

MARTA GRZESKIEWICZ

marta.j.grzeskiewicz@gmail.com

I am currently a Research Assistant at University College London, preparing papers from my PhD research for publication. I expect to complete the requirements for my PhD in Economics & Machine Learning in April 2024. My research focus lies at the intersection of microeconomic theory and machine learning, developing algorithms to model consumer behaviour. During my doctoral studies, I supervised students and taught a variety of courses and I have taken an active part in student affairs during my time in higher education. My computational research agenda is supported by my programming skills, which have been solidified with experience working in industry.

EDUCATION

PhD in Economics & Machine Learning

2019 - present (exp. April 2024)

Department of Statistical Science, University College London.

MSc Data Science

2018 - 2019

Department of Statistical Science, University College London.

BA Economics

2014 - 2017

Girton College, University of Cambridge.

TEACHING EXPERIENCE

Supervisor & Mentor

2022 - present

Department of Statistical Science, University College London.

- Co-supervised master's student on research dissertation (awarded a Distinction).
- Mentored 2 master's students looking to continue onto PhD at the Department of Statistical Science.

Post-graduate Teaching Assistant

2020 - 2023

Department of Statistical Science, University College London.

- Small group teaching (groups of 2-3 students)
 - Forecasting;
 - Further Probability and Statistics.
- Computer labs (classes of 30)
 - Programming Fundamentals (Python);
 - Statistical Computing (R).
- Marking:
 - Computing for Practical Statistics (R, SAS) (ICA);
 - Linear Models and the Analysis of Variance (exam);
 - Optimisation Algorithms in Operational Research (ICA);
 - Probability and Statistics II (weekly problem sheets).

Economics & Mathematics Tutor

2018 - 2020

Blue Tutors.

- Tutored 5 students working towards A-Levels in Economics and Mathematics.

TEACHING TRAINING

Supervising Undergraduate and Post-graduate Taught Students

2022

Arena Center, University College London.

Teaching in Higher Education

2019

Arena Center, University College London.

POSITIONS OF RESPONSIBILITY

JCR Treasurer & Trustee of Girton College

2016 - 2017

Girton College, University of Cambridge.

- Handled annual budget for funding student activities and reported directly to the Senior Bursar.
- Introduced a new initiative of subsidised yoga classes in collaboration with the Cambridge University Yoga Society for student welfare in Girton College.
- Ran initiative to encourage founding of new societies in College, such as the Girton College Croquet Society.
- Led a working group to investigate the status of College rent with Senior Tutor.
- Represented the student body at Council meetings and discussions on plans for College development.

Undersecretary General Finance, CUIMUN XXII

2015 - 2016

University of Cambridge.

- Handled finances for entire conference of over 200 delegates.
- Directly reported to the Secretary General.

RESEARCH EXPERIENCE

Research Assistant

February 2024 - present

Department of Statistical Science, University College London.

- Preparing papers from PhD research for publication.

PhD Thesis

2019 - 2024

Department of Statistical Science, University College London.

- Title: Uncovering Utility Functions with Revealed Preference Inverse Reinforcement Learning.
- Supervisors: Prof. Petros Dellaportas, Prof. Ioanna Manoloupoulou.
- Description: Multi-disciplinary research project spanning economics and machine learning, using microeconomic theory of revealed preferences in combination with dynamic programming methods to design an algorithm that uncovers utility functions based on observational data. Applied to simulated and real-world data, outperforming most commonly used machine learning regression models for demand forecasting.

MSc Dissertation

2018 - 2019

Department of Statistical Science, University College London.

- Title: Deep Kernel Learning for Multi-task Gaussian Processes.
- Supervisor: Prof. Petros Dellaportas.
- Description: Computational research project on neural network-based deep kernel learning for Gaussian processes for tasks with multiple objectives.

Undergraduate Dissertation

2016 - 2017

Girton College, University of Cambridge.

- Title: Political Business Cycles and Natural Resource Rents.
- Supervisor: Dr. Kamiar Mohaddes
- Description: Used time series regression (ARDL) to model the relationship between levels of extraction of natural resources and expenditure on capital projects in pre-election periods using OECD data.

PRESENTATIONS AT CONFERENCES AND SEMINARS

JustEat Data Science Seminar

September 2023

JustEat, London.

- Title: Revealed Preference Inverse Reinforcement Learning.

Archimedes Unit Seminar

June 2022

Athena Research Center, Athens.

- Title: Revealed Preference Inverse Reinforcement Learning.

Conference on Research on Economic Theory and Econometrics
Crete, Greece.

June 2022

- Title: Revealed Preference Inverse Reinforcement Learning.

PAPERS IN PREPARATION

Uncovering Utility Functions from Observational Data

In preparation

Dynamic Pricing of Airlines with Reinforcement Learning

In preparation

INDUSTRY WORK EXPERIENCE

Co-Founder

February 2024 - present

Emergent Technologies.

- Model-as-a-service (MaaS) company with a focus on combining cutting edge MLOps and machine learning algorithms.
- Research-focused role, responsible for developing proprietary algorithms.

Machine Learning Research Intern

April - August 2023

Waterfull.

- Developed a waterfall auction optimisation algorithm with machine learning and dynamic programming-based policy optimisation, leading to 5% uplift in revenue for our clients.
- Implemented with Python and Tensorflow, with TDD principles.
- Trained the machine learning model in the cloud with AWS SageMaker.
- Implemented the algorithm in production with AWS EventBridge.

Investment Banking Analyst

2017 - 2018

Deutsche Bank.

- Analysed firm and market data for client meetings, including financial modelling and forecasting for various financial products.
- Produced financial and strategic analysis for the IPO of Polyphor, a clinical-stage bio-pharma company, and attended client meetings in Basel, Switzerland.
- Produced materials and analysis for €1.2bn debt raise for ICG refinancing of DomusVi, a care home provider in France.

Investment Banking Intern, FIG

June - August 2016

Deutsche Bank.

Summer Intern

July - September 2015

Market Porter.

Organisational Development Intern

June - August 2013

Prudential.

Procurement Intern

August 2012

European Bank for Reconstruction and Development.

PROGRAMMING SKILLS

Languages

Python (TensorFlow, NumPy, SciPy, Matplotlib, GPflow), R, SQL.