Emil Lindfors

AI Capability Lead & Senior Data Engineer | PhD Innovation Studies

emil@lindfors.no | LinkedIn | GitHub

Norway

PROFESSIONAL SUMMARY

AI capability lead and senior data engineer at Fraktal Oslo, with 15+ years of software engineering and a PhD in innovation studies. I lead the work on **agent-powered data pipelines**, **talk-to-your-data** capabilities and **agent-assisted coding**: which models and endpoints a customer can use, what they cost, and how to keep the ability to switch. I build the platforms underneath in Rust and Python on open standards (Apache Iceberg), designed for modularity. Deep aquaculture domain background: production data platforms integrating Fishtalk, Mercatus, IoT sensors and ocean models for Norwegian salmon farmers. The research side, on how industries adopt new technology, is what lets me tell an era of ferment from a dominant design when advising a customer.

TECHNICAL SKILLS

AI & Agents:	Agent-powered pipelines, talk-to-your-data over semantic layers (Wren MDL, MCP tools, governed text-to-SQL), agent-assisted coding (Codex fork, Claude Code), LLM cost and usage telemetry (OpenTelemetry, OpenObserve), model and endpoint evaluation (Azure OpenAI, OpenRouter, Anthropic, local models)
Data Platforms:	Apache Iceberg, DuckDB, lakehouse design, API design, ETL pipelines, real-time sensor data, ocean models (IMR Norkyst)
Languages:	Rust, Python, TypeScript, SQL
Cloud/DevOps:	AWS (Lambda, ECS, S3, Batch), Azure, Terraform, GitHub Actions, Docker, Cloudflare Workers, self-hosted services
Aquaculture:	Fishtalk, Mercatus, production data integration, salmon farming domain expertise

PROFESSIONAL EXPERIENCE

Fraktal Oslo *March 2026 -- Present*

AI Capability Lead & Senior Data Engineer Oslo

- Lead the AI capability at a data platform consultancy: run the experiments on models, endpoints and agent tooling before customers need the answer, so the recommendation they get is tested
- Agent-powered data pipelines and talk-to-your-data capabilities: agents over a semantic layer (Wren MDL, MCP tools, DuckDB and lakehouse backends) with governed text-to-SQL, so business questions get one defensible answer
- Agent-assisted coding across providers: maintain a Codex CLI fork that runs against local models, OpenRouter, Azure OpenAI with Entra auth and EU-hosted endpoints; LLM cost and usage telemetry via OpenTelemetry into self-hosted OpenObserve
- Data platform engineering in Rust and Python on open standards (Apache Iceberg), designed for modularity so customers can switch platforms without rebuilding

AquaCloud *January 2025 -- January 2026*

Senior Software Engineer Norway

- Architected production-grade aquaculture data platform integrating Fishtalk, Mercatus, and other industry systems
- Built data pipelines and ETL workflows for major Norwegian salmon farmers handling real-time production data
- Integrated IoT sensor data streams and ocean environmental models (IMR Norkyst) for site-level analytics
- Designed APIs for third-party integrations; enabled seamless data exchange across the salmon farming value chain
- Infrastructure as Code: Terraform for Lambda, ECS, S3, Batch; full CI/CD with GitHub Actions
- Implemented Rust core components with Python FFI for performance-critical data processing

Høgskulen på Vestlandet (HVL) *July 2024 -- January 2025*

Software Engineer Bergen

- Built Rust backend system integrated with Microsoft Teams for internal communication workflows
- Automated research group newsletter: weekly submission aggregation, admin approval flow, automated distribution
- Contributed to university-wide technology strategy and responsible technology implementation

Høgskulen på Vestlandet (HVL) *December 2019 -- January 2025*

PhD Researcher Bergen

- PhD: "The Evolution of Technological Trajectories: Responsible Innovation and Regional Industrial Path Development"
- Researched salmon farming industry transformation in Norway, Australia, and USA; 92 interviews, comparative case studies
- Published 3 peer-reviewed articles (Sustainability, Marine Policy, Regional Studies) with 1 under review

Hatch *January 2018 -- December 2019*

Norway Representative Bergen / Netherlands

- First non-founder employee at the global aquaculture startup accelerator
- Participated in due diligence for Aqua-Spark's seed investment in Hatch
- Evaluated startups and managed dealflow across two accelerator cohorts (8 international startups)

Lindfors Foundry *2011 -- Present*

Founder & Software Engineer Bergen

- 14+ years building production web systems and domain-specific software solutions
- Led digitalization project for sea lice counting in salmon farming using computer vision
- Built custom data dashboards and reporting tools for aquaculture clients

EDUCATION

PhD, Technological Innovation — Høgskulen på Vestlandet *2019 -- 2025*

Master, Innovation & Entrepreneurship — Bergen University College *2017 -- 2019*

Bachelor, Sustainable Aquaculture — University of Bergen *2014 -- 2017*

SELECTED PUBLICATIONS

- Lindfors, E. (2022). Radical path transformation of the Norwegian and Tasmanian salmon farming industries. *Regional Studies, Regional Science.*
- Lindfors, E. & Jakobsen, S-E. (2022). Sustainable regional industry development through co-evolution. *Marine Policy.*
- Lindfors, E. et al. (2021). Place-Based Directionality of Innovation: Tasmanian Salmon Farming. *Sustainability.*

OPEN SOURCE

a2a-rs: Rust implementation of Google's Agent-to-Agent protocol for multi-agent communication
rust-browser-mcp: MCP server in Rust for AI-powered web navigation using Gecko or WebDriver backends
strata: Rust data platform covering ingest, transform and present in one tool—dbt's scope plus the ingest side; the present layer (semantic layer, metrics views) is in progress
roms-rs: Experimental Discontinuous Galerkin solver for coastal ocean modeling—simulating Norwegian coast currents

See github.com/EmilLindfors for more projects

ACHIEVEMENTS

- **Winner**, Fishackathon Bergen 2016
- **Project Lead**, AquaHack 2018

LANGUAGES

- Swedish (Native)
- Norwegian & English (Fluent)