Louis Forster

in linkedin.com/in/l-forster

Profile

MEng Computer Science student with production ML experience. Specialising in computer vision and autonomous systems, with a track record of deploying SOTA models and scaling web applications.

Core Skills

Machine Learning (Self-Supervised Learning, Deep Learning, Transformers), Full-stack Development, Data structures, Algorithms, Image Processing, Computer Vision, Agentic AI.

Technical Stack

Python (PyTorch, Transformers, OpenCV, NumPy, Flask), TypeScript (React), JavaScript (Node.js), Rust, C, Java, PostgreSQL, Hugging Face, CI/CD (GitHub Actions), Docker, Redis, Cloud, Supabase, Stripe.

WORK EXPERIENCE

Machine Learning Research Intern - Bristol Vision Institute

(Jun - Jul 2025)

- Engineered and fine-tuned optical flow models (RAFT, DPFlow) with synthetic noise on Sintel, using SLURMscheduled A100 GPU.
- Architected and implemented a bidirectional, occlusion-aware warping and fusion pipeline with forward-backward flow consistency checks and adaptive occlusion masking with a finetuned DPFlow model for low-light video denoising.
- Achieved State-of-the-Art (SOTA) on the BVI-RLV low-light video benchmark, surpassing previous results with 29.22 dB PSNR (+0.13), 0.863 SSIM (+0.010), 0.334 LPIPS (-9.2%). [Repo]

Web Developer Intern - Scribblepad Press

(Jul - Sep 2024)

Designed and deployed a new brand website, leading to +119% visitor growth. Delivered 10+ design prototypes in Figma/Illustrator.

Teaching Assistant - University of Bristol

(Sep 2023 - Apr 2025)

TA for 200+ Computer Science undergraduates in core topics including memory allocation, pointers, data structures, and linear algebra through 1:1 support and in over 50 lab sessions.

PROGRAMMING PROJECTS

- Treyspace (treyspace.app): Built a cluster-based Hybrid GraphRAG retrieval engine for Excalidraw JSON data. Engineered autonomous canvas traversal algorithms and semantic modelling to guarantee precise context for LLMs with minimal latency using MCP. Usage: 22 early users, processed 5,000 + AI requests ($\sim 13M tokens$). Deployed on PM2-managed VM on Google Cloud Platform. Used: Redis, HelixDB, Node.js, GCP. Open-source SDK: [Repo]
- Plaintext AI: Engineered a visual orchestration platform enabling users to design custom, non-linear research agents. Built a graph-based execution engine to handle branching workflows by connecting modular tasks like Semantic Scholar search, claim extraction, and automated literature review. Deployed via Azure CI/CD.
- Personality Tracker: Developed a pipeline using RoBERTa and BART to classify daily events and synthesise behavioural summaries and inferred personality traits. Built a tailored SQLite-backed data layer functioning as a lightweight **ORM**, modelling people, attributes, and sentence-level annotations. [Repo]
- Reddit Mental Health Classifier: Designed a full-stack NLP pipeline that scrapes Reddit data via PRAW, processes text with scikit-learn feature extractors, and trains multi-label classifiers for predicting psychological signal patterns across several mental health categories. Implemented a production-style Flask API, modular training facades, and a React visualisation interface with dynamic probability charts. [Repo]

EDUCATION

University of Bristol - MEng Computer Science with Innovation

(Graduation: Summer 2026)

First Class (avg. 81%): Data Science (92%), Programming Tools (91%), Machine Learning (87%) [Code/Report], Programming Languages Theory (84%), Linear Algebra (82%), Image Processing (78%) [Code/Report].

Balcarras Academy - A Levels

(2016 - 2022)

- Results: Computer Science (A*), Maths (A*), Physics (A*), EPQ (A*).
- Awards: Outstanding Overall Performance Prize, Mathematics Upper School Prize, UK Bebras Challenge (Top 25%), UKMT Awards (Silver x5, Grey Kangaroo Qualifier).

ADDITIONAL EXPERIENCE

- Made 25x ROI (£30 to £800) in 4 months in TF2 trading by valuing unpriced items and executing 500+ trades.
- Awarded Roadchef 'Future Impact' Award for innovation consultancy project.