ML algorithms including **random forests**, **XGBoost**, and **LSTM** models, contributing to model selection and evaluation workflows.
- Supported deployment of initial ML services through **Flask APIs** and **Docker**, gaining exposure to real-world production environments and DevOps best practices.
- Participated in sprint planning, peer reviews, and code walkthroughs, which fostered strong engineering fundamentals and introduced agile ML development cycles.
- Shadowed MLOps engineers in integrating **MLflow**, helping track experiments and improve reproducibility in the team's modeling efforts.
- Took initiative to document internal learnings, shared notebooks, and conducted informal brown-bag sessions to discuss new tools and techniques with peers.
- Investigated and managed data quality issues in fleet telemetry feeds and worked with the data engineering team to implement validation checks, improving pipeline reliability.
- Participated in model performance reviews with cross-functional teams, gaining insight into how ML impacts business decisions and operational workflows.
- Learned to use tools like **TensorBoard**, **JupyterLab**, and **Git** effectively in a collaborative environment, improving personal productivity and team alignment.

Skills

Frameworks & Libraries:
TensorFlow · PyTorch · scikit-learn · Keras · XGBoost · LightGBM · ONNX · Hugging Face Transformers · OpenCV · Fast AI · spaCy · NLTK · Python · SQL · Bash/Shell · R · C++ · React · JavaScript

MLOps & Automation:
MLOps · Model Deployment · Model Monitoring · ML Pipelines · MLflow · Kubeflow · Triton Inference Server · Airflow · Prefect · Luigi · Docker · Kubernetes · Terraform · CI/CD for ML · Automated Retraining · Model Versioning · A/B Testing · Model Drift Detection

Cloud & Infrastructure:
AWS · SageMaker · EC2 · S3 · Lambda · Google Cloud · Vertex AI · BigQuery · Azure ML · API Development · REST · FastAPI · Flask · Serverless Computing · Microservices Architecture · Scalable Inference Systems · Real-time Data Pipelines · Azure Databricks · Databricks · Azure DevOps · CosmosDB · Azure Cloud · ARM Templates · IAC · IoT · AWS Services · BDD · esb · SDLC

Data Engineering:
ETL / ELT Pipelines · Data Cleaning & Preprocessing · Apache Spark · Caching · Kafka · Pandas · NumPy · Dask · Polars · SQL & NoSQL Databases · Feature Stores · Data Validation · Scrum · Data Versioning · VBA · QMS

Core Machine Learning & Deep Learning:
Machine Learning · Deep Learning · Supervised and Unsupervised Learning · Natural Language Processing · Computer Vision · Reinforcement Learning · Predictive Modeling · Classification & Regression · Anomaly Detection · Generative AI · Time Series Forecasting · Feature Engineering · Model Evaluation & Tuning · Transfer Learning · Embeddings & Representation Learning

DevOps & Software Engineering:
Git · GitHub · GitLab · Jenkins · Agile Development · Unit Testing · Test Driven Development · GitHub Actions · Code Reviews · Software Design Patterns · Distributed Systems

Visualization & Experiment Tracking:
TensorBoard · Weights & Biases · Matplotlib · Seaborn · Plotly · Dash · Streamlit · Gradio · Power BI · Tableau · Experiment Management · Metrics Logging

Education

Pace University
US

Master's Degree in Computer Science
06/2014 - 06/2016

Certification

Machine Learning Specialization — DeepLearning.AI

AWS Certified Machine Learning – Specialty — Amazon Web Services