

NICHOLAS WATT

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Bedford, United Kingdom

EDUCATION

Northumbria University

September 2024 – September 2025

Artificial Intelligence MSc

Newcastle, United Kingdom

Newcastle University

September 2021 – June 2024

Computer Science BSc

Newcastle, United Kingdom

SKILLS

Technical Skills

- Programming:** Python, SQL, Java, C++, JavaScript, HTML, Excel
- Machine Learning & AI:** Deep Learning, Reinforcement Learning, Supervised & Unsupervised Learning, Model Development, Hyperparameter Tuning
- Frameworks & Libraries:** PyTorch, TensorFlow, Keras, Pandas, NumPy, Seaborn
- Data Engineering & Analysis:** Data Preprocessing, Feature Engineering, Exploratory Data Analysis (EDA), Data Cleaning, Statistical Modelling
- Model Evaluation:** Cross-validation, Accuracy, Precision, Recall, F1-score, Regression Metrics
- Mathematics & Statistics:** Linear Algebra, Probability Theory, Optimisation, Statistical Inference

Professional Skills

- Research & Experimentation:** Designed and executed quantitative and qualitative research projects, including literature review, experimental design, benchmarking, and technical reporting.
- Problem Solving:** Applied analytical reasoning to algorithm design, optimisation, and complex system development.
- Project Delivery:** Managed end-to-end technical projects, ensuring scope control, milestone delivery, and quality assurance.
- Collaboration & Leadership:** Led and contributed within cross-functional teams, communicating complex technical concepts to both technical and non-technical stakeholders.

PROJECTS

Deep Learning for Predictive Analysis of Cardiovascular Diseases

June 2025 - September 2025

- Conducted a structured literature review on state-of-the-art machine learning and deep learning approaches for cardiovascular disease prediction.
- Performed end-to-end data preprocessing and feature engineering on an open-source healthcare dataset using Python, Pandas, and Seaborn, including EDA, missing value handling, and data normalisation.
- Designed and implemented a Deep Learning model in PyTorch, incorporating Explainable AI (XAI) techniques to improve model interpretability.
- Evaluated model performance using accuracy, precision, recall, F1-score, and benchmarked results against published state-of-the-art research.
- Authored a professional and comprehensive research paper detailing methodology, experimentation framework, results analysis, and future work.

Human In The Loop Reinforcement Learning For Autonomous Racing

January 2024 - May 2024

- Implemented and experimented with Reinforcement Learning (RL) algorithms using TensorFlow and PyTorch to train a sensor-equipped autonomous racing agent.
- Integrated a Human-in-the-Loop (HITL) feedback mechanism to enhance policy learning and improve sample efficiency.
- Conducted comparative performance evaluation between baseline RL models and HITL-enhanced models using reward metrics and convergence analysis.

- Analysed training stability, policy optimisation, and generalisation performance across racing scenarios.
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House Price Prediction Using A Deep Neural Network

📅 December 2024 – January 2025

- Performed comprehensive data preprocessing and exploratory data analysis (EDA) on a raw real estate dataset, including outlier detection using robust Z-score normalisation.
- Engineered features and developed a Deep Neural Network (DNN) in Keras (Python) for regression-based house price prediction.
- Evaluated model performance using regression and classification metrics, comparing deep learning performance against a traditional neural network baseline.
- Applied model validation techniques including train-test split and performance monitoring to reduce overfitting.

EXPERIENCE

Machine Learning Engineer - Newcastle University Formula Student Society 📅 December 2023 – July 2024

- Contributed to the development and optimisation of machine learning models enabling autonomous vehicle perception, decision-making, and control.
- Collaborated in technical review meetings to coordinate model development and autonomous system deployment.

FURTHER INFORMATION

References available upon request