EOIN DELANEY

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EMPLOYMENT

Postdoctoral Researcher, The University of Oxford, October 2023 – present

- Researcher on the Trustworthiness Auditing for Artificial Intelligence project at the Oxford Internet Institute (funded by Wellcome Trust, Sloan Foundation & NHSx)
- Developing novel tools and methodologies for building and evaluating trustworthy, ethical and explainable artificial intelligence models with applications in healthcare
- Collaborating with a multi-disciplinary team with expertise in healthcare, social science, philosophy, psychology, machine learning and law

EDUCATION

Ph.D. Candidate, University College Dublin, Sep 2019 - Sep 2023 (Nov 9th Defense)

- Dissertation: *"Post-Hoc, Contrastive, Explainable Artificial Intelligence for Time Series and Image Data."*
- Best Application of AI in a Student Project – **Irish National Award Winner (2022)**
- Best Student Paper Award Winner at ICCBR'21
- Best Paper Award Winner at ICCBR'22
- Awarded Travel Scholarship for AIES'22 and ICCBR'22
- University College Dublin Rising Star Award (December 2022)
- Teaching Assistant: Data Science in Python, Text Analytics (Python)
- Collaborating with Accenture Labs on applied projects (2022-2023)

BSc, Mathematics, Physics and Education, University College Dublin, 2015-2019

- First Class Award (GPA – 3.91)
- UCD Entrance Scholarship Award

PUBLICATIONS – SELECTED (SEE GOOGLE SCHOLAR FOR FULL LIST)

- **Delaney, E.,** Pakrashi, A., Greene, D. and Keane, M.T., 2023. Counterfactual Explanations for Misclassified Images: How Human and Machine Explanations Differ. *Elsevier Artificial Intelligence.* **Top AI Journal (Impact Factor – 14.4)**
- **Delaney, E.,** Greene, D. and Keane, M.T., 2022. Forecasting for Sustainable Dairy Produce: Enhanced Long-Term, Milk-Supply Forecasting Using *k*-NN for Data Augmentation, with Prefactual Explanations for XAI. In *ICCBR-22.* ***Best Paper***
- **Delaney, E.**, Greene, D. and Keane, M.T., 2021, September. Instance-based counterfactual explanations for time series classification. In *International Conference on Case-Based Reasoning* (pp. 32-47). Springer, Cham. ***Best Student Paper***

- **Delaney, E**., Greene, D. and Keane, M.T., 2021. Uncertainty Estimation and Out-of-Distribution Detection for Counterfactual Explanations: Pitfalls and Solutions. *In ICML workshop on Algorithmic Recourse*.
- Keane, M.T., Kenny, E.M., **Delaney, E**. and Smyth, B., 2021. If only we had better counterfactual explanations: Five key deficits to rectify in the evaluation of counterfactual XAI techniques. In *IJCAI-21*.
- Kenny, E.M., **Delaney, E.,** and Keane, M.T., 2022. Advancing Post-Hoc Case-Based Explanation with Feature Highlighting *in IJCAI-23*.

PROFESSIONAL SERVICE

Program Committee Member

- AI, Ethics and Society Conference (AIES'22, AIES'23)
- Explainable Agency in Artificial Intelligence Workshop at AAAI'22
- IJCAI 2023 Workshop on Explainable Artificial Intelligence

Reviewer

- Springer Data Mining and Knowledge Discovery

SKILLS

Software: Python, Tensorflow, PyTorch, Sklearn, Tslearn, sktime, tkinter (extensive), HTML, PHP (intermediate), R (basic).

Deep Learning and Machine Learning for eXplainable AI: Training, evaluating and creating models with a focus on time series classification, clustering and forecasting. Implementing eXplainable AI methods. Critically evaluating AI systems in comparative computational experiments.

User Testing: Designing large scale user studies for eXplainable AI evaluation on Prolific and conducting statistical analysis on study design and responses.

Science Outreach and Presentation: Podcast episode on counterfactual explanations. Co-designed a website for young children that introduces probability, statistics and programming. Presentation of research results and ideas to diverse audiences at top ranked international conferences.

INVITED TALKS (SELECTED)

Delaney, E. (March 2023). *Counterfactual Explanations for XAI*. Presented as a 30-minute talk at the Reasoning and Imagination Lab at Trinity College Dublin.

Delaney, E. (December 2022). *Counterfactual Explanations for Groups of Similar Instances*. Presented as a 30-minute talk at Accenture Labs, Dublin.