Michael Belyaev

+44 7450 236803   github.com/misha7b   misha7b.github.io   michael7belyaev@gmail.com

EDUCATION

University of Edinburgh　　　　　　　　　　　　　　　　　　Sep. 2022 - May 2027
Mathematics MMath (Integrated Masters)　　　　　　　　　*Averaging a First Class (80%)*

Relevant Courses: Introduction to Algorithms and Data Structures, Machine Learning, Probability, Stochastic Modeling, Foundations of Data Science, Statistics

PROGRAMMING SKILLS

- **Programming Languages:** Proficient in **Python**; Experience with **Haskell**, **C++**

- **Libraries and Tools:** PyTorch, NumPy, Pandas, Matplotlib, Git/GitHub, LaTeX

EXPERIENCE

LFCS Summer Research Intern

University of Edinburgh　　　　　　　　　　　　　　　　　　Jun. 2025 - Jul. 2025
- Automated the design of low-precision arithmetic hardware for machine learning accelerators using Syntax-Guided Synthesis (SyGuS).
- Utilised PyTorch and the CVC5 SMT solver to generate and verify hardware logic.
- Delivered a synthesised 4-bit MXInt multiplier and adder, achieving 98.6% and 90.5% accuracy respectively.

School of Informatics Summer Research Intern

University of Edinburgh　　　　　　　　　　　　　　　　　　Jun. 2024 - Aug. 2024
- Implemented and benchmarked dimensionality reduction techniques to evaluate performance trade-offs for approximate k-NN search.
- Accelerated an outlier detection algorithm by implementing Locality Sensitive Hashing (LSH), providing speedup in exchange for a small loss of accuracy.

Demonstrator/Marker/Tutor

University of Edinburgh　　　　　　　　　　　　　　　　　　Sep. 2023 - Nov. 2024
- Taught and mentored 8 undergraduate students, leading tutorials and grading assignments for the courses Introduction to Computation (Haskell) and Introduction to Data Structures and Algorithms (Python).

PROJECTS

C++ Raytracer　　　　　　　　　　　　　　　　　　　　　Sep. 2025 - Dec. 2025
- Built a modular C++ raytracer from scratch for coursework.
- Implemented Whitted-style recursive raytracing, BVH acceleration and distributed effects.

Neural Field Optimisation　　　　　　　　　　　　　　　　　　　Aug. 2025
- Faculty-supervised research project on optimisation methods for neural fields and implicit 3D representations.
- Reduced reconstruction artefacts by modifying loss functions and optimisation parameters.

HYPED Software Team　　　　　　　　　　　　　　　　　　Sep. 2023 - Jun. 2025
- **Localisation Project Manager** — Jan. 2024 - Jun. 2025
- **Localisation Subteam Member** — Sep. 2023 - Jan. 2024
- Member of the University of Edinburgh's Hyperloop Society.
- Led the localisation team responsible for state estimation based on sensor readings.
- Engineered a Kalman filter to fuse accelerometer and optical flow data, achieving position estimates with $<1\%$ error against ground-truth.

AWARDS AND ACHIEVEMENTS

- Scottish Mathematical Challenge Gold in 2021 and Silver in 2022.
- Gold in the Senior UKMT.