

# DR JOSEPH EARLY

[www.jearly.co.uk](http://www.jearly.co.uk)

Last Updated: August 24, 2025

## WORK HISTORY AND EXPERIENCE

---

### Helsing

2024 - Present

#### *AI Research Engineer*

- Helsing is a new type of defence company - Artificial Intelligence to protect our democracies.
- Cross-cutting role: AI research, customer projects, and machine learning engineering.
- Public-facing responsibilities, such as engaging with government bodies and presenting at the AI for Ukraine Recovery Hackathon in Estonia.
- Actively involved in interviewing and mentoring new joiners.

### Amazon

2023

#### *Applied Scientist*

- 6-month internship with Amazon Prime Video; lead a research project published at a high-impact conference.
- Development of novel machine learning approaches for interpretable time series classification.
- Improved technical research abilities; learnt and applied new skills on the use of AI in industry.

### University of Southampton

2019 - 2023

#### *Teaching Assistant*

- Taught undergraduate and Master's students while completing my PhD.
- Responsibilities included lab demonstration, coursework marking, and lecturing.
- Designed and managed a coursework with an automated test harness to assess programming skills.

### BOON

2018 – 2019

#### *Machine Learning Developer*

- Worked for a start-up as part of the University of Southampton Future Worlds accelerator.
- Developed significant improvements to machine learning systems (50% increase in model performance).
- Contributed to the overall progress of the company by attending events and networking.

### University of Southampton

2018

#### *Research Assistant*

- 12-week summer internship developing a Responsible AI platform for Multi-UAV Coordination.
- Worked in an academic research team with industrial partners (Thales).

### Roke Manor Research

2017

#### *Full-stack Developer*

- 8-week summer internship on a data consolidation and web development project.
- Took an active role in project development such as organising meetings with clients.

## TECHNICAL STRENGTHS

---

**Programming** Python, PyTorch, Jupyter Notebooks, Bash, Java, C/C++, JavaScript, Rust

**Software** Git, LaTeX, MacOS, LinuxOS, VirtualBox, Azure, AWS, Docker, Kubernetes

**Techniques** Deep Learning, Computer Vision, Generative Models, Genetic Algorithms, High Performance and Distributed Computing, Time Series Analysis, Machine Learning Engineering, Embedded Devices, Audio Machine Learning

## EDUCATION AND QUALIFICATIONS

---

### The Alan Turing Institute and University of Southampton

2019 - 2023

#### PhD: Computer Science (AI)

- PhD with the Agents, Interaction, and Complexity group at the University of Southampton (UoS).
- Member of The Alan Turing Institute (ATI) Doctoral Studentship Scheme (2019-2023 Cohort).
- Completed a thesis titled *Interpretable Multiple Instance Learning*.

#### Research Outputs

- Published 13 papers in major conferences and journals (such as NeurIPS and ICLR).
- Collaborated with Amazon Prime Video, Bristol University, QMUL, and Georgia Institute of Technology.
- Reviewed for Nature Scientific Reports, AAMAS, ICML, NeurIPS, and ICLR.
- Presented work at international conferences and the Climate Change AI Summer School (2022).
- Published extra-curricular software and articles.

#### Communication

- Interviewed on AI topics by the BBC World Service Digital Planet podcast and Newsweek.
- Co-founder of the ATI's Entrepreneurship Interest Group. Hosted five events in 2021/2022.
- Student representative for the ATI 2019-2023 Doctoral Cohort. Engagement with ATI Management.

#### Awards

- UoS Three Minute Thesis Finalist with *Explainable AI for High Resolution Images* (2022).
- UoS Teaching Award Winner for Undergraduate and Master's Lecturing and Lab Demonstration (2021).

### University of Southampton

2015 - 2019

#### Integrated MEng: Computer Science

First Class Honours, Average Grade: 83%

#### Key Modules

- Computer Vision (86%)
- Deep Learning (86%)
- Evolution of Complexity (91%)
- Intelligent Agents (81%)
- Intelligent Systems (88%)
- Machine Learning (80%)
- Programming Language Concepts (86%)
- Reinforcement and Online Learning (86%)
- Simulation Modelling (92%)
- Third Year Individual Project (Dissertation) (81%)

#### Awards

- Winton Capital Management Prize for Top Student in Computer Science (2019).
- Best Master's Group Design Project Award for *Detection of Anomalies in IoT Environments* (2019).

## KEY PUBLICATIONS (MOST RECENT FIRST)

---

- Inherently Interpretable Time Series Classification via Multiple Instance Learning  
*International Conference on Learning Representations (ICLR)*, 2024.
- Extending Scene-to-Patch Models: Multi-resolution Multiple Instance Learning for Earth Observation  
*Environmental Data Science (Journal)*, 2023.
- A Risk-based Approach to AI Regulation: System Categorisation and Explainable AI Practices  
*SCRIPTed: A Journal of Law, Technology & Society*, 2023.
- Non-Markovian Reward Modelling from Trajectory Labels via Interpretable Multiple Instance Learning  
*Neural Information Processing Systems (NeurIPS)*, 2022.
- Model Agnostic Interpretability for Multiple Instance Learning  
*International Conference on Learning Representations (ICLR)*, 2022.
- Scene-to-Patch Earth Observation: Multiple Instance Learning for Land Cover Classification  
*Tackling Climate Change with Machine Learning (NeurIPS Workshop)*, 2022.