Farrukh Nauman

Principal AI Consultant / Team Lead | AI Engineer | PhD

farrukh.nauman@inertialrange.com | (+46) 0702984959 | fnauman.com | inertialrange.com
LinkedIn: fnauman | Github: fnauman

Value Proposition

AI team lead and principal consultant bridging AI strategy and hands-on delivery across GenAI, analytics automation, and predictive maintenance. Track record of measurable business impact:

- 40% reduction in processing time for textile quality assessment.
- 50%+ reduction in data collection costs through synthetic data generation.
- 90% lower hardware costs for industrial IoT implementations.

Leadership Highlights

- Interim Team Lead for Data Science & Advanced Analytics at a global industrial manufacturer, steering roadmap and adoption of production-grade ML and GenAI.
- Led applied AI initiatives at RISE: Vinnova (Project Lead, ∼ 9M SEK) and CISUTAC (AI Lead, ∼ 2M SEK), delivering pilot-ready systems and public artifacts.
- Established and led an AI mentorship program for Master's thesis students, resulting in 4 industry-applicable projects.
- Strengths: stakeholder alignment, requirements-to-roadmap translation, delivery focus, and pragmatic AI governance.

Skills & Tech Stack

AI & ML	**LLMs**: OpenAI, Gemini, HF Transformers, RAG, Fine-tuning, Synthetic Data, OCR, Vector DBs; **GenAI, Vision**: Text-to-Image, Inpainting, Object Detection, Classification, Segmentation, Edge AI; **Core ML**: Predictive Modeling, Anomaly Detection, Time Series; **Libs/Frameworks**: PyTorch (Expert, 6 yrs), Transformers, Diffusers, LangChain, Weights & Biases
MLOps & Cloud	Azure ML, Docker, CI/CD, Model Monitoring/Serving, Experiment Tracking, Git, REST APIs
Programming	Python (Expert, 8+ yrs), C/C++ (Proficient, 8 yrs), SQL, High Performance Computing (8 years)
Leadership & Delivery	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)

- **AI Strategy & Leadership**: Steering the technical roadmap to integrate Generative AI and Deep Learning into standard operational analytics, effectively bridging the gap between traditional Data Engineering and modern AI.
- **Generative AI for Analytics**: Architecting LLM-driven agents to automate complex data querying and reporting tasks, reducing "time-to-insight" for non-technical stakeholders.
- **Predictive Maintenance (Time Series)**: Building in-house competence for Time Series Classification models on high-frequency sensor telemetry to predict equipment faults.
- **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 major bottlenecks in circular fashion supply chain, with 30% inconsistency in assessments and excessive labor costs driving up prices by 25%.
- **Delivery**: Led end-to-end delivery of an automated attribute detection system spanning data collection/annotation pipeline, dataset curation, model training/optimization, synthetic data generation, and pilot deployment/validation.
- **Impact**: 40% reduction in processing time, 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 a custom LLM chatbot and retrieval system for both structured and unstructured data.
- **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 is faster than deep learning methods by over 2000x.
- **Impact**: Enabled real-time sensor data analysis with 90% lower hardware costs.
- **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.

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