Farrukh Nauman

Principal / Tech Lead | AI Engineer | Industrial AI (Telemetry, Analytics, LLMs) | PhD

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Value Proposition

Principal consultant and interim team lead bridging strategy and hands-on delivery in production-scale data environments (telemetry/time series, vision, and LLM workflow automation). Selected outcomes from applied R&D / pilot deployments:

- 40% faster textile quality assessment workflow (pilot).
- 50%+ reduction in data collection/labeling effort via synthetic data (pilot).
- Up to 90% lower edge hardware cost enabled by low-energy ML approach (prototype).

Leadership Highlights

- Interim Team Lead for Data Science & Advanced Analytics (4-7 person) at a global industrial telemetry, roadmap ownership and stakeholder management.
- Led applied AI initiatives at RISE: Vinnova (Project Lead, ∼ 9M SEK) and CISUTAC (AI Lead, ∼ 2M SEK), delivering pilot-ready systems and public artifacts.
- Scaled delivery practices: evaluation-first approach, privacy-aware workflows, requirements → success criteria → handover.
- Established and led an AI mentorship program for Master's thesis students, resulting in 4 industry-applicable projects.

Skills & Tech Stack

AI & ML	**LLMs**: Text-to-SQL, RAG, Fine-tuning, Evaluation Harnesses, Synthetic Data, Logging & Reliability Analysis; **Vision**: Object Detection, Classification, Segmentation, Inspection workflows, Edge AI; **Time Series**: Forecasting, Anomaly Detection, Activity Recognition, Predictive Maintenance;
MLOps & Cloud	Snowflake, Databricks/Spark, Docker, CI/CD, Model Monitoring, Experiment Tracking, Azure ML
Programming	Python (Expert), PyTorch, C/C++, SQL, High Performance Computing, LangChain, OpenAI SDK
Leadership	Stakeholder Management, Requirements Gathering, Roadmapping, Solution Architecture, Technical Leadership, Governance, ROI Analysis, Client Communication
Languages	English (Fluent), Swedish (SFI C2), Urdu (Native)

Experience

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

Engagement: Interim Team Lead – Data Science & Advanced Analytics (Sep 2025 - Feb 2026: *6 months*): 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.
- 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 on internal tests).
- Prototyped **Text-to-SQL** workflow automation (PoC): synthetic evaluation dataset generation + instrumentation/logging to analyze failure modes and improve reliability.
- **Tech Stack**: Azure Databricks, PyTorch, LLM Agents (LangChain), Time-Series, Model Monitoring/Serving, Experiment Tracking, Git.

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 in sustainable fashion: Vinnova: AI for Circular Fashion (**Project Lead**, ∼ 9M SEK) and CISUTAC (AI Lead, ∼ 2M SEK).

- **Challenge**: Manual quality inspection created bottlenecks in circular fashion supply chains due to inconsistent assessments and high labor cost.
- **Delivery**: Led end-to-end automated attribute detection system: data collection + labeling pipeline, dataset curation, model training/optimization, synthetic data generation, and pilot validation.

- **Pilot Outcomes**: 40% faster processing and 50%+ reduction in data collection costs through synthetic data.
- **Deliverables**: Pilot-ready AI system, Annotated public dataset, Roadmap for industry adoption.
- **Recognition**: 1 of only 5 projects presented at EU sustainable AI (2023) and Vinnova Innovation week (2022).

Project: LLM Implementation for Regional Textile Recycling Network (2024-2025: *4 months*):

- **Challenge**: Clients needed to integrate LLMs into their networking platform for textile recycling in Europe.
- **Solution**: Designed evaluation driven RAG solution with search over structured + unstructured data to connect textile actors across Europe.
- **Impact**: Enabled a smart search and retrieval system for connecting textile actors in Europe.
- **Technologies**: Retrieval Augmented Generation, LangChain, Evaluations, Prompt Engineering, Synthetic Data.

Project: Low Energy IoT Solutions for Industrial Clients (2022: *4 months*):

- **Challenge**: Clients needed to process sensor data at the edge with limited energy, preventing real-time analysis.
- **Solution**: Identified energy-efficient AI algorithms (miniROCKET algorithm) for edge devices that are orders of magnitude faster than deep learning baselines.
- **Impact**: Enabled real-time sensor inference on constrained devices (up to 90% lower costs in prototype).
- **Technologies**: Edge AI, Time Series Classification, Anomaly Detection, Low-Energy Computing.

AI Mentorship Program (2023-2024): Established and led mentorship program for Master's thesis students in AI, resulting in 4 industry-applicable projects.

- **Projects**: Damage Detection in Fashion, Generative AI for Fashion, Time Series Forecasting for Fashion Trends, Image Embeddings for Second-Hand Fashion.
- **Activities**: Provided hands-on training in deep learning and AI for advanced industrial AI application.

Other Projects:

- **Aero EDIH (2024)**: Consulted with startups on data/model strategies for on-device drone deployment for vehicle/person detection and runway debris identification. **Tasks**: Object Detection, Edge AI, Diffusion Models.
- **Ramverk (2024)**: Prepared roadmap for air traffic control automation, including reinforcement learning state-of-the-art models and data collection proposal. **Tasks**: Reinforcement Learning, Data Collection.
- **GreenerFlow (2023)**: Factor analysis for traffic congestion in metropolitan areas, led consortium formation for a larger project. **Tasks**: Time Series Analysis, Multi-modal Data.
- **SHOW - Hard Brake Detection (2022)**: Developed time series anomaly detection models to identify hard brakes in autonomous buses. **Tasks**: Time Series Classification, Anomaly Detection.

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

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

- **Challenge**: Helsingborg school district lacked ability to identify at-risk students early, resulting in up to 40% failure rate in some schools in 9th grade.
- **Solution**: Developed predictive analytics system identifying absence, poor grades in English and Math as the key indicators in 6th grade that predict 9th grade performance, with school-level feature analysis for targeted funding.
- **Impact**: Enabled early intervention for 10% of the student population, and provided data-driven policy recommendations impacting 3,000+ students.
- **Technologies**: Azure DevOps, Azure Functions, Data Factory, Python, SQL, Power BI.

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

- **Challenge**: New digital mathematics test showed inconsistencies with traditional grading schemes, causing confusion and potential inequities.
- **Solution**: Conducted comprehensive data analysis of test results across 8 schools, identifying specific misalignments between grading schemes.
- **Impact**: Findings led to significant improvement in assessment accuracy and informed critical education policy adjustments affecting district-wide mathematics curriculum.
- **Technologies**: Scikit-learn, Statistical Analysis, Python, Data Visualization, Azure Notebooks.

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