Benjamin Redhead

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Personal Statement

A masters student currently conducting research on robust and efficient learning algorithms for time-series forecasting. I have a keen interest in algorithm development and application, aided by my background in mathematics, statistics and computer science. I am now looking for PhD positions to leverage my skills and further contribute to theoretical advancements in time-series forecasting and apply these to improving forecasting in complex and dynamic urban environments.

Education

Peking University June 2025

Master of Science in Computer Science (GPA: 3.79 / 4.00) *Beijing, China*

- **Relevant Coursework:** Reinforcement Learning, Algorithm Analysis and Complexity Theory, Theory of Computation, Computer Vision, Audited: Distributed Learning (Chinese Taught)
- **Utilised Technical Skills:** Building and Running Models on a headless Linux Server, Training on Multiple GPUs using CUDA

Lancaster University June 2021

Bachelor of Science in Mathematics, Operational Research, Statistics, and Economics (MORSE) *Lancaster, United Kingdom*

- **Relevant Coursework:** Multivariate Statistics for Machine Learning, Stochastic Processes, Linear Algebra, Bayesian Inference, Likelihood Inference

Experience

ThinkLab, Shanghai Jiaotong University Oct 2024 - Present

Visitor *Shanghai*

- Conducting research on time-series forecasting, particularly around novel architectures to process information on small datasets and in non-stationary environments
- Collaborating with the ThinkLab group responsible for papers like Crossformer and UP2ME

Saga Plc Sep 2021 – Oct 2022

Actuarial Pricing Analyst *London, United Kingdom*

- Constructed Pytorch models for renewals business retention analysis and pricing and insurance risk analysis
- Managed health insurance renewals business of £1,000,000s of health insurance each month, implementing updated models which provided savings of £100,000s

Research Projects

Decformer: A series-decompostion based approach to long-sequence time series forecasting | *Python, Pytorch*

- Designed novel series decomposition based approach
- Designed a novel architecture utilising a MoE approach to extract useful representations from decomposed series
- Outperformed SOTA time-series forecasting models
- Presented this work at Microsoft Research Asia's Intern Tech Fest
- Under Review for JMLR

Thesis Topic: Robust and Efficient Algorithms for Time-series Forecasting

- Conducting a structured literature search between 2019 and 2024
- Analysing state of the art models in the field of robust and efficient learning algorithms for time series
- Working in the MOE Key Lab of High Confidence Software Technologies on Time-series forecasting algorithms including the use of ensemble, bayesian, and meta-learning.
- Actively working on additional research papers in this area

Technical Skills

Programming Languages: Python, R
Foreign Languages:English (Native), Mandarin (Intermediate)
Awards: IMA Grant (2019), CSC Chinese Government Scholarship (2022-2025)
Society Positions: VP and President of Mathematics Society (2019-2020,2020-2021), Communications Officer of Investment and Finance Society (2020-2021), Member Linux Society (2023-2024)