

# CIAN EASTWOOD

London, United Kingdom

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## Education

### PhD Candidate in Machine Learning

University of Edinburgh & Max Planck Institute for Intelligent Systems, Tübingen

Sept 2018 - Current

UK & Germany

- Supervisors: Prof. Chris Williams and Prof. Bernhard Schölkopf.
- Thesis: “Shift happens: How can we best prepare machine learning systems?”
- Research: Representation learning, out-of-distribution generalization, causality, disentanglement and domain adaptation.
- Awards: Enlightenment Scholarship, NUI Travelling Doctoral Studentship.

### MSc in Artificial Intelligence – Distinction (84%)

University of Edinburgh

Sept 2016 - Sept 2017

UK

- Thesis: “Experiments with information-maximising generative adversarial networks”
- Courses: Various courses in AI, e.g. probabilistic modelling and reasoning, pattern recognition and natural language processing.
- Awards: **Best Thesis**, The Informatics Scholarship, UK/EU Masters Scholarship.

### Exchange Program

University of Toronto

Aug 2014 - Dec 2014

Canada

- Courses: Programming languages, computer networks, compilers, and formal methods of software design.

### BSc in Computer Science – First-Class Honours (88%)

National University of Ireland (NUI), Maynooth

Sept 2012 - June 2016

Ireland

- Thesis: Minimising Volatility, Maximising Diversification.
- Courses: Broad range of courses in computer science and mathematics.
- Awards: Intel Medal—**graduated top of class**, STEM Scholarship, Entrance Scholarship.

## Professional Experience

### Student Researcher (PhD)

Google DeepMind

September 2023 - Present

London, UK

- Working on generative models and large-scale transformers.

### Research Scientist Intern

Spotify

Jun 2023 - Aug 2023

London, UK

- Worked in the Causal Inference Lab on learning “causal” representations of high-dimensional treatments (e.g., playlists).

### Research Intern (AI)

Meta

Aug - Dec 2022; Jan - April 2023

New York, USA; London, UK

- Worked in FAIR Labs on causality-inspired contrastive learning.

### Research Assistant

University of Edinburgh

Nov 2017 - Sept 2018

Edinburgh, UK

- Developed deep generative models for human motion synthesis. Collaborative research environment.

### Tutor

University of Edinburgh

Sept 2018 - Jan 2022

Edinburgh, UK

- Delivered 10-to-15-student tutorials for Machine Learning & Pattern Recognition and Introduction to Machine Learning.

### Intern Analyst

Accenture

Feb 2015 - Aug 2015

Dublin, Ireland

- Large-scale professional software development within an agile team. Developed features that affect millions annually.

## Publications

- [1] “Spuriousity Didn’t Kill the Classifier: Using Invariant Predictions to Harness Spurious Features”  
**C Eastwood\***, S Singh\*, A Nicolicioiu, M Vlastelica, J von Kügelgen, B Schölkopf  
37<sup>th</sup> Conference on Neural Information Processing Systems (NeurIPS 2023)

- [2] “DCI-ES: An Extended Disentanglement Framework with Connections to Identifiability”  
**C Eastwood\***, A Nicolicioiu\*, J von Kügelgen\*, A Kekić, F Träuble, A Dittadi, B Schölkopf  
*11<sup>th</sup> International Conference on Learning Representations (ICLR 2023)*
- [3] “Probable Domain Generalization via Quantile Risk Minimization”  
**C Eastwood\***, A Robey\*, S Singh, J von Kügelgen, H Hassani, G J Pappas, B Schölkopf  
*36<sup>th</sup> Conference on Neural Information Processing Systems (NeurIPS 2022)*
- [4] “Align-Deform-Subtract: An Interventional Framework for Explaining Object Differences”  
**C Eastwood\***, N Li\*, C K I Williams  
*Objects, Structure and Causality Workshop at ICLR 2022*
- [5] “On the DCI Framework for Evaluating Disentangled Representations: Extensions and Connections to Identifiability”  
**C Eastwood\***, A Nicolicioiu\*, J von Kügelgen\*, A Kekić, F Träuble, A Dittadi, B Schölkopf  
*Causal Representation Learning Workshop at UAI 2022*
- [6] “Source-Free Adaptation to Measurement Shift via Bottom-Up Feature Restoration”  
**C Eastwood\***, I Mason\*, C K I Williams, B Schölkopf  
*10<sup>th</sup> International Conference on Learning Representations (ICLR 2022, **Spotlight**)*
- [7] “Unit-Level Surprise in Neural Networks”  
**C Eastwood\***, I Mason\*, C K I Williams  
*“I Can’t Believe it’s Not Better” Workshop at NeurIPS 2021 and PMLR 163:33-40 (**Spotlight & Didactic Award**)*
- [8] “Learning Object-Centric Representations of Multi-Object Scenes from Multiple Views”  
N Li\*, **C Eastwood\***, R Fisher  
*34<sup>th</sup> Conference on Neural Information Processing Systems (NeurIPS 2020, **Spotlight**)*
- [9] “A Framework for the Quantitative Evaluation of Disentangled Representations”  
**C Eastwood\***, C K I Williams  
*6<sup>th</sup> International Conference on Learning Representations (ICLR 2018)*

## Awards

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- 2022 NeurIPS Top Reviewer
- 2022 ICLR Highlighted Reviewer
- 2019 NUI Travelling Doctoral Studentship in Artificial Intelligence
- 2018 University of Edinburgh Enlightenment PhD Scholarship
- 2017 Informatics Dissertation Prize (Award for best thesis in the MSc Artificial Intelligence)
- 2016 Informatics Masters Scholarship
- 2016 UK/EU Masters Scholarship
- 2016 The Intel Medal (Award for best results in the BSc Computer Science)
- 2012 NUI Undergraduate STEM Scholarship
- 2012 NUI Undergraduate Entrance Scholarship
- 2012 600 points in The Leaving Certificate (Final secondary-school exams, 99.7th percentile nationally)

## Invited Talks

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- [A] “Distribution shift and causal/disentangled representations”  
*Computational Intelligence, Vision, and Robotics Lab, New York University, December 2022*
- [B] “Probable domain generalization via quantile risk minimization”  
*Copenhagen Causality Lab, University of Copenhagen, November 2022 (virtual)*
- [C] “Shift happens: How can we best prepare?”  
*(Neuro)Science of Deep Learning Group, Massachusetts Institute of Technology, November 2022 (virtual)*
- [D] “Tackling distribution shift and out-of-distribution generalization”  
*Seminar on Out-of-Distribution Generalization, Saarland University, November 2022 (virtual)*

## Community Service/Engagement

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- 2023 Reviewer: ICLR, ICML; Organizing Committee: Conference on Causal Learning and Reasoning (CLear); Co-Organizer: NeurIPS Causal Representation Learning workshop.
- 2022 Reviewer: NeurIPS, ICLR.
- 2021 Reviewer: NeurIPS.

## Skills

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Programming Python (PyTorch, Pandas, NumPy, Scikit-learn. etc.)

Miscellaneous Linux, Shell (Bash/Zsh),  $\text{\LaTeX}$ , Git, Microsoft Office

References available upon request.