# WILLIAM LEENEY

PhD | Artifical Intelligence | University of Bristol

✉ will.leeney@outlook.com  📞 +44(0)7484701549  🕐 Available now  📌 Open to relocation

## OBJECTIVE

I want to deploy my 8 years of academic education in machine learning (1,000,000+ models trained), for real-world application.

## SKILLS

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|---|---|---|---|---|
| **PyTorch (Expert)** | scikit-learn (Intermediate) | SciPy | HyperParameter Optimisation | Representation Learning |
| **Python (Expert)** | Git (Intermediate) | Jax | | |
| WandB (Intermediate) | TensorFlow | Julia | Benchmarks | Novel Problems |
| Optuna (Intermediate) | Pandas | C/C++ | Community Detection | Federated Learning |

## EDUCATION

- **PhD Candidate** | Thesis defense in early July | Thesis title: "**Unsupervised Graph Neural Networks - Training Strategies and Evaluation Principles.**"
- **Oxford** Machine Learning Summer School 2021
- **Won best talk** for Introduction to Neural Networks at Oxford away day
- **MEng** (1st with honours) | Engineering Mathematics at University of Bristol | Dissertation title: "Biologically Inspired **RNN** Hebbian Learning Rule for Decision Making."
- Head Boy at Special Measures State School (A*AAA)

## PUBLICATIONS

- *Leeney and McConville, "Uncertainty in GNN Learning Evaluations: The Importance of a Consistent Benchmark for Community Detection.", Complex Networks, 2024.* **(Invited Oral)**
- *Leeney and McConville, "A Framework for Exploring Federated Community Detection",* **AAAI** *GCLR, 2024.*
- *Leeney and McConville, "Uncertainty in GNN Learning Evaluations: A Comparison Between Measures for Quantifying Randomness in GNN Community Detection.", Entropy, 2024.* **(Invited Journal)**
- *Leeney and McConville, "Unsupervised Optimisation of GNNs for Node Clustering." (Under Review)*

## UNIVERSITY PROJECTS, COLLABORATIONS & TEACHING

- Anime Auto-Dubber | We applied **OpenAI LLMs** to build a pipeline for converting Japanese audio text. An **LTSM NLP** model was finetuned to translate into English subtitles.

- Road Traffic Incident Explainability | **Decision Trees and Random Forests** were used to find important features. These features were fed as input channels to a **CNN** to improve road accident predictions.

- Quantum Internet Optimisation | **Bayesian Hyperparameter Optimisation** was utilised to search for significant input parameters that improved communication bandwidth.

- Parallelisation Speedup for SGD | **RNNs** were used to detect cycles in gradient updates which informed adjustments in learning rate decay.

## PERSONAL PROJECTS

- Kaei Network Ltd |**Founder** of an AI startup that used **GNNs** to improve academic search. Despite strong initial interest, due to market size and funding challenges, this venture was discontinued.

- Crypto Trader | I customised an open-source framework to build a bespoke **Reinforcement Learning** algorithm that integrated sentiment analysis data.

- Holistic Spotify Control | I wanted to control my spotify with gesture control, so I utilised **APIs** for object detection and used a **3D CNN** to detect specific control patterns.