

HRIDAY SAHA

DATA SCIENTIST | MACHINE LEARNING ENGINEER | AI-DRIVEN BUSINESS STRATEGIST

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PROFESSIONAL SUMMARY

Results-driven Data Scientist with 3+ years of experience delivering **AI-driven fraud detection, NLP automation, and predictive analytics** across global enterprises. Proven record of **\$1.7M+ business impact** through risk mitigation and process automation. Strong expertise in **semantic similarity modeling (Sentence-BERT), ensemble methods (XGBoost, LightGBM), and feature engineering**. Experienced in collaborating with engineering teams to productionize ML solutions and monitor performance in real-world environments.

CORE COMPETENCIES

- Machine Learning & AI:** Supervised & Unsupervised Learning, Ensemble Methods, Deep Learning, NLP (Transformers, Sentence-BERT), Fraud Detection, Anomaly Detection
- ML Engineering & Programming:** Python, SQL, R, Scikit-learn, TensorFlow, PyTorch, Hugging Face, SpaCy, XGBoost, LightGBM, SVM, Neural Network
- Data Science & Analytics:** Predictive Modeling, Feature Engineering, A/B Testing, Hypothesis Testing, Time Series Forecasting
- Visualization & BI:** Power BI, Tableau, Plotly, Matplotlib, Seaborn, Data Storytelling, Dashboard Design
- Infrastructure & Workflow:** Docker, Git, Azure, ETL Pipelines, API Development, Model Monitoring, Data Drift Analysis
- Collaboration & Strategy:** Cross-functional Stakeholder Engagement, Technical Mentoring, Business Impact Translation

PROFESSIONAL EXPERIENCE

Oct 2023 – Sep 2024

Data Scientist | AXA Group Operations, Paris, France

- Built an NLP-driven semantic similarity system (BM25 retrieval + fine-tuned Sentence-BERT ranking + LightGBM scoring) to automatically map local audit issues to SAF controls.
- Achieved 93% Top-1 and 99% Top-3 mapping accuracy, reducing manual workload by 96% (~\$180K annual savings).
- Designed explainable outputs (confidence scores, key-phrase highlights) to improve auditor trust and adoption.
- Collaborated with DevOps teams to integrate models into enterprise workflows with retraining and drift monitoring.

Oct 2022 – Sep 2023

Data Governance & Analytics Project Manager | AXA Group Operations, Paris, France

- Designed a real-time fraud detection platform using XGBoost ensembles with engineered features (transaction velocity, geo-mismatch, device fingerprints, graph-based merchant-user linkages).
- Reached 94.2% F1-score, scaled to 1M+ daily transactions (<100ms latency), and prevented \$1.5M+ in fraud losses annually.
- Applied time-series cross-validation to handle fraud pattern drift, ensuring long-term robustness.
- Managed a \$1.2M analytics portfolio with 98% on-time delivery across data governance initiatives.

Sep 2021 – Sep 2022

Data Analytics Associate | AXA Group Operations, Kuala Lumpur, Malaysia

- Developed classification models and statistical validation pipelines (t-tests, ANOVA) for risk analysis workflows.
- Automated ETL and anomaly detection pipelines in Python, reducing data discrepancies by 80%.
- Built interactive Power BI dashboards with live KPIs, improving decision-making accuracy by 10%.

KEY PROJECTS & IMPACT METRICS

Automated Audit Intelligence System

- Developed a two-stage ML/NLP pipeline (BM25 retrieval + fine-tuned Sentence-BERT ranking + LightGBM scoring) to link local audit issues with SAF controls.
- Achieved 93% Top-1 / 99% Top-3 mapping accuracy, reducing manual audit workload by 96% (~384 hours/quarter, \$180K annually).

Enterprise Fraud Detection Platform

- Built an XGBoost-based real-time fraud detection system analyzing 1M+ daily transactions with latency <100ms.
- Engineered features (transaction velocity, geo-mismatch, device fingerprints, graph link analysis), applied time-series CV, and attained 94.2% F1-score.
- Mitigated \$1.5M+ in operational risk losses annually.

Business Intelligence Optimization

- Produced customer segmentation dashboards using clustering algorithms (K-means, DBSCAN) tailored for regional markets.
- Reduced manual reporting time by 30%, improving data-driven decisions with 98% delivery consistency.

EDUCATION & CERTIFICATIONS

2021

Master of Science in Data Science and Business Analytics
Asia Pacific University of Technology and Innovation (APU), Malaysia

2018

Bachelor of Technology in Computer Science and Engineering
MCKV Institute of Engineering, India

Professional Certifications:

- Microsoft Power BI Analytics (2022)
- SAS Data Science Professional (2021)
- IBM Data Science Professional Certificate (2020)

AWARDS & RECOGNITION

- **AXA Innovation Excellence Award (2023)**: Recognized for creating an ML audit automation system delivering \$180K+ annual savings.
- **AWS Build Malaysia Semifinalist** (Top 10% of 500+ participants): Cloud-based ML solution in data processing.
- **Best Rotaract President (2017–18)**: Awarded top district president among 60+ clubs for leading 80+ events, coorganizing 25+, and speaking at 3 guest events.

ADDITIONAL INFORMATION

- Fluent in English, Bengali, and Hindi
- Open to relocation and remote opportunities