✺ — Federico Arenas

> **TLDR:** Senior AI Engineer, 4+ years of experience driving cloud-based AI/ML products to market in the AI for Science, Self Driving, and Entreprise Data spaces, **skills:** Python, Rust, C#, TypeScript, PyTorch, Tensorflow, AWS, GCP, Docker, SQL, REST, websockets, French, Spanish. Learn more at federicoarenas.io.

Senior AI Engineer (11/2025 → Present), AI Engineer (04/2024 → 11/2025) — materiom.org

Funded by Google, end-to-end development of production-ready AI software for bio-based materials, focusing on generative AI, LLMs, and integrating tools and knowledge bases from materials science and biochemistry:

- Materiom AI: **Agentic RAG application with access to 40000+ materials**, with multiple search APIs, serving 10000+ user sessions since its deployment, and 10+ entreprise partnerships.
- Materiom Commons: **web-based platform accelerating bio-based material innovation**, catering to 25000+ registered users across 130 countries with 99.99% uptime.
- **Neural models for material synthesis and material property prediction** trained on experimental data from partner scientific labs across the world. Trialed with multiple entreprise partners.
- **Built modular evaluation pipelines** for automated, continuous model monitoring in production, integrating drift detection, A/B testing, and expert-led metrics to enable rapid diagnostics and retraining.
- **Engaged in key investor and partner events** to expand our customer base and establish strategic partnerships in Europe, the US, and the UK.

Stack: GCP; Cloud Run, PGVector, PostgreSQL, MongoDB, FastAPI, Python, ADK, Langfuse, PyTorch, React, TypeScript.

AI Engineer (09/2021 → 04/2024) — conode.ai

Led the design, development, and deployment of cloud-based AI-human collaboration features at Conode (previously dRISK):

- Enterprise Data Solution: web app built with TypeScript, Rust, and Python, enabling non-technical decision-makers to navigate and understand large datasets graphically.
- AV Perception Retraining Platform: Allows users to graphically identify and fix perception failures through data curation, model retraining, fine-tuning, and performance tracking.
- **LLM-Powered Agent**: Enables non-technical users to interact with data exploration tools via natural language, hosted on a Python Flask server with websocket communication.
- **Led multiple customer-facing projects from PoC to mature relationships** with major clients like NVIDIA, Luminar, TATA Motors, SAE and others.
- **Engaged in key investor events** to expand our customer base and form strategic partnerships, especially in SE Asia and the UK.

Stack: Rust, PyTorch, Flask, Python, React, TypeScript.

ML Engineer (06/2021 → 09/2021) — neurolabs.ai

Led the exploration for learned Synthetic Data Generation methods integrated into their Retail Product. Resulted in a Distinction-grade thesis. Read more here.

Education

MSc in Artificial Intelligence (The University of Edinburgh, grade: distinction), **MSc in Mechatronic Engineering** (Arts et Métiers ParisTech, grade: 17/20), **BSc in Product Design Engineering** (EAFIT University, grade: 4.75/5.0).

Relevant modules: Calculus, Linear Algebra, Optimization, Accelerated NLP, Machine Learning Practical, Reinforcement Learning, Natural Language Understanding, Generation and Translation, Image and Vision Computing.

Patents

(Application No. PCT/US2024/032276): ML algorithm using graph theory and A* search to augment trajectory data for training autonomous vehicle RL models.

Awards

Colfuturo Excellence Scholarship, Eiffel Excellence Scholarship.