Akshit Modi AI/ML Engineer

Akshitmodi05@gmail.com | (602) 565-6454 | USA | LinkedIn | GitHub | Portfolio

Summary

AI/ML Engineer with 3+ years of experience developing machine learning models and data pipelines in healthcare. Implemented in NLP, predictive analytics, and deep learning, with hands-on expertise in Python, SQL, TensorFlow, Scikit-learn, and Hugging Face. Experienced in deploying cloud-based solutions on AWS and Azure, with a strong focus on healthcare data privacy and delivering clinical solutions through close collaboration with multidisciplinary teams.

Education

Master of Science in Biomedical Informatics & Data Science CGPA 3.77/4.00
Arizona State University - Tempe, Arizona 08/2023 – 05/2025

Bachelor of Engineering in Biomedical Engineering CGPA 8.32/10.00
Gujarat Technological University - Ahmedabad, India 08/2017 – 06/2021

Technical Skills & Certification

- **Programming & Data Manipulation**: Python, SQL, Pandas, Apache Spark, Relational Database
- **Machine Learning & Deep Learning**: TensorFlow, Scikit-learn, XGBoost, Random Forest, Deep Neural Networks (DNN), LSTM, Hyperparameter Tuning (GridSearchCV, Bayesian Optimization), SMOTE, Weighted Loss Functions
- **Natural Language Processing (NLP)**: Hugging Face Transformers, SpaCy, BERT, BioBERT, ClinicalBERT, Text Preprocessing, NER, Clinical NLP
- **Cloud Platforms & Tools**: AWS SageMaker, AWS Lambda, AWS Glue, Azure Machine Learning, Azure Data Factory, AKS, FastAPI, RESTful APIs
- **Data Standards & Compliance**: HIPAA, NDHM, FHIR, HL7, Data Encryption, Access Control
- **Data Visualization, Collaboration & Version Control**: Matplotlib, Seaborn, Data Reporting Automation, Tableau, Git, Agile, Cross-functional Teamwork
- **Certificates** AWS Cloud Practitioner, Stanford Machine Learning, Deep Learning Specialization, Google Data Analytics

Professional Experience

AI/ML Engineer, *Tempus* 10/2024- Present, Remote, USA

- Led the development of an NLP pipeline to extract key oncology clinical features from unstructured EHR data, improving data accessibility for downstream analytics. Collaborated with clinical and engineering teams to align goals and streamline data processing using Python and SQL.
- Established and fine-tuned transformer-based models (BioBERT, ClinicalBERT) using libraries such as TensorFlow and Hugging Face on AWS SageMaker. Trained and optimized models through hyperparameter tuning, increasing clinical entity extraction accuracy from 82% to 92%.
- Evaluated models using precision, recall, and F1-score metrics. Performed A/B testing in the AWS cloud to compare model versions, reducing false positives by 15% and enhancing extraction consistency across oncology datasets.
- Constructed scalable data preprocessing and integration pipelines with AWS Lambda and AWS Glue. Generated automated clinical reports and data visualizations using Python libraries like Matplotlib and Seaborn, improving data review efficiency by 30%.
- Implemented closely with DevOps and ML engineers to deploy models on AWS infrastructure. Ensured HIPAA-compliant data handling, maintained audit documentation, and optimized cloud resources, cutting production costs by 20%.

AI/ML Engineer, *Innovaccer* 01/2022 - 08/2023 | Noida, India

- Designed an AI-driven Patient Risk Stratification System for chronic disease prediction (diabetes, COPD), coordinating with cross-functional stakeholders to establish KPIs and healthcare outcome benchmarks.
- Engineered over clinical, temporal, and demographic features from multimodal data sources, including EHR, SQL databases, clinical notes using NLP (BERT, SpaCy), and wearable IoT devices, which improved data quality and model input relevance by 30%.
- Formed, trained, and tuned ML models such as Random Forest, XGBoost, and deep neural networks using Python libraries Scikit-learn and TensorFlow by performing hyperparameter tuning with GridSearchCV and Bayesian optimization to achieve above 85% AUC and reduce false positives by 15%.
- Evaluated models through cross-validation and rigorous A/B testing while collaborating with clinicians to ensure model interpretability and clinical relevance, resulting in a 20% improvement in early risk detection compared to previous methods.
- Deployed models using Azure Machine Learning pipelines and FastAPI for real-time risk scoring and integrated with hospital EMR systems through FHIR and HL7 standards by working closely with DevOps teams to ensure smooth deployment on Azure Kubernetes Service.
- Built continuous learning pipelines (Azure Data Factory), maintained HIPAA/NDHM compliance, and improved model accuracy by 12% over 2 years.

ML Engineer, *Innovaccer* 01/2021 - 12/2021 | Remote, India

- Collaborated with clinical, data, and compliance teams during requirement gathering to define objectives for the Predictive Hospital Readmission Model. Collected and analyzed multi-hospital EHR data, ensuring HIPAA compliance and achieving 98% data quality using Python-based validation tools.
- Engineered time-series features from longitudinal patient records, including diagnoses, procedures, vitals, and discharge notes, using Pandas, Spark, and SQL. Integrated medical ontologies like ICD-10 and SNOMED. Augmented features with NLP for richer context from clinical narratives.
- Trained and validated models using XGBoost and LSTM with SMOTE and weighted loss functions for class imbalance. Boosted F1-score from 0.62 to 0.81. Used SHAP for explainability and MLflow for model tracking and performance benchmarking.
- Collaborated with DevOps, UI, and product teams to deploy the model via RESTful APIs into Innovaccer's Data Activation Platform. Enabled real-time clinician alerts with over 80% precision. Reduced readmissions by 18% and supported CMS-aligned value-based care initiatives.

Projects

Automated Prescription-to-Code Converter, **Arizona State University,** Project Link 05/2025-06/2025

- Created an NLP-based system to convert 10K+ text prescriptions into ICD-10 and CPT codes, streamlining clinical documentation and billing.

Personalized Medicine Recommendation System, Arizona State University, Project Link 01/2025-05/2025

- Analyzed 1M+ Synthea EHRs to identify CDS gaps and produced a real-time app for personalized medication prediction using T5, CatBoost, and feature engineering (SVD, binarization), enabling fast form-based insights.

Student Score Forecasting System, Personal Project Project Link 01/2024 – 05/2024

- Built a student score prediction model, achieving 96% accuracy using CatBoost, and deployed a real-time forecasting app on AWS for instant insights.