

CONOR O'SHEA

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EDUCATION

University of Edinburgh

(September 2024 – Present (Expected Graduation June 2028))

BSc (Hons) Artificial Intelligence and Computer Science (tracking to 1st Class Honours based on 1st & 2nd Year results)

- Selected completed modules: Introduction to Linear Algebra, Reasoning and Agents, Introduction to Data Science, Algorithms and Data Structures, Software Engineering and Professional Practices, Computer Systems Discrete Mathematics and Probability.

RESEARCH EXPERIENCE

AI Research Intern | EPSRC-funded 2nd Year Vacation Internship

(June 2026 – August 2026)

University of Edinburgh, School of Informatics | Completed after 2nd Year Undergraduate study

- Designed and implemented an end-to-end, MIME-aware email anonymisation pipeline combining deterministic parsers, Presidio and transformer-based spaCy named entity recognition.
- Ran controlled experiments across email headers, plain-text, and HTML, including comparisons of CNN-based and transformer-based spaCy models, and used the results to develop format-specific detection rules.
- Evaluated the pipeline against 2,339 manually labelled spans across 40 emails, achieving strict entity-level F1 scores of 0.89 for email addresses, 0.83 for person names, 0.97 for URLs and 0.99 for IP addresses.
- Curated a separate dataset of 160 obfuscated emails for research into LLM performance and built a Streamlit annotation interface that made the labelling workflow an estimated 4 times faster.
- Contributed to research paper submitted for anonymous peer review at ACM AISEC 2026 (co-located with ACM CCS), alongside a poster on the email anonymisation pipeline.

EXTRACURRICULAR PROJECTS

Judo Clipper | End-to-End Judo Video Analysis System

(January 2026 – Present)

[Live application](#) | [System repository](#) | [Model research](#) | [Frontend](#)

Python, PyTorch, Ultralytics YOLO, LSTM, FastAPI, Modal, AWS S3, OpenCV and pytest

- Built & deployed an AI-based judo match analysis application to reduce review time and target training needs for my judo club with over 100 members.
- Application utilised a Viterbi-based temporal player-assignment pipeline that converts noisy YOLO pose detections into stable two-player sequences, replacing an earlier colour-based approach that failed when competitors wore matching judogi.
- Developed a bidirectional LSTM classifier operating on 210-frame pose sequences, achieving 0.761 attempt-class F1 and 0.795 recall on a held-out clip-level test set of 217 samples.
- Selected the final architecture through controlled experiments using frozen data splits, improving validation attempt F1 from 0.709 to 0.795 through gradient clipping, bidirectional recurrence, and automatic class weighting.
- Designed an asynchronous FastAPI and Modal pipeline with direct browser-to-S3 uploads and distributed GPU inference, processing a representative 402-second match in 539 seconds and passing 554 automated tests.

LEADERSHIP EXPERIENCE

Workshop Lead | EdinburghAI Society

(September 2025 – Present)

University of Edinburgh

[Workshop contributions](#)

- Led all society workshops during 2nd Year Spring semester, teaching cohorts of 15+ students object detection and temporal modelling through practical PyTorch exercises.
- Taught students how to implement a single-object YOLO-style detector and how RNNs and LSTMs can be applied to sports video classification.
- Authored 4 open-source Jupyter notebooks containing technical explanations, guided exercises, and implementation tasks, including an early version of the temporal classifier later developed for Judo Clipper.

TECHNICAL SKILLS

Languages: Python, Java, C, Haskell

Machine Learning and Data: PyTorch, Ultralytics YOLO, spaCy, Presidio, scikit-learn, pandas, NumPy, OpenCV, Matplotlib, LSTMs, Transformers, Pose Estimation, and Named Entity Recognition

Backend and Cloud: FastAPI, AWS S3, Modal, asynchronous job processing, presigned uploads and distributed GPU inference

Tools: Git, GitHub, Linux, pytest, JUnit, SSH, VS Code, Vim and LaTeX

EXTRACURRICULAR EXPERIENCE AND HOBBIES

Kitchen Porter | The Cartvale Pub and Restaurant

(June 2022 – Present)

- Worked in a high-pressure kitchen environment requiring sustained physical effort and composure during busy service periods.

Junior Coach | Bushido Karate Club

(January 2022 – Present)

- First Degree Black Belt, teaching karate to children aged 5 to 14, tailoring instruction to suit age and experience.

Player | University of Edinburgh Gaelic Football Club

(September 2025 – Present)

Member | University of Edinburgh Judo Club

(September 2024 – Present)