Nidhi Patel



Data Scientist & AI Engineer | Machine Learning · LLM/RAG Systems · Azure Databricks

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PROFESSIONAL SUMMARY

Data Scientist (M.Sc. Data Science, TU Dortmund) with 4+ years of experience across working-student, full-time and internship roles in machine learning, statistical analysis and data engineering, with a growing focus on production AI systems. Built Python ETL pipelines and ML-based anomaly detection at Barkow Consulting; currently applies customer journey and lifecycle analysis, segmentation, churn, pricing analytics and A/B testing at Miles & More (Lufthansa Group) on Azure Databricks. Strong expertise in Generative AI and LLM engineering, including RAG, multi-agent workflows and tool calling. Combines solid modelling foundations with engineering discipline to deliver reliable, scalable and explainable data and AI solutions.

CORE SKILLS

Data Science & ML: Predictive Modelling, Anomaly Detection, Time-Series Forecasting, Feature Engineering, A/B Testing, Hypothesis Testing, Explainable AI (SHAP), scikit-learn, XGBoost, PyTorch, TensorFlow, statsmodels

Generative AI & LLM Engineering: LLMs, RAG, LangChain, LangGraph, Multi-Agent Systems, Tool Calling, Prompt Engineering, Embeddings, Vector Databases (FAISS), Hugging Face, Guardrails, Input/Output Validation, Human-in-the-Loop Workflows, LLM Monitoring & Observability

MLOps & Deployment: Docker, Jenkins, CI/CD, Trivy, MLflow, Model Deployment, Workflow Automation, Flask, FastAPI, Streamlit, Git

Cloud & Data Engineering: Azure Databricks, Apache Spark, Delta Lake, Medallion Architecture, Azure Storage, ETL Pipelines, Data Modelling, Data Validation, Data Quality

Programming & Databases: Python (pandas, NumPy), SQL, R; PostgreSQL, MySQL, SQL Server, SQLite, MongoDB

BI & Visualisation: Tableau, Power BI, Excel, Plotly, Matplotlib, Seaborn

WORK EXPERIENCE

Data Analytics Intern – Marketing, Strategy & Customer Insights 09/2026 – Present
Miles & More (Lufthansa Group) | Frankfurt am Main, Germany

- Analyse sales, customer and market data to identify customer patterns, commercial opportunities and performance drivers.
- Conduct customer journey and lifecycle analysis to understand engagement, retention and churn patterns across customer segments.
- Apply customer segmentation, churn analysis, pricing analytics and A/B testing, translating findings into optimisation opportunities.
- Help maintain and monitor data pipelines (Omnichannel pipelines) that enable relevant offers to be sent to customers across various channels.
- Improve data quality and analytical data models on Azure Databricks, supporting scalable, reliable analytics and model-ready data.
- Develop and maintain KPIs, Tableau dashboards and analytical reports for operational and strategic decision-making.
- Collaborate with Sales, Marketing, Customer Service and IT to translate business requirements into data-driven solutions.

Junior Research Analyst / Data Scientist (Working Student, then Full-Time from 01/2026) 02/2024 – 06/2026
Barkow Consulting GmbH | Düsseldorf, Germany

- Built and maintained Python-based ETL pipelines to collect, clean, transform and integrate large-scale geospatial and financial data from multiple sources.
- Designed automated data-processing workflows and reusable data models that improved data quality, consistency and analytical readiness.
- Designed and applied machine learning frameworks for regional cash-access anomaly detection, translating model outputs into actionable business recommendations.
- Collaborated with technical teams on scalable databases and analytical models, ensuring reliable and reusable data assets.
- Managed analytical sub-projects, monitored delivery and coordinated research outputs with stakeholders.

Data Scientist / Data Analyst (Working Student) 02/2023 – 01/2024
Vonovia SE | Bochum, Germany

- Conducted customer, market and business analyses using Python and SQL to support business decisions.
- Developed Tableau, Power BI and Python dashboards to monitor performance and identify growth opportunities.
- Prepared and transformed large datasets to improve data quality and analytical efficiency.

Data Science / Data Analysis (Working Student) 04/2022 – 09/2022
Amprion GmbH | Dortmund, Germany

- Conducted time-series forecasting of European fuel prices for trading applications using statistical, machine learning and deep learning models.
- Translated model outputs into decision-support insights; developed a customised Power BI map visualisation for market data.

EDUCATION

M.Sc. Data Science 10/2020 – 12/2026 (expected)
Technical University Dortmund, Germany

- All coursework completed; degree award pending final credit registration.
- Coursework: Statistical Modelling, Machine Learning, Deep Learning, Databases, Big Data, Data Engineering, NLP, AI

B.E. Computer Engineering 07/2015 – 05/2019
Gujarat Technological University, Ahmedabad, India

- Coursework: Data Structures & Algorithms, Databases, Data Mining & BI, Big Data, AI, Software Engineering

CERTIFICATES

Get Started with Databricks for Data Engineering 07/2026
Databricks

Academy Accreditation - Azure Databricks Platform Architect 07/2026
Databricks | Credential ID 189213182

Academy Accreditation - Generative AI Fundamentals 05/2026
Databricks | Credential ID 183902279

PROJECTS

MedBot – Production RAG & LLM Application
LangChain · FAISS · Flask · Docker · Jenkins · Trivy

- Built an end-to-end RAG application using LangChain, FAISS and LLMs for document-based question answering, with a Flask backend and HTML/CSS frontend.
- Implemented Jenkins CI/CD pipelines to automate testing, container builds and deployment workflows; integrated Trivy for container vulnerability scanning.
- Applied containerised (Docker) practices to package the application as a scalable AI service.

AI Financial Analyst Agent
LLM Orchestration · RAG · Tool Calling · Structured Outputs

- Built an end-to-end LLM-powered agent that converts natural-language questions into structured investment analyses and recommendations.
- Implemented RAG-style grounding and tool calling with live financial and web data via APIs to reduce hallucination of financial figures.
- Designed a multi-step orchestration pipeline with model routing, prompt chaining, structured JSON outputs and automated report generation.

Contextual Anomaly Detection in Cash Withdrawal Distribution Network
Master's Thesis, TU Dortmund × Barkow Consulting GmbH

- Developed a context-aware anomaly detection framework identifying cash-access gaps across Germany, integrating geographic, socioeconomic and financial data.
- Applied Explainable AI (XAI) and statistical analysis to identify anomalous regions and quantify socioeconomic and regional drivers of deviations.
- Translated findings into recommendations for equitable financial access, highlighting structural deficiencies in Thüringen and Brandenburg.

LANGUAGES

English – Business Fluent **German** – Intermediate **Gujarati / Hindi** – Native