# WILLIAM LEENEY
## Artificial Intelligence PhD

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## EMPLOYMENT

2024 - Present | OKKO Health | **ML Engineer** | I have created ML forecasting and anomaly detection models for predicting future clinical outcomes from a specialised eye-sight test.

## EDUCATION

- **PhD** | University of Bristol 2020-2024 — "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 (1$^{st}$ with honours) | Engineering Mathematics at University of Bristol — "Biologically Inspired **RNN** Hebbian Learning Rule for Decision Making."
- Head Boy at Special Measures State School (A*AAA)

## SKILLS

• **Python (Expert)** • **PyTorch (Expert)** • TensorFlow • scikit-learn (Intermediate) • Optuna (Intermediate) • Jax • SciPy • Pandas • Git (Intermediate) • C/C++ • WandB (Intermediate) • Julia

## 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)*

## PROJECTS

- Crypto Trader | I customised an open-source framework to build a **bespoke Reinforcement Learning** algorithm that integrated sentiment analysis data.
- 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.
- 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.
- OSS Contributor | I wrote and open-sourced two **unsupervised GNN frameworks** using PyG for unsupervised/federated evaluations, **implementing 10+ algorithms.**
- Twitter Automation | I automated my process of collecting liked research papers from Twitter and inputting them into a table in Notion.

## TEACHING

I have **supervised over 50 different AI/ML projects for final year undergraduates**, in project creation, technical writing, coding and model evaluation, including:

- Anime Auto-Dubber | We applied **OpenAI LLMs** to build a pipeline for converting Japanese audio text. An LTSM NLP model was tuned to translate into English subtitles.
- Quantum Internet Optimisation | **Bayesian Hyperparameter Optimisation** was utilised to search for significant input parameters that improved communication bandwidth.
- Road Traffic Incident Explainability | **Decision trees** and unsupervised clustering was combined to learn and identify important features that contribute to traffic accidents.