Farrukh Nauman

Principal Consultant | Enterprise Data Platforms · Coding Agents · Time Series ML | PhD

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Summary

Principal consultant helping enterprise data teams de-risk platform migrations, cut warehouse cost, and automate analytics workflows with coding agents. I lead and ship in production-scale environments—owning roadmaps, managing stakeholders, and writing code, not slide decks. Selected results:

- **∼1 week**: Cross-platform migration validator from zero to live dashboard (Databricks → Snowflake).
- **5–10× faster**: SQL pipeline optimization with row-level correctness validation.
- **10–100× faster**: Time series classification for industrial telemetry and edge deployment.
- **Team Lead**: Interim lead & project manager for 4–7 person DS and advanced analytics team.

Current Focus

- Cross-platform migration validation and warehouse modernization (Snowflake / Databricks).
- Coding-agent workflows for migration, validation, analytics automation, and large code changes.
- Time series / telemetry ML for industrial production and edge deployment.
- Interim technical leadership: roadmap ownership, stakeholder steering, delivery discipline.

Skills & Tech Stack

Data Platforms	Snowflake, Azure Databricks, Spark, Snowpark, Azure Data Factory, SQL (advanced)
AI & Agents	AI Coding Agents (Cortex Code, Codex CLI, Windsurf), LLM Agents (LangChain, OpenAI SDK), RAG, Prompt Engineering, Synthetic Data
ML & Analytics	PyTorch, Time Series (ROCKET family), Predictive Modeling, Anomaly Detection, Computer Vision, Transformers, Weights & Biases
Engineering	Python (Expert, 8+ yrs), C/C++ (Proficient), Git, Docker, CI/CD, Streamlit, REST APIs, High Performance Computing
Business	Stakeholder Management, Project Scoping, Solution Architecture, Technical Leadership, ROI Analysis
Languages	English (Fluent), Swedish (SFI C2), Urdu (Native)

Experience

InertialRange Labs AB - Self-employed — Linköping, Sweden
Principal AI Consultant — *Sep 2025 -*

Engagement: Interim Team Lead – Data Science & Advanced Analytics (Sep 2025 - Present):
Client: Global Industrial Manufacturer (Material Handling & Logistics)

- Lead a 4–7 person DS/analytics team; own roadmap, stakeholder steering, and technical direction across telemetry analytics, ML, and GenAI automation.
- Coordinate transition planning/execution for **Databricks → Snowflake** while maintaining daily Spark/BI workloads over 23 TB telemetry data.
- Built a **cross-platform migration validation system** using AI coding agents: automated comparison of schemas, row counts, key distributions, and date ranges across dozens of tables—from zero to live dashboard in ∼1 week. (Case study)
- Redesigned a critical daily pipeline from full recompute to **validated incremental processing**: 5–10× speedup with row-level correctness proof. Killed a faster but fundamentally broken optimization using multi-scale benchmarks and `EXCEPT`-based validation. (Case study)
- Established in-house direction for **machine activity recognition** from CAN/telemetry (PoC): privacy-safe labeling workflow, baselines, evaluation harness, and benchmarking vs external PoC (faster inference with comparable accuracy).
- Prototyped **Text-to-SQL** workflow automation (PoC): synthetic evaluation dataset generation + instrumentation/logging to analyze failure modes.
- Developed a practitioner framework for **large code migrations with coding agents**: evidence-preservation methodology, behavioral oracles, and `AGENTS.md`-based quality contracts. (Case study)
- **Tech**: Snowflake, Databricks, Snowpark, PyTorch, AI Coding Agents, LLM Agents (LangChain), Streamlit, Time-Series ML, Model Monitoring.

RISE Research Institutes of Sweden AB Linköping, Sweden
AI Researcher & Consultant *Jul 2021 - Aug 2025*

Project Lead: Sustainable Fashion AI Automation (2022-2025: *24 months*): Leading two major initiatives: Vinnova: AI for Circular Fashion (**Project Lead**, ∼ 9M SEK) and CISUTAC (AI Lead, ∼ 2M SEK).

- **Challenge**: Manual quality inspection bottleneck in circular fashion supply chain, 30% inconsistency and 25% cost overhead.
- **Solution**: End-to-end computer vision system for automated attribute detection.
- **Impact**: 40% reduction in processing time, 50%+ reduction in data collection costs through synthetic data.
- **Tech**: PyTorch, Vision Transformers, CLIP, Gradio, Docker, Synthetic Data Generation.
- **Recognition**: 1 of 5 projects at EU sustainable AI (2023).

Low-Energy IoT Solutions (2022: *4 months*):

- Identified miniROCKET-based time series methods for industrial edge deployment, enabling real-time analysis with ∼90% lower hardware cost than heavier alternatives.

Additional:

- Established AI mentorship program for Master's thesis students; supported drone edge AI, air-traffic automation, traffic analysis, and anomaly detection projects.

2MNordic IT Consulting AB Gothenburg, Sweden
Data Scientist & Data Engineer *Dec 2019 - Jun 2021*

Project: Early Warning System for Student Performance (2020: *6 months*):

- Developed predictive analytics identifying at-risk students in 6th grade, enabling early intervention for 10% of the population (3,000+ students impacted).
- **Tech**: Azure DevOps, Azure Functions, Data Factory, Python, SQL, Power BI.

Project: Mathematics Assessment Optimization (2021: *4 months*):

- Analysis of digital test results across 8 schools; findings informed district-wide grading policy adjustments.
- **Tech**: Scikit-learn, Statistical Analysis, Python, Azure Notebooks.

Previous Research Positions 2009–2019

- **Research Fellow, Chalmers University of Technology**: Gothenburg, Sweden
  Complex systems modeling, large-scale data analysis 2018–2019
- **Research Scientist, Niels Bohr Institute**: Copenhagen, Denmark
  Simulation, forecasting, computational modeling 2015–2018
- **Research Assistant/PhD Student, Univ. of Rochester**: New York, USA
  Data analysis, predictive modeling 2009–2015

Education & Certifications

Microsoft Certified Azure
Azure Data Engineer Certificate *2020*

University of Rochester Rochester, New York (USA)
PhD in Physics and Astronomy *Oct 2015*
Focus: Complex Systems Modeling, Data Analysis, Computational Fluid Dynamics, High Performance Computing, C/C++

Awards & Achievements

- Horton fellowship from Laboratory for Laser Energetics - full research funding award. 2010-2015
- Susumu Okubo Prize for highest performance on graduate comprehensive exam and excellence in coursework. 2011