

# 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:** Python, R, C, SQL

**Machine Learning:** Classification, Regression, Clustering, Anomaly Detection, Feature Engineering, Model Evaluation, Hyperparameter Tuning, Ensemble Learning, Explainable AI

**Deep Learning & AI:** CNN, RNN, Transfer Learning, NLP, LLMs, Computer Vision

**Libraries & Frameworks:** Scikit-learn, TensorFlow, Keras, PyTorch, XGBoost, NumPy, Pandas, OpenCV, Seaborn, Matplotlib

**Big Data:** Apache Spark, Hadoop, YARN

**Mathematics:** Linear Algebra, Probability, Statistics, Optimization, Calculus, Time Series

**Tools:** Flask, Streamlit, REST APIs, Git, Tableau, Power BI, MATLAB

## Experience

### Stevens Institute of Technology

Hoboken, NJ

*Graduate Teaching Assistant*

Sep 2025 – May 2026

- Evaluated mathematical proofs and Python based assignments for around 100 graduate students across Linear Algebra, Probability Theory, and Foundational Mathematics.
- Identified recurring conceptual errors in QR/SVD/Cholesky decompositions, eigenvalue analysis, optimization, probability, multivariate calculus and statistical modeling, standardizing grading criteria to ensure technical accuracy across sections.

### Matrix ComSec Pvt. Ltd.

Vadodara, India

*Research and Development Intern*

Jan 2024 – May 2024

- Built a real-time fall detection pipeline using a hybrid CNN–MediaPipe architecture, achieving 91.39% test accuracy in multi-person video streams.
- Modified CNN-MediaPipe with YOLOv5 multi-person detection, increasing the system’s robustness; personally annotated 100,000+ images to improve model accuracy in fall detection.

## Projects

### Insight Forge AI: LLM-Powered Data Profiling System

[\[Live Demo\]](#) [\[GitHub\]](#)

Nov 2025 – Dec 2025

- Built InsightForge AI, an automated EDA platform with 12 modules using Groq LLaMA 3.1 for dataset insights.
- Designed a modular Python backend with 6 EDA components and deployed the system on Streamlit Cloud with secure API management and automated reporting.

### FinRAG: Financial Document Intelligence System

[\[Live Demo\]](#) [\[GitHub\]](#)

Jun 2025 – Aug 2025

- Constructed a RAG pipeline over 25+ financial documents using HuggingFace embeddings, vector similarity search, and Groq LLaMA for finance document question answering.
- Obtained 80% retrieval accuracy through metadata filtering, prompt optimization, and confidence scoring; deployed the application on Streamlit Cloud.

### FRAUDGEN: Unmasking Fraud with Real-Time Explanations

[\[Live Demo\]](#) [\[GitHub\]](#)

Mar 2025 – May 2025

- Achieved 96.55% recall and 0.9995 AUC in fraud detection by training an XGBoost model with engineered risk features and rule-based escalation logic.
- Built a real-time fraud detection system integrating IP geolocation and VPN detection, exposing model predictions through an interactive dashboard.

### Deep Learning for Pneumonia Detection

[\[GitHub\]](#)

Sep 2024 – Dec 2024

- Achieved 97.23% test accuracy in pneumonia detection from chest X-rays using CNN and MobileNet ensemble modeling and fine-tuning.

## Certifications

[Google Data Analytics](#), [IBM AI Engineering](#), [AWS Cloud Foundations](#), [AWS Data Engineering](#), [Bloomberg Market Concepts](#)