Garin Curtis

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About me

I'm a ML/AI Engineer with a background in Mechanical Engineering (BEng), applying a rigorous analytical and problem-solving mindset to end-to-end machine learning. Experienced in designing and training bespoke transformer architectures, including a GPT-style decoder-only model for synthesizing 40 plus hours of motion capture data, and developing robust RAG pipelines. Specialised in building high-performance AI systems, from model experimentation and fine-tuning to deploying scalable APIs and infrastructure.

Experience

A+E Lab *London December - Present*
Machine Learning Engineer

- Architected a custom GPT-style decoder-only Transformer to synthesise long-form motion capture sequences, implementing sliding window attention to maintain temporal coherence over extended durations.
- Curated and preprocessed a high-fidelity 40-hour dataset of specialised dance movements, optimised for generative modelling tasks.
- Engineered custom quaternion and positional loss functions, integrating forward kinematics (FK) to ensure physical plausibility and anatomical accuracy in generated motion.
- Tech stack: Python, PyTorch, CUDA, NumPy, SciPy, Pandas, Transforms3d.

Global Climate-Projection Project *November 2025*
Full Stack AI

- Built and deployed an interactive global climate-projection system using Google Earth Engine using agentic AI, enabling users to click anywhere on the world map to generate CMIP6 climate insights and AI-driven visualisations.
- Developed a robust RAG pipeline and vector database to ground explanations in peer-reviewed climate science, delivering accurate, location-specific future-climate summaries.
- Tech Stack: Next.js, Three.js, TypeScript, Python, Fast API, LangChain, OpenAI API, Google Earth Engine, ChromaDB, Google Cloud Platform, GLSL.

University for the Creative Arts *London April - August 2025*
Machine Learning Engineer

- Fine-tuned LoRA models for Stable Diffusion and developed a serverless web application using RunPod, with an accessible front-end interface built using Next.js that enabled the client to experiment with trained LoRA models creatively.
- Tech stack: Next.js, React, TypeScript, Python, PyTorch, Label Studio, Runpod (GPU).

Installation at CVPR 2025 AI Art Gallery *May - June 2025*
Full Stack AI Engineer

- Built and deployed a real-time cloud GPU system enabling visitors to control a diffusion model in real time through spatial inputs and dynamic UNet layer manipulation, using network-bending techniques. The Interactive AI installation was exhibited at CVPR 2025 AI Art Gallery.
- Tech Stack: Python, PyTorch, FastAPI, Websockets, sklearn, Javascript, Runpod (GPU), Docker, Html, and CSS.

Ancestral (R)evocations - Erika Tan - Featured at Tate Modern *London*
Software Engineer *July 2024 – October 2024*

- Designed and implemented a real-time interactive audio system using Ircam's RAVE model trained on a custom dataset recorded at the Tate Modern, integrating generative ML, metadata mapping, and granular synthesis to help artist Erika Tan to realise her semantic sound data sonification installation in the Tate Modern Tanks
- Tech Stack: Python, PyTorch, Pure Data, and OSC.

Technical Skills

Languages: Python, TypeScript, JavaScript, C++, C#, GLSL, HTML, CSS.

Machine Learning & AI: PyTorch, TensorFlow, Hugging Face Transformers, LangChain, LangGraph, OpenCV, scikit-learn, NumPy, Label Studio, OpenAI API, ChromaDB.

Web & Full-Stack Development: Next.js, React, FastAPI, Node.js, WebSockets, Three.js, GSAP, Framer Motion, Vercel.

Databases & Cloud Back-Ends: Amazon Web Services, Google Cloud Platform, PostgreSQL, Supabase (Auth, SQL, Storage).

Tools & DevOps: Docker, Git, Runpod (GPU), REST API development/testing, Jest, CI/CD fundamentals.

Workshops & Installations

Creative AI Discovery Workshop *March 2026*

- Gave 1 hour Creative AI workshops at the following schools. **Saxon Way Primary School**, **The Rowans AP Academy**, **Lordswood School**.

London Tech Week 2025 *June 2025*

Exhibited an interactive digital artwork for UAL at London Tech Week 2025, integrating real-time body tracking data that disrupt the internal mechanisms of a diffusion model, making the inner workings of AI visible, responsive, and beautifully unpredictable.

Education

University of the Arts London - Creative Computing Institute *Sept 2023 – Feb 2025*
MSc Creative Computing (1st)

- Focus: Machine learning for creative systems, real-time audio/visual interaction, generative AI.

University of Cardiff *Sept 2014 – June 2018*
BEng Mechanical Engineering (2:1)

Other Experience

BNP Paribas *Bristol*
Funding Manager *July 2021 – July 2023*

- Worked in a fast-paced environment, delivering accurate, detail-oriented work while adapting quickly to new tools and collaborating effectively across operations, sales, and support teams.

HSBC *Bristol*
Financial Administrator *October 2018 – April 2021*

- Handled sensitive financial data with precision and accountability, independently resolving complex cases under pressure while ensuring clear communication, accurate documentation, and rapid adaptation to new systems and procedures.

Masters Dissertation

Novel Interface for Real-Time Control of Diffusion Models

- Built an expressive real-time interface for manipulating diffusion model outputs (image generation) beyond text prompts.
- Implemented novel interactive techniques for manipulating the computational graph during inference and trained fine-tuned models using Dreambooth. Supervised by Phoenix Perry.
- Tools used: Python, PyTorch, Touchdesigner, OSC.