THOMAS BURY

DATA SCIENTIST

CONTACT

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Montréal, QC, Canada

www.thomasbury.net

EDUCATION

Doctor of Philosophy, Applied Mathematics
University of Waterloo
Waterloo, ON | 2015-2019

Master of Mathematics, Mathematics
University of Cambridge
Cambridge, UK | 2014-2015

Bachelor of Arts, Mathematics
University of Cambridge
Cambridge, UK | 2011-2014

SKILLS

- Python, SQL, Matlab, R
- Github
- Tensorflow
- Cloud computing
- Dashboards (Dash, Bokeh)

KNOWLEDGE

- Time series analysis
- Machine learning (supervised, unsupervised, reinforcement)
- Deep neural networks (CNN, LSTM)

LANGUAGES

English | Fluent
French | Proficient (C1, TEFaQ)

PROFILE

An applied mathematician by training, I am interested in building models and data pipelines to extract insights from complex processes. I enjoy working independently and as part of a dynamic team.

EXPERIENCE

POSTDOCTORAL RESEARCHER

MCGILL UNIVERSITY | MONTRÉAL | JAN 2020 - PRESENT

- Pre-processed ECG data from 12,241 patients from 6 different medical institutions using cloud resources in work partnered with cardiologists.
- Implemented unsupervised machine learning (k-means) and dimension reduction techniques (UMAP, t-SNE, PCA) to deduce subtypes of arrhythmia.
- Developed interactive dashboards in Plotly Dash to screen ECG and other health-related data, hosted on Compute Canada Cloud.
- Awarded a FRQNT Postdoctoral Research Scholarship ($45k per annum).
- Supervised 1 graduate and 2 undergraduate students. Project trained a reinforcement learning agent in Tensorflow to generate an arrhythmia with minimal stimulus.

COURSE INSTRUCTOR

MCGILL UNIVERSITY | MONTRÉAL | SEP 2021 - OCT 2021

- “Foundations of Quantitative Life Sciences”. 15 graduate students, 1 teaching assistant.
- Designed course material and research projects.

DOCTORAL RESEARCHER

FACULTY OF MATHEMATICS | UNIVERSITY OF WATERLOO | WATERLOO | SEP 2015 - DEC 2019

- Developed methodology and an open-source Python package for detecting tipping points in time series data using deep neural networks (CNN+LSTM in Tensorflow).
- Tested methodology with climate, geological and engineering datasets. AUC scores 0.99, 1.00 and 0.74, respectively, outperforming traditional methods.
- Published as first-author in leading journals including PNAS, Journal of the Royal Society Interface, and PLOS Comp. Biology.
- Presented work at international conferences including TEDx, Soc. for Mathematical Biology, and Canadian Soc. of Applied and Industrial Mathematics.

COURSE INSTRUCTOR

FACULTY OF MATHEMATICS | UNIVERSITY OF WATERLOO | WATERLOO | 2015-2019

- “Calculus I for the Sciences”. 115 undergraduate students, 1 teaching assistant.
- Received strong student evaluations (>4.5/5 average for each teaching aspect).