AEKANK PATEL

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Education

Stevens Institute of Technology Hoboken, NJ
Master of Science in Data Science, **GPA: 3.97/4.0** Aug 2024 – May 2026
Relevant Coursework: Numerical Linear Algebra for Big Data, Deep Learning, Applied Machine Learning, Statistical Methods, Big Data Technologies, Time Series Analysis I, Intro to Bloomberg LSEG, and Capital IQ

Manipal Institute of Technology Manipal, India
Bachelor of Technology in Mechatronics Engineering, **GPA: 7.83/10** Oct 2020 – Jul 2024
Relevant Coursework: Data Structures and Algorithms, Machine Vision and Image Processing, IIoT Lab, Technology for Finance

Skills

Programming Languages: Python, R, C
Machine Learning & Deep Learning: Classification, Regression, Clustering, Anomaly Detection, Feature Engineering, Model Evaluation, Hyperparameter Tuning, Explainable AI, CNN, RNN, Transfer Learning
Libraries & Frameworks: Scikit-learn, TensorFlow, Keras, PyTorch, XGBoost, NumPy, Pandas, Matplotlib, Seaborn, OpenCV
Big Data & Distributed Systems: Apache Spark, Hadoop, YARN
Mathematics & Statistics: Linear Algebra, Calculus, Probability, Statistics, Optimization
Tools & Technologies: Flask, Streamlit, RESTful APIs, MATLAB, Git, SQL, SQLite, Tableau, Power BI

Experience

Stevens Institute of Technology Hoboken, NJ
Graduate Teaching Assistant Sep 2025 – May 2026

- Graduate Teaching Assistant (Grader) for MA 574: Foundational Mathematics for Data Science, MA 544: Numerical Linear Algebra for Big Data and MA 540: Intro to Probability Theory under Dr. Upendra Prasad.
- Evaluated mathematical and programming assignments and quizzes for 100 students, providing feedback via Canvas LMS.
- Covered mathematical concepts including linear algebra, matrix factorization, optimization, and multivariate calculus.

Matrix ComSec Pvt. Ltd. Vadodara, India
Research and Development Intern Jan 2024 – May 2024

- Developed a real-time human fall detection system using computer vision and deep learning, integrating a hybrid CNN–MediaPipe architecture with TensorFlow and OpenCV.
- Conducted comparative evaluation of multiple architectures (CNN, RNN, BodyPix, R-CNN) and finalized a CNN–MediaPipe model achieving 91.39% test accuracy with improved real-time performance.
- Implemented multi-person detection using YOLOv5, supporting robust fall detection in dynamic video environments.

Projects

Oil and Airline Stocks: An Empirical Study Using Bloomberg Data Nov 2025 – Dec 2025

- Analyzed relationships between crude oil prices (CL1) and airline stocks (DAL, AAL, UAL) using Bloomberg data.
- Performed correlation, single-factor, and multi-factor regressions with SPX as a market control to isolate oil price sensitivity.
- Showed oil betas become negative and statistically significant after market adjustment, increasing Adj. R^2 to 25–33%.

Time Series Modeling and Forecasting of Netflix Stock Prices and Hotel Bookings Nov 2025 – Dec 2025

- Applied Box–Jenkins using ARIMA and SARIMA to model trends and seasonality in Netflix stock and hotel bookings.
- Conducted stationarity analysis with ADF tests, log transforms, differencing, and ACF/PACF-based selection using AIC/BIC.
- Generated short-term and 12-month forecasts to analyze long-term trends and seasonal demand patterns.

FRAUDGEN: Unmasking Fraud with Real-Time Explanations Mar 2025 – May 2025

- Built a full-stack fraud detection system using Flask, React, and SQLite to classify financial transactions in real time.
- Trained an XGBoost model with engineered features and integrated rule-based logic for refined fraud risk categorization.
- Enhanced fraud analysis by incorporating IP geolocation and VPN detection using the IPInfo API.

Deep Learning for Pneumonia Detection Sep 2024 – Dec 2024

- Developed deep learning models for pneumonia detection from chest X-ray images using CNN and MobileNet architectures.
- Achieved classification accuracy of 96.64% with CNN and 95.00% with MobileNet through model optimization.
- Designed an ensemble framework combining CNN and MobileNet, improving test accuracy to 97.23%.

Certifications

Google Data Analytics, IBM AI Engineering, AWS Cloud Foundations, AWS Data Engineering, Bloomberg Market Concepts