Yuchen Zhu

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Research Statement

I am a PhD student researcher passionate about developing responsible AI methodologies for applications in healthcare 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

06.2022 - Present **Industrial Research Internship**
Amazon Research Tuebingen, Germany
Manager: Dominik Janzing
Topic: Causal Aggregation of Micro-Variables

10.2021 - 09.2020 **Industrial research collaboration for Master's thesis**
Sana Labs, Stockholm (remote)
Topic: Causal machine learning for educational recommender systems.
Description: I suggested my own Master's research project, and obtained relevant data from an EdTech startup. I developed theory and algorithms for estimating treatment effects under hidden confounding for online education.
Thesis grade: Distinction

10.2015 - 06.2018 **Industrial Research Internship**
Pace Revenue, London
Topic: Reinforcement Learning for Pricing Automation
Contribution: I implemented the company's first simulation library of RL agents for pricing, using python and tensorflow. For scalability I built cloud training infrastructure for parallel training using Docker, Kubernetes and Argo, which was capable of running 500+ jobs simultaneously. To monitor code quality I wrote unit tests to ensure robustness of my research package.

10.2015 - 06.2018 **Academic Research Internship**
DPMMS, University of Cambridge, United Kingdom
Topic: Optimal Flow Estimation

Publications

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) 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 from school for entry into Oxbridge/Ivy League (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

2022 — **Academic Service:** Reviewer for NeurIPS conference, ICML SCIS workshop.

2021 — **Academic Service:** Reviewer and volunteer for NeurIPS MLECON workshop.

2016 — **Social Service:** Volunteer educational project management work for Education Partnerships Africa.

Skills

Programming languages: Python, Matlab (Advanced), R (basic).

Platforms: Git, LaTeX

Languages: English (Bilingual proficiency), Mandarin (Native)

Reference available upon request.