Mathis Weil

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EDUCATION

University College London (UCL)
MSc Data Science & Machine Learning; Coursework: Bayesian Deep Learning, Statistical NLP, Information Retrieval & Data M

Queen Mary University of London (QMUL)
BSc Computer Science — First Class Honours (83%); Dissertation: AI semantic search engine (Sentence-BERT, FastAPI, Postg

EXPERIENCE

Postgraduate Teaching Assistant   Sep. 2025 – Present
University College London   *London, UK*
- Lead practicals and assess coursework for 150+ MSc students across Intro Programming, Computer Architecture & Operating Systems, and Software Engineering.
- Guide students in Python, data structures, testing, and clean coding practices; provide actionable feedback to improve analytical thinking and communication.
- Collaborate with faculty to refine lab materials using real-world datasets and reproducible workflows.

Computer Science Lab Demonstrator   Sep. 2024 – May 2025
Queen Mary University of London   *London, UK*
- Taught and supported 400+ students; designed coursework integrating information retrieval and machine learning within database-driven applications.
- Awarded Demonstrator of the Year for impact on student outcomes and course delivery.
- Supported SQL and Python labs, emphasizing data querying, feature engineering, and evaluation metrics.

Software Engineer   Jul. 2024 – Aug. 2024
Groupe Prunay   *Paris, France*
- Developed software tools streamlining insurance workflows; authored clear technical documentation for handover and adoption.
- Built a Next.js + Tailwind showcase site to present internal tools and usability improvements to stakeholders.

Web Scraper — Carbon Credits   Sep. 2024
Independent Project   *Remote*
- Implemented a Python Selenium scraper collecting 5,000+ startup data points for market analysis; multithreading improved throughput by 40%.
- Engineered resilient scraping with retries and validation, producing analysis-ready datasets for downstream use.

Software Engineer   May 2023 – Jul. 2023
Garage-Hero   *Dubai, UAE*
- Built React components and automated scrapers to support product data workflows; performed QA and debugging across the stack.

PROJECTS

AI Assistant for IBM SkillsBuild | *Python, Sentence-BERT, FastAPI, PostgreSQL+pgvector* Sep. 2024 – May 2025
- Designed and deployed a semantic search engine that outperformed BM25 on internal benchmarks, enabling accurate retrieval for learning content.
- Built REST APIs with FastAPI; leveraged pgvector for efficient ANN search and production-ready indexing for scale.
- Prepared for RAG integration with modular embedding pipelines and evaluation harnesses.

BSc Dissertation — Semantic Search Engine | *Sentence-BERT, FastAPI, PostgreSQL+pgvector*   2024 – 2025
- Developed an end-to-end semantic search system achieving Recall@20=0.899 and MRR=0.843, demonstrating robust retrieval performance.
- Implemented data ingestion, embedding generation, and evaluation, with reproducible experiments and documentation.

TECHNICAL SKILLS

Languages: Python, SQL, Java, JavaScript, TypeScript
ML/DS: PyTorch, scikit-learn, Pandas, NumPy; NLP, Information Retrieval, Semantic Search, RAG, Data Mining, Deep Learning
Frameworks & Tools: FastAPI, React, Next.js, Selenium, PostgreSQL (pgvector), Git
Languages (Human): French (Native), English (Fluent), German (Intermediate)

CERTIFICATIONS

Mathematics for Machine Learning — Imperial College London

TryHackMe cyber certifications; First Aid (PSC1); Cambridge English Advanced (C1)