

Yuchen Zhu

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Research Statement

I am a PhD candidate passionate about developing responsible AI methodologies for applications in medical, health and social science domains. This led me to my current focus on combining causal inference with modern machine learning methods for responsible decision making.

Education

- 10.2020 - Present** **PhD, Foundational Artificial Intelligence**
University College London, United Kingdom
- 10.2018 - 09.2020** **MSc, Machine Learning (Distinction)**
University College London, United Kingdom
- 10.2015 - 06.2018** **BA, Mathematics (Upper Second Class Honours)**
University of Cambridge, King's College, United Kingdom

Research Experience

- 01.2023 - Present** **Research Intern**
Microsoft Research Cambridge, United Kingdom
Host: Nick Pawlowski, Cheng Zhang
Topic: Scalable causal effect estimation
- 06.2022 - 12.2022** **Research Intern**
Amazon Research Tuebingen, Germany
Host: Dominik Janzing
Topic: Causal Aggregation of Micro-Variables.
Summary: Investigated confounding properties under aggregation of many micro-variables, a question at the fundamentals of Causal Representation Learning. Research paper ready for submission to UAI 2023.
- 10.2021 - 09.2020** **Industrial research collaboration for Master's thesis**
Sana Labs, Stockholm (remote)
Project title: Causal machine learning for educational recommender systems.
Summary: Suggested my own Master's research project, and obtained data from this EdTech startup. Developed theory and algorithms for estimating treatment effects under hidden confounding for online education. Thesis grade: Distinction
- 10.2015 - 06.2018** **Machine Learning Scientist Intern**
Pace Revenue, London
Summary of contribution: Implemented the company's first simulation of RL agents for pricing, in tensorflow. Built cloud parallel training in Docker, Kubernetes and Argo. Wrote unit tests.
- 10.2015 - 06.2018** **Summer Research Student**
DAMTP, University of Cambridge, United Kingdom
Topic: Optimal Flow Estimation

Publications

- CLear 2024** **Meaningful Causal Aggregation and Paradoxical Confounding**
Yuchen Zhu, Kailash Budhathoki, Jonas Kuebler, Dominik Janzing
- UAI 2022 (Oral, 5% acceptance rate)** **Causal Inference Under Treatment Measurement Error: A Nonparametric Instrumental Variable Approach.**
Yuchen Zhu, Limor Gultchin, Arthur Gretton, Matt Kusner, Ricardo Silva
- NeurIPS 2021** **Causal Effect Inference for Structured Treatment**
Jean Kaddour, Yuchen Zhu, Qi Liu, Matt Kusner, Ricardo Silva
- ICML 2021** **Proximal Causal Learning with Kernels: Two-stage Estimation and Moment Restriction**
(*Equal Contribution, alphabetical order) Afsaneh Mastouri*, Yuchen Zhu*, Limor Gultchin, Anna Korba, Ricardo Silva, Matt Kusner, Arthur Gretton, Krikamol Muandet

Grants, Awards and Distinctions

- 2020-24** **EPSRC PhD Studentship (~£19000 + tuition fee / yr)**
- 2018** **SRIM Summer Research Grant, University of Cambridge (£2000)**
- 2016** **King's College Cambridge Travel Award. For charity work with Education Partnerships Africa (£1000)**
- 2016** **Bangor Rotary Club grant. For charity work with Education Partnerships Africa (£400)**
- 2015** **Honorable Mention (David Hughes School) for entry into Oxbridge (only entry from my cohort).**
- 2015** **F.C.Baines Scholarship, David Hughes School (£300)**
- 2014** **British Mathematical Olympiad. (Silver Medal, ranked 36th in the UK.)**
- 2013, 2014** **UK Senior Maths Challenge 2013, 2014. (Gold, Gold)**

Service

- 2020 -** **Academic Service:** Reviewer and volunteer for premier machine learning conferences: ICML 2023, UAI 2023, NeurIPS 2022, ICML SCIS workshop 2022, NeurIPS MLECON workshop 2021.
- 2016** **Social Service:** Volunteer educational project management work for Education Partnerships Africa.

Skills

- Programming languages:** Python (inc. pytorch), Matlab (Advanced), R (basic).
- Platforms:** Git, LaTeX
- Languages:** English (Bilingual proficiency), Mandarin (Native)