

# Sasha Sutton - AI/Software engineering

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## Education

<b>Aix-Marseille University</b> Double Bachelor of Science in Mathematics and Computer Science (GPA: 3.9 / 4.00)	Expected May 2026 Marseille, France
• <b>Relevant Coursework:</b> Data Structures and Algorithms (C++), Prob & Stat in CS (Python), Intro to CS II (C++), Linear Algebra w/Computational Applications (Python).	
<b>Middlesex University</b> Bachelor of Arts in Music Production & Sound Engineering	October 2023 London, UK
• <b>Relevant Coursework:</b> Acoustics, Psychoacoustics, Mixing, Mastering, Music theory & composition, Sound design, Music software programming, Digital audio production, Live sound production.	

## Experience

<b>Aix-Marseille University</b> 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.	
<b>Vista Ball</b> 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

<b>Neural Vision 3D – Interactive Machine Learning Visualizer</b>   React, Three.js, Python, FastAPI, NumPy, TypeScript	
• Developed an interactive 3D visualization of a Neural Network from scratch using <b>React Three Fiber (Three.js)</b> , allowing users to inspect real-time neural activations in a 784-64-10 architecture.	
• Engineered the core inference engine in <b>Python</b> using <b>NumPy</b> 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 <b>FastAPI</b> 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 <b>Tailwind CSS</b> featuring a custom digital drawing pad, confidence meters, and a fully responsive 3D environment for educational use.	
<b>Vector Search Engine (RAG Backend)</b>   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.