Joel Smith

SUMMARY

Data Science & Artificial Intelligence MSc graduate with strong engineering ability, demonstrated through the design and delivery of complex machine learning projects. Adept at building clean, reproducible, and well-documented codebases aligned with industry standards. Comfortable working across the machine learning lifecycle, from model development to deployment and evaluation, with proficiency in PyTorch and supporting tools. Committed to continual professional growth, maintaining an active portfolio of projects available on GitHub.

Education

University of Liverpool Sept 2024 - Sept 2025
MSc in Data Science & Artificial Intelligence, Distinction

University of Chester Sept 2020 - July 2023
BSc in Economics, First Class

- Awarded the University Prize for Economics

Projects

LLM-Based Financial Advisor Web App GitHub Repo

- Co-developed a full-stack financial Q&A assistant powered by LLMs, using a multi-agent architecture optimised through prompt engineering and retrieval-augmented generation (RAG) to combine real-time API data with vector-based search (ChromaDB/pgvector).
- Delivered a production-style system with a FastAPI backend and React frontend, containerised with Docker and orchestrated via Kubernetes (kind) for local cluster deployment, improving the reliability and scalability of inference pipelines.

Manipulation Lab GitHub Repo

- Developed a modular benchmarking framework for robotic imitation learning in NVIDIA Isaac Sim, offering configurable pipelines for data collection, training, and evaluation. Integrated Hydra configs, RLDS-compliant HDF5 datasets, and Weights & Biases logging to ensure reproducibility across tasks and embodiments.
- Substantially reduced experiment iteration time by introducing Hydra-based configuration management, enabling rapid, reproducible experimentation and providing a mechanism for the addition of new robotics benchmarks within the framework.
- Demonstrated system-oriented design, strong OOP practices, and research-to-code implementations.

Generative Modelling from Scratch GitHub Repo

- Implemented generative models (e.g., GMM, Factor Analysis, VAE, normalising flows) from first principles in PyTorch/NumPy, translating mathematical derivations into working code.
- Provided visualisations and step-by-step derivations to build intuition for probabilistic modelling.

Reinforcement Learning from Scratch GitHub Repo

- Derived and implemented foundational reinforcement learning algorithms (e.g., Bandits, Dynamic Programming, Monte Carlo) from scratch as part of an educational notebook series.

Machine Learning and Deep Learning Projects University Coursework

- Projects spanning classification, clustering, natural language processing (NLP), computer vision (CV), and reinforcement learning (RL) using classical and deep learning methods.

Experience

Commercial Finance Analyst June 2024 – Sept 2024
Matalan Liverpool, UK

- Queried and cleaned large SQL datasets (>10M rows) to support sales and promotional reporting; delivered time-sensitive insights to finance teams.

Team Supervisor Sept 2020 – January 2024

Costa Coffee Liverpool, UK

- Led a team in a fast-paced retail environment while completing undergraduate degree, developing management and communication skills.

Skills

Core ML: PyTorch, scikit-learn, Hydra, Torchvision, OpenAI API
Data & Analytics: SQL, PostgreSQL, Google BigQuery, Microsoft SQL Server, ChromaDB, pgvector, Weights & Biases
Software Engineering: FastAPI, Kubernetes (kind), Docker, Git, Linux, AWS (EC2)
Languages: Python, SQL