VISHAL SEELAM

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EDUCATION

Texas Christian University **May 2025**

Bachelor's, Data Science

- Full Tuition Scholarship | Building Supervisor - Univeristy Unions | Financial Chair - ICF | Horned Frog Marching Band
- Relavent coursework: Deep Learning, Data Mining, Artificial Intelligence, Analysis of Algorithms, Web Technologies, Database Systems, Unix/Linux Systems, Data Structures and Algorithms, Statistics, Probability, Linear Regression and Classification

PROFESSIONAL EXPERIENCE

VaccinityAI LLC **Fort Worth, TX, USA**

Machine Learning Engineer *Sep 2024 - Present*

- Architected and deployed an innovative large language model (LLM) framework for VaccinityAI, designed to predict patient eligibility for clinical trials by analyzing patient notes and evaluating them against specific inclusion/exclusion criteria on a criterion-by-criterion basis. Achieved a criterion-level accuracy of 87.3%, closely matching expert performance.
- Developed a multi-stage architecture involving (a) Annotation for extracting relevant sentences and making predictions at the criterion level, (b) Aggregation to compute trial-level eligibility and relevance scores, and (c) Applications for ranking and excluding trials based on patient eligibility, significantly improving clinical trial matching efficiency by 32.6% to 57.2% over competing models.
- Created and integrated an AI-powered voice call bot, which automates on-call patient questionnaires, enhancing patient outreach and recruitment by dynamically matching patients to relevant clinical trials in real time.
- As the sole AI/ML engineer and founding team member, led the end-to-end model development, driving VaccinityAI's Series A funding efforts by addressing the critical challenge of patient recruitment for clinical trials.

VIInc **Markham, ON, Canada**

Data & AI Intern *May 2023 - Apr 2024*

- Developed ML models for categorizing spending data from NFC taps and scanned receipts, increasing accuracy by 25%.
- Led a team initiative to design an OCR and NLP pipeline using AWS Textract and spaCy, cutting data processing time by 40%.
- Fine-tuned BERT transformers for transaction categorization and entity recognition, improving classification accuracy by 18%.
- Implemented scalable ML workflows using TensorFlow on AWS SageMaker and orchestrated them with Apache Airflow.
- Delivered real-time analytics and personalized insights, enhancing the user experience and boosting engagement by 20%.

SKILLS

Skills: Machine Learning, Natural Language Processing (NLP), MLOps, Cloud, Statistical Analysis, Software Engineering, Web Development
Languages / Frameworks / Libraries: Python, Java, Javascript, SQL, Tensorflow, Pytorch, Keras, Scikit-learn, NumPy, Pandas, React.js, Vue.js, Flask, FastAPI, Springboot, Streamlit, XGBoost, MLlib, Claude, OpenAI, SpaCy, BERT, Pinecone
Tools: Git, Docker, Hadoop, Hive, Kafka, Databricks, MLFlow, Airflow, Excel, AWS, Azure, LangChain, Databricks, Tableau, Power BI, Weka
Certifications: AWS Machine Learning Engineer - Associate

RELAVENT PROJECTS

ELECTROCARDIOGRAPHY RISK ENGINE - *Link to project*

- The project aims to classify and diagnose ECG images with a 99% accuracy rate, surpassing existing models that achieve 96%. It leverages Google's Vision Transformer (ViT) for image classification and Anthropic Claude SONNET via Amazon Bedrock for natural language processing and justification of diagnoses.
- Leveraged scalable AWS infrastructure and cutting-edge ViT architecture with additional attention layers to analyze diverse ECG datasets, enabling efficient model training, evaluation, and real-time ECG analysis through FastAPI endpoints.

SALIFORT MOTORS EMPLOYEE RETENTION - *Link to project*

- Developed and documented a predictive analytics solution for employee churn evaluating various models and techniques, achieving an f1 score of 0.953 with XGBoost, outperforming other models by a wide margin.
- Conducted Exploratory Data Analysis (EDA) to identify key predictors like average monthly hours, satisfaction level, and last evaluation, uncovering critical reasons for Employee churn. Visualized findings using Tableau to present actionable insights.
- Enhanced model performance through hyperparameter optimization and cross-validation, reducing the false positive rate by 10%, driving actionable recommendations for HR teams to improve employee retention strategies.