Niall McGuire

Curriculum Vitae

Qualifications

2022–Present **PhD in Computer Science & AI**, *University of Strathclyde*
Supervised by Dr. Yashar Moshfeghi. Fully funded by BAE Systems.
Neurophysiological signals for brain-computer interfaces and information retrieval [1–7].

2018–2022 **BSc (Hons) in Computer Science**, *University of Strathclyde*, First Class

Employment History

2026 **Research Intern**, *Microsoft Research*, Redmond
Audio & Acoustics Group (BCI Team). Using physiological signals as objective measures of audio quality and listening effort.

2026 **Research Associate**, *University of Strathclyde*, Glasgow
Developing models and a research survey for BAE Systems on wearable physiological sensing modalities and their trade-offs for system design.

2023–2024 **Research Associate**, *University of Strathclyde*, Glasgow
Real-time classification of pilot mental workload from EEG, ECG and eye-tracking data in collaboration with BAE Systems and DSTL.

2023 **Lead Teaching Assistant**, *University of Strathclyde*, Glasgow
Lab sessions, marking and feedback for MSc Machine Learning and Big Data courses (100+ students).

Awards

2026 **BAE Systems PhD Student of the Year**

2025 **Euan Minto Prize**, best paper at the Strathclyde Computer & Information Sciences PGR Conference

2022 **Charles Babbage Prize**, best 4th year dissertation in Computer Science

Publications

[1] **Niall McGuire** and Yashar Moshfeghi. Prediction of the Realisation of Information Need: An EEG Study. In *Proceedings of SIGIR 2024*. ACM, 2024.

[2] **Niall McGuire** and Yashar Moshfeghi. On Error Classification from Physiological Signals within Airborne Environment. In *Proceedings of CHI 2025*. ACM, 2025.

[3] Yashar Moshfeghi and **Niall McGuire**. Brain-Machine Interfaces & Information Retrieval Challenges and Opportunities. In *Proceedings of SIGIR 2025*. ACM, 2025.

[4] **Niall McGuire** and Yashar Moshfeghi. Towards Brain Passage Retrieval: An Investigation of EEG Query Representations. In *Proceedings of SIGIR 2025*. ACM, 2025.

[5] Iakovos Tenedios, **Niall McGuire** and Yashar Moshfeghi. On the Use of Electroencephalography in

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Query Performance Prediction. *ACM Transactions on Information Systems (TOIS)*, 2026.

[6] **Niall McGuire** and Yashar Moshfeghi. Cross-Sensory Brain Passage Retrieval: Scaling Beyond Visual to Audio. In *Proceedings of ECIR 2026*. Springer, 2026.

[7] **Niall McGuire** and Yashar Moshfeghi. Cross-Sensory Comparison of EEG Signals for Brain-Based Information Retrieval. In *Proceedings of SIGIR 2026*. ACM, 2026.

Academic Service

2025–Present **Chair**, *ESSIR Future Directions in Information Access (FDIA 2025)*
Neurophysiology Information Systems & Machine Learning

2024–Present **Reviewer**, *ACM SIGIR*
Neurophysiology Information Systems & Machine Learning

2023–Present **Reviewer**, *Advanced Course & Symposium on AI & Neuroscience*
Machine Learning & Neuroscience

2023–Present **Reviewer**, *European Conference on AI & Neuroscience*
Machine Learning & Neuroscience

Technical Skills

Languages	Python, C++, C, Java, R, CUDA, SQL
ML & Data	PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn
Biosignals	PsychoPy, Lab Streaming Layer (LSL), BrainVision Recorder, EEG/ECG/eye-tracking processing
Infrastructure	SLURM/HPC, MySQL, PostgreSQL, Microsoft SQL