THOMAS BURY

DATA SCIENTIST

tombury182@gmail.com

Montréal, QC, Canada

www.thomasbury.net

ThomasMBury

thomas-bury

SKILLS

- Python, Bash, Git
- Tensorflow+Keras
- Cloud computing
- Dashboards (Plotly, Dash)

KNOWLEDGE

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

LANGUAGES

English | Fluent

French | Proficient (C1, TEFaQ)

OTHER

- TEDx speaker
- Technical author for Medium publication Towards Data Science
- Avid chess and piano player

EDUCATION

PhD, Applied Mathematics, University of Waterloo, Waterloo, ON | 2015-2019

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

BA, Mathematics, University of Cambridge, Cambridge, UK | 2011-2014

EXPERIENCE

POSTDOCTORAL RESEARCHER

MCGILL UNIVERSITY | MONTRÉAL | JAN 2020 - PRESENT

- Partnered with cardiologists (UBC, Cornell) and industry (Icentia inc.) to research mechanisms of cardiac arrhythmia from wearable device data.
- Pre-processed ~60GB of electrocardiogram data from 12k patients using cloud resources (Compute Canada).
- Created and deployed data dashboards (Plotly, Dash) to visualise records and derived metrics.
- Implemented unsupervised machine learning (k-means) and dimension reduction techniques (PCA+t-SNE) to investigate arrhythmia subtypes.
- Supervised 1 graduate and 2 undergraduate students.

DOCTORAL RESEARCHER

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

- Trained ML model (CNN+LSTM in Tensorflow) to predict and classify bifurcations in time series data.
- Applied ML model to ecological, engineering and climate datasets (AUC of 0.99, 1.00, 0.74 resp.), which outperformed conventional methods.
- Created open-source Python package (*ewstools*, 34 stars) with CI/CD.
- Published as first-author in leading journals including PNAS, Journal of the Royal Society Interface, and PLOS Comp. Biology.
- Presented work at several international conferences.

COURSE INSTRUCTOR

FACULTY OF MATHEMATICS | UNIVERSITY OF WATERLOO | WATERLOO | SEP 2018

- Calculus I for the Sciences. 115 undergraduate students, 1 teaching assistant.
- Student evaluations averaged >4.5/5 for each teaching aspect.

SELECTED PUBLICATIONS

- Diagne et al. "Rhythms from two competing periodic sources embedded in an excitable medium", *Physical Review Letters*, 2023.
- Bury et al. "Deep learning for early warning signals of tipping points", *Proceedings of the National Academy of Sciences*, 2021.