Noe Jager

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Summary

ML Engineer with strong software engineering foundations -- from **RDBMS-backed REST APIs** and **full-stack TypeScript/React** apps to **cloud infrastructure on AWS** and containerised CI/CD pipelines. Comfortable owning the full delivery lifecycle: designing, shipping, and maintaining production systems. Equally at home **fine-tuning LLMs**, building **on-premise AI agents**, and wiring up DevOps automation. **Winner of HackOS4** (1st place, McGill University, 2024). Eager to bring sovereign, open-source AI solutions to European SMEs and contribute to privacy-preserving, on-device inference at scale.

Education

University of Montreal Montreal, QC
Master of Computer Science, AI Specialization *Sep. 2022 -- Mar. 2026*
- Coursework: **Deep Learning**, **Probabilistic Graphical Models**, **Natural Language Processing**, Information Retrieval

University of Luxembourg Luxembourg
Bachelor of Computer Science, with Honors *Sep. 2019 -- Jul. 2022*
- Coursework: **Algorithms and Data Structures**, **Databases**, Software Engineering, Computer Networks, Linear Algebra

Experience

Software and Cloud Engineer May 2026 -- Aug. 2026
TPQuants *Luxembourg*
- Led the full rewrite of a Replit prototype into a **production-grade React/TypeScript and PostgreSQL** client-server application for automated Transfer Pricing Audit report generation
- Designed and deployed **AWS infrastructure** from scratch: **VPC, EC2, Aurora RDS, and S3** -- including network segmentation, IAM policies, and secure connectivity
- Drove ongoing migration, maintenance, and monitoring of cloud resources, establishing **repeatable deployment patterns** for the future engineering team

Machine Learning and Data Intern May 2025 -- Feb. 2026
AppOX *Remote*
- Built a **benchmarking framework** comparing **distance-based** (Gower/Anonymeter) vs. **learned-representation attacks** to assess sensitive attribute inference risk in synthetic datasets
- Trained **contrastive learning** and **VAE models** to produce structured tabular embeddings, improving attack accuracy on high-dimensional feature spaces where distance metrics fail
- Structured all experiments with **MLflow** tracking and **Optuna** hyperparameter search for fully reproducible, production-ready evaluation pipelines

Projects

Fluence | *Python, Flask, SQLAlchemy, PostgreSQL, HuggingFace, Next.js, React, TypeScript* May 2025 -- Present
- Engineered a **modular Flask backend** using an application factory pattern with blueprints, **SQLAlchemy** models across 8+ entity types, and Pydantic schemas -- exposing a fully documented **REST API** via Swagger/Flasgger
- Implemented **APScheduler** background jobs for automated backups, **on-device TTS** generation (Qwen TTS), and AI-assisted sentence generation via **HuggingFace Transformers** -- no external API calls
- Delivered a **Next.js 15 and React 19** TypeScript frontend with **7 exercise modes** and Markdown rendering for grammar notes; published to elnukakujo.github.io/fluence

Home Lab | *Proxmox VE, Kubernetes, Docker, local LLM inference* May 2026 -- Present
- Built a **two-node Proxmox VE cluster** from repurposed gaming laptops for bare-metal hypervisor management and hardware resource isolation
- Deployed **Kubernetes** across both nodes, orchestrating Dockerised workloads including **local LLM inference**, media serving, and self-hosted productivity services
- Gained hands-on experience with **on-premise LLM inference** on constrained hardware, directly relevant to sovereign AI deployment patterns

Technical Skills

Languages: Python, TypeScript, SQL
AI and ML: PyTorch, HuggingFace, LangChain, RAG, LLM Agents, Transformers, Contrastive Learning, LLaMA, Mistral
Backend and Data: Flask, SQLAlchemy, PostgreSQL, SQLite, REST API design, ETL pipelines
Frontend: React, Next.js, TypeScript, d3.js, Plotly
Cloud and DevOps: AWS (VPC, EC2, Aurora RDS, S3, CloudFront, Amplify), Docker, Kubernetes, Proxmox VE, Git, MLflow, Optuna
Databases: PostgreSQL, SQLite, Neo4j, Aurora RDS