

Sasha Sutton - AI/Software engineering

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Education

Aix-Marseille University

Double Bachelor of Science in Mathematics and Computer Science (GPA: 3.9 / 4.00)

Expected May 2026

Marseille, France

- **Relevant Coursework:** Data Structures and Algorithms (C++), Prob & Stat in CS (Python), Intro to CS II (C++), Linear Algebra w/Computational Applications (Python).

Middlesex University

Bachelor of Arts in Music Production & Sound Engineering

October 2023

London, UK

- **Relevant Coursework:** Acoustics, Psychoacoustics, Mixing, Mastering, Music theory & composition, Sound design, Music software programming, Digital audio production, Live sound production.

Experience

Aix-Marseille University

Research assistant (data science)

September 2025 – December 2025

Marseille, France

- Developed and implemented a data acquisition pipeline in Python, automating scanner control and synchronising positional data (X, Y) with depth measurements (Z) for efficient data collection.
- Processed and cleaned raw, large-scale 3D point cloud data (organised and unorganised) using statistical filtering techniques to remove noise and outliers, ensuring data integrity for downstream analysis.
- Leveraged libraries such as Open3D, NumPy, and CloudCompare for geometric processing, mesh manipulation, and quantitative analysis of 3D models.

Vista Ball

Full Stack developer intern

June 2025 – August 2025

Marseille, France

- Built a scalable inventory management system from the ground up using a modern tech stack (Supabase, Node.js/other backend tech, HTML/CSS/JS).
- Engineered a centralised Supabase database that automated the synchronisation of product data and inventory levels from 5+ supplier feeds, reducing manual data entry by 15 hours per week and ensuring 99% stock accuracy on the live site.
- Built and integrated a custom frontend application into Shopify, dynamically displaying the centralised product data and leading to a 15% reduction in customer service inquiries about product availability.
- Leveraged Airtable and Softr to design and build an internal CRM and automate manual data tasks, streamlining internal operations for the team.

Projects

Neural Vision 3D – Interactive Machine Learning Visualizer | React, Three.js, Python, FastAPI, NumPy, TypeScript

- Developed an interactive 3D visualization of a Neural Network from scratch using **React Three Fiber (Three.js)**, allowing users to inspect real-time neural activations in a 784-64-10 architecture.
- Engineered the core inference engine in **Python** using **NumPy** for matrix mathematics, implementing manual forward pass logic with Sigmoid and Softmax activations without high-level ML libraries.
- Architected a high-performance REST API with **FastAPI** to handle real-time digit recognition requests, processing 28x28 pixel arrays for instant classification of hand-drawn input.
- Built a modern "Dark Lab" dashboard using **Tailwind CSS** featuring a custom digital drawing pad, confidence meters, and a fully responsive 3D environment for educational use.

Vector Search Engine (RAG Backend) | Python, FastAPI, React, NumPy

- Built a semantic search engine from scratch, implementing Cosine Similarity via matrix multiplication to rank documents by meaning rather than keywords.
- Engineered a high-performance backend using FastAPI and Sentence-Transformers (BERT) to generate 384-dimensional vector embeddings.
- Deployed a full-stack microservices architecture: Python backend on Render and React frontend on Vercel, connected via REST APIs.

Technical Skills

Languages: Java, Python, JavaScript, TypeScript, C.

Technologies: React.js, Next.js, FastAPI, Express.js, TensorFlow, PyTorch, Bootstrap, Node.js, Pandas, Seaborn, Matplotlib, Spring boot.

Concepts: Data cleaning, Compiler, Operating System, Virtual Memory, Cache Memory, API, Database Normalization, Cloud Computing.

Social Engagements

Sports Engagements: Mountain Cycling, Marathons, Kickboxing.

Club Memberships: Chess Club and Mathematics Club at Aix-Marseille University.

Interests: Chess, Hackathons.