Bhavya Verma
AI/ML Engineer & Data Insights Specialist

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Experience

- **Novartis** — Hyderabad, India
  Data Analytics and Insights Specialist – Risk & Compliance — *Jul 2024 – Present*
  - **Agentic NL2SQL Platform**: Architected a multi-agent text-to-SQL platform (FastAPI, Azure OpenAI, Snowflake) with self-correcting SQL, query decomposition, a semantic layer over thousands of dynamic questions and an agent enforcing row-level security; scaled from one compliance data domain to three.
  - **LLM Audit Automation & Evals**: Automated anti-corruption control testing (30 controls, $\sim$700 audit questions) with a RAG verdict engine grounded in five evidence sources and strict JSON-schema outputs; built an evaluation harness benchmarking verdicts against historical human-reviewer decisions (recall, precision, critical-violation detection).
  - **Global-to-Local Config Sync**: Propagated global workflow changes to 77 country configurations using exact, fuzzy and LLM-as-judge matching with negation guardrails, a verifier/retry loop and fail-over from Azure OpenAI to AWS Bedrock; cut effort from $\sim$6 weeks $\times$ 3 FTE to $\sim$1.5 weeks $\times$ 1 FTE ($\sim$90%).
  - **Enterprise RAG & Extraction**: Built a reusable tool-calling RAG framework (Azure AI Search hybrid retrieval + reranking) behind three production compliance assistants, with feedback telemetry and an SME prompt editor; LLM pipelines turned 700+ investigation and audit reports into structured data.
  - **Anomaly, Drift & Forecasting**: Built robust anomaly and drift detection (Isolation Forest, MAD z-scores, Jensen–Shannon divergence, PSI) over compliance-case and HCP-spend data, with plain-English LLM explanations for leadership; Chronos forecasting cut HSE forecast MAPE from 139% to 25%.
  - Shipped 15+ GenAI/ML applications to production (Docker, CI/CD, Azure AD SSO, LLM observability) and own compliance analytics and Power BI dashboards on the enterprise risk platform.
- **BlackCoffer** — New Delhi, India
  Data Scientist — *Aug 2022 – Apr 2024*
  - **Energy Price Forecasting (IESO)**: Built LSTM, GRU and ANN fuel-price forecasting on a GCP data pipeline (BigQuery, Looker Studio dashboards), cutting data processing time by 50%.
  - **Route Optimisation (CVRP)**: Solved capacitated vehicle routing with Google OR-Tools to plan installation routes for Stan Bond SA's field crews; reduced travel time and distance by 25% and improved on-time performance by 30%.
  - **Data Engineering & NLP**: Deployed Airbyte on Kubernetes with custom connectors into BigQuery; co-built a pharma-domain sentiment model for medical-student responses.
- **Freelance**
  Data Scientist — *Oct 2021 – Jul 2022*
  - Benchmarked no-code ML platforms (Akkio, Azure ML Studio, SageMaker) on training time and accuracy for NextBrain.
- **Autodesk** — Bangalore, India
  Software Engineering Intern (DPE-DES-Enterprise Services) — *Jun 2021 – Sep 2021*
  - Built a Django app with SQL anomaly checks and reports to validate encrypted PostgreSQL data.

Education

- **IIIT Delhi** — New Delhi, India
  B.Tech in Electronics and Communication Engineering; GPA: 8.19/10.0 — *Aug 2017 – Sep 2021*

Projects

- **Snake Species Detection System** — *Guide: Dr. Saket Anand*
  - CNN classifier (DenseNet, Inception V3, ResNet) for snake species identification to aid snake-bite treatment.

Technical Skills

- **AI & ML**: LLMs, Agentic AI, RAG, LangGraph, LLM Evaluation, Guardrails, Human-in-the-Loop, Text-to-SQL, OCR & Document Intelligence, NLP, Entity Resolution, Anomaly & Drift Detection, Forecasting
- **Languages & Frameworks**: Python, SQL, TypeScript, PyTorch, scikit-learn, FastAPI, React, Streamlit, Pandas, Polars
- **Cloud & Data**: AWS, Azure, GCP, Snowflake, Databricks, PostgreSQL, Docker, Kubernetes, CI/CD, Git, Power BI