

Quincy Sproul

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EDUCATION

University Of Bristol

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MEng, *Engineering Mathematics (Final Grade 2:1)*

- Relevant Modules:
 - EENG20004 C for Embedded Systems (72%), EENG21000 Signals and Systems (71%), EMAT20012 Applied Linear Algebra (72%), EMAT20540 Discrete Mathematics 2 (82%), EMAT30008 Scientific Computing (82%), EMAT30670 Optimisation Theory and Applications (70%), EMATM0029 Bio-Inspired Artificial Intelligence (70%), EMATM0053 Robotics Systems UG (78%)

PROJECTS

- [Project 1](#): Multi-view Hand-Tracking and Gesture Detection for VR (Technical Project)
 - Developed a system for early classification of dynamic hand gestures in VR environments. Discretised features from 3D hand landmark coordinates, varied the input/output window size of sequences to train different Transformer models used to predict future hand states. Used lookup tables & DTW to classify gesture sequences. Explored the balance between prediction accuracy & latency reduction.
- [Project 2](#): Visual Search Model with Deep Embeddings & Contrastive Learning
 - Combined transfer learning (ResNet-34 as a backbone network) with a custom contrastive learning loss, feature extraction refinement to optimise the model.
- [Project 3](#): Line-Following Algorithm for Pololu 3pi+ 32U4 Robot (Grade: 100%)
 - Developed a line-following algorithm for the Pololu 3pi+ 32U4 robot. Implemented sensor-based detection, PID control for navigation, and embedded systems programming. Optimised performance for various line patterns through sensor calibration and motion control refinement.
- [Project 4](#): Scientific Computing Toolbox for Solving ODEs & PDEs
 - Software toolbox for solving Ordinary & Partial Differential Equations. Implemented numerical methods & adaptive step-size algorithms for improved accuracy. Designed a user-friendly interface for inputting equations & parameters. Received a “gold-plated” submission.
- [Project 5](#): Simulating Crowd Behaviour with Agent-based Modelling
 - Adapted Craig Reynolds' ‘Boids’ algorithm for crowd behavior & implemented novel line-of-vision logic. Explored impact of stage shapes, crowd density and stationary/moving performer on visibility.

CERTIFICATIONS, SKILLS, EXPERIENCE & INTERESTS

- **Certifications:**
 - **Dataquest.io:** [Data Analyst in Python](#), [Data Scientist in Python](#) | **Coursera:** [Neural Networks and Deep Learning](#), [Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization](#), [Convolutional Neural Networks](#) | **Qubit by Qubit (IBM):** [Introduction to Quantum Computing](#)
- **Skills:**
 - **Machine Learning & AI:** Deep Learning, Computer Vision, NLP, TensorFlow, Keras, PyTorch, Scikit | **Data Science:** Analysis, Visualization, Feature Engineering, Time Series Analysis, Pandas, NumPy, Matplotlib, Seaborn | **Languages:** Python, SQL, Git, C++ | **Mathematics:** Mathematical Modeling, Numerical Analysis, Algorithm Development | **Software Development:** OOP, Agile Methodologies | **Soft Skills:** Project Leadership, Problem Solving, Critical Thinking, Communication, Teamwork
- **Entrepreneurial Experience:**
 - [Base Events](#): Founder and Organiser (2019)
 - Planned and executed a music event, generating approximately £5,000 in revenue. Developed skills in event management, marketing, financial planning, interpersonal skills, networking.
- **Interests:** Fitness & Sport; Music Production; Dog Walking; Entrepreneurship; Futurism; Philosophy; Comedy.