



Contact

Phone

07738065797

Email

gmbolt1@gmail.com

Address

Newcourt Farm, Hereford, HR4 7RA

Education

2019-Now

Statistics and Operational Research, PhD

STOR-i CDT, Lancaster University

2018-2019

Statistics and Operational Research, MRes (Grade: dist.)

STOR-i CDT, Lancaster University

2015-2018

Mathematics, BSc (Grade: first)

The University of Manchester

Skills

- Bayesian statistics
- Computational statistics
- Statistical network analysis
- Unsupervised learning/clustering
- Python and Julia
- Git and GitHub
- Distributed computing (university computing cluster)
- Communication with technical and non-technical audiences

References

Chris Nemeth

Professor of Statistics
B81 Postgraduate Statistics Centre,
Lancaster University, LA1 4YF
c.nemeth@lancaster.ac.uk
+44 (0)1524 595070

George Bolt

Projects

○ Sep 2019 - June 2023

PhD | Lancaster University (collaborating with Elsevier)

Network-analytic methods for clickstream data

- Elsevier were interested in using clickstream data, describing historical webpage visits of users, for the problem of user segmentation, i.e. placing users into interpretable groups. Our goal was to develop novel analytical methods for this purpose (for more details, [see my website](#));
- I (i) elicited distance measures quantifying the dissimilarity of two users based on their clickstreams, opening the door to grouping users via clustering algorithms such as DBSCAN; (ii) defined a new Bayesian modelling framework, along with specialised inference algorithms via Markov chain Monte Carlo (MCMC), facilitating group summarisation;
- Resulted in two papers*, wherein I conducted simulation studies and example analysis of open-source data to illustrate efficacy and applicability of proposed methods.

○ Jul 2022 - Jan 2023

Visiting Scientist | Tesco | London

Assessing convergence of pricing solutions

- Worked with a team of data scientists who were using historical transaction data to optimise price reductions for end of shelf-life items;
- Their approach was to first model how demand changes with price, before optimising price given model predictions. However, there was uncertainty around the long-term behaviour of these solutions, with optimisation of prices driving future transaction data, possibly influencing model fitting;
- I explored this via simulation, iterating many steps of model fitting and price optimisation. I wrote an internal Python package implementing a general simulation framework designed to integrate with the current code base and cater for solutions across different product groups (e.g. fresh food and clothing);
- Conducted proof-of-concept studies, namely (i) a toy example that exhibited convergence to sub-optimal pricing decisions, and (ii) using an in-production demand model to illustrate how my code could be integrated with the current code base.

Work experience

○ Jul 2022 - Jan 2023

Visiting Scientist | Tesco | London

- Six-month placement with data science team (project details above);
- Collaborated with various members of the team to understand idiosyncracies of different pricing solutions;
- Contributed to the code base via GitHub pull requests fixing bugs and offering speed enhancements;
- Wrote an internal python package implementing a simulation framework using Gym environments.

○ Sep 2019 - Jun 2021

Graduate Teaching Assistant | Lancaster University

- Assisted teaching courses on probability theory and statistical learning for second year students;
- Responsibilities included marking weekly coursework and running tutorial sessions where I would go through model solutions with students.

*One surveying distance measures ([see here](#)), and another proposing our new model ([see here](#)). The latter is presently in review with the Journal of Machine Learning Research.