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Vandan Tank

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EDUCATION

Bachelor of Technology in Computer Science and Engineering, 9.06/10   **September 2022 – May 2026**
SRM Institute of Science & Technology, Chennai, India

TECHNICAL SKILLS

Languages: Python, SQL, C, C++, Java
Databases/ Warehouse: BigQuery, PostgreSQL, MySQL, MongoDB, Firebase
Tools & Frameworks: TensorFlow, PyTorch, LangChain, Streamlit
Cloud & Platforms: GCP, AWS, Azure ML, Vertex AI, Power BI, Looker Studio
ML & Statistical Methods: GenAI, NLP, LLMs, Transformers, Time Series Forecasting, Survival Analysis

WORK EXPERIENCE

Research Assistant – SRM Institute of Science & Technology, Chennai, India   **April 2025 – July 2025; October 2025 – Present**
Developing 'Coursistant', an AI-powered support platform to resolve the student-professor knowledge bottleneck.
- Engineered a RAG-based chatbot using LangChain, GenAI, Streamlit, training the model on 400+ course-specific QnAs, lecture transcriptions to deliver context-aware responses.
- Led a 6-member development team, facilitating design sprints to integrate a vector database which reduced query latency by 40%.

Data Analytics Intern – Wow InfoBiz Pvt. Ltd., Mumbai, India   **July 2025 – October 2025**
Tasked with a critical business challenge to understand & predict customer churn; identified key behavior indicators to inform product & marketing outreach strategy for improved retention.
- Modeled customer churn using logistic regression, survival analysis, identifying early-payment delays as the primary risk factor.
- Influenced marketing outreach scheduling by analyzing customer tenure data, directly driving a 12% increase in engagement levels.
- Collaborated with cross-functional marketing & operations teams to translate statistical findings into actionable business requirements & customer-focused solutions.

PROJECTS

Hierarchical Survival Model for Credit Default Forecasting
- Constructed hierarchical RandomSurvivalForest from 1.33M loans utilizing scikit-survival to estimate cumulative default hazard.
- Optimized training pipeline on 106k subset achieving 0.683 Concordance Index while reducing computational overhead 12x.
- Deployed interactive Streamlit application visualizing borrower survival curves after auditing feature fairness via SHAP analysis.

Comparative Analysis: Transformer Models for Abstractive News Summarization
- Fine-tuned BART, T5, PEGASUS transformers on 7k XSum samples utilizing Hugging Face for abstractive headline generation.
- Validated PEGASUS superiority achieving 17.94 ROUGE-2 score outperforming BART & T5 baselines by 32% margin.
- Designed Streamlit interface facilitating qualitative audits to expose hallucination risks ensuring reliable NLP deployment.

Advanced Time Series Forecasting of U.S. Inflation
- Engineered inflation pipeline processing 65-year FRED data with lag features & exogenous UNRATE FEDFUNDS inputs.
- Evaluated SARIMA & ETS against XGBoost achieving 16% RMSE reduction demonstrating machine learning superiority.
- Executed retrained XGBoost model for 12-month forecast (~2.87% stabilization), informing risk management during volatile periods.

Online Handwritten Mathematical Expression Solver Using Artificial Neural Network
- Architected ANN with 2 hidden layers & softmax output on GPU to recognize digits, symbols in Tkinter GUI, attaining 89% accuracy.
- Formulated connected component labeling algorithm for processing expressions by converting image to array using thresholding.
- Automated transfer learning & fine-tuning techniques, elevating ANN model's accuracy by 26%.

Diabetes Detection & Health Management System
- Systematized Scikit-Learn pipeline using IQR outlier treatment & Z-score scaling for feature integrity.
- Enhanced Logistic Regression to 80% accuracy using GridSearchCV & multicollinearity reduction.
- Launched Flask web application generating real-time diabetes risk prediction & dynamic health plans.

LEADERSHIP & ACTIVITIES

- **NLP Chatbot Workshop -** Planned & delivered hands-on session for 80+ students, guiding creation of Azure-based NLP chatbots.
- **HacktoberFest 2025 -** Earned Supercontributor badge for high-impact contributions & collaborative problem-solving across open-source projects.