Michael Belyaev

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Penultimate year mathematics student looking for an internship combining mathematics and computer science.

Education

University of Edinburgh Sep. 2022 - May 2027
Mathematics MMath (Integrated Masters) *Averaging a first (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**, **Rust**
- **Libraries and Tools:** PyTorch, NumPy, Pandas, Matplotlib, Git/GitHub, LaTeX

Experience

LFCS Summer Research Intern
University of Edinburgh Jun. 2025 - Jul. 2025
- Researched using syntax-guided synthesis (SyGuS) to automatically generate hardware logic for low-precision arithmetic.
- Worked with PyTorch and MASE (Machine-Learning Accelerator System Exploration Tools) libraries.
- Synthesised an efficient and accurate custom multiplier and adder for the MXInt data format.

School of Informatics Research Intern
University of Edinburgh Jun. 2024 - Aug. 2024
- Implemented and benchmarked dimensionality reduction techniques, including random projections and Locality Sensitive Hashing (LSH), to evaluate performance trade-offs for approximate k-NN search.

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

Projects

Neural Field Optimization Aug. 2025
- Supervised research project exploring the robustness and performance of optimization techniques for neural fields.
- Experimented with fine-tuning training parameters to reduce artifacts in surface reconstruction.

HYPED Software Team
University of Edinburgh Hyperloop Team Sep. 2023 - Jun. 2025
- **Localisation Project Manager** — Jan. 2024 - Jun. 2025
- **Localisation Subteam Member** — Sep. 2023 - Jan. 2024
- Led a team of 3 developing the pod's real-time state estimation, designing and implementing the localisation system's sensor fusion.
- Engineered a Kalman filter to fuse accelerometer and optical flow data, achieving position estimates with $<1\%$ error against ground-truth.
- Ported the legacy C++ localisation implementation to Rust, redesigning the data cleaning process.

Awards and Achievements

- Scottish Mathematical Challenge Gold in 2020 and Silver in 2021.
- Gold in the Senior UKMT.