Thomas M. Bury

Department of Physiology
Faculty of Medicine
McGill University
Montréal, QC
H3A 0G4 Canada

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ORCID: 0000-0003-1595-9444
Email: thomas.bury@mcgill.ca
Website: thomasbury.net
Google Scholar: scholar.google.ca

EDUCATION

2015 – 2019 **PhD, Applied Mathematics**, University of Waterloo, Canada
Thesis: Detecting and distinguishing transitions in ecological systems: model and data-driven approaches.
GPA: 96.4%
Advisors: Dr. Chris Bauch, Dr. Madhur Anand

2014 – 2015 **MMATH, Mathematics**, University of Cambridge, UK
First class honours.
Director of studies: Dr. Julia Gog, OBE

2011 – 2014 **BA, Mathematics**, University of Cambridge, UK

PROFESSIONAL APPOINTMENTS

2020 – present **Postdoctoral Researcher**
Department of Physiology
Faculty of Medicine
McGill University, Canada

FELLOWSHIPS

2022 – 2024 FRQNT Postdoctoral Research Scholarship ($45,000)

2021 – 2022 CAMBAM postdoctoral fellowship, Centre for Applied Mathematics in Bioscience and Medicine, McGill University ($10,000)

2020 – 2021 CAMBAM postdoctoral fellowship, Centre for Applied Mathematics in Bioscience and Medicine, McGill University ($7,000)

PUBLICATIONS

2023 **T. M. Bury**, D. Dylewsky, C. Bauch, M. Anand, L. Glass, A. Shrier and G. Bub. Predicting discrete-time bifurcations with deep learning. *In peer review with Nature Machine Intelligence*. doi:10.48550/arXiv.2303.09669.

T. M. Bury. ewstools: A Python package for early warning signals of bifurcations in time series data *Journal of Open Source Software*. doi:10.21105/joss.05038.
- Code: ThomasMBury/ewstools

K. Diagne, **T. M. Bury**, M. Deyell, Z. Laksman, A. Shrier, G. Bub and L. Glass. Rhythms from two competing periodic sources embedded in an excitable medium *Physical Review Letters*. doi:10.1103/PhysRevLett.130.028401.

2022

F. Dablander and **T. M. Bury**. Deep learning for tipping points: Preprocessing matters. *Proceedings of the National Academy of Sciences*. doi:10.1073/pnas.2207720119.

D. Dylewsky, T. Lenton, M. Scheffer, **T. M. Bury**, C. Fletcher, M. Anand, and C. Bauch. Universal early warning signals of phase transitions in climate systems. *Journal of the Royal Society Interface*. doi:10.1098/rsif.2022.0562.

2021

T. M. Bury, R. Sujith, I. Pavithran, M. Scheffer, T. Lenton, M. Anand, and C. Bauch. Deep learning for early warning signals of tipping points. *Proceedings of the National Academy of Sciences*. doi:10.1073/pnas.2106140118.

- Code: ThomasMBury/deep-early-warnings-pnas

J. Menard, **T. M. Bury**, C. T. Bauch, and M. Anand. When conflicts get heated, so does the planet: coupled social-climate dynamics under inequality *Proceedings of the Royal Society B*. doi:10.1098/rspb.2021.1357.

- Code: HerdOfBears/Sociodynamics

2020

T. M. Bury, C. Lerma, G. Bub, Z. Laksman, M. W. Deyell, L. Glass. Long ECGs reveal rich and robust dynamical regimes in patients with frequent ectopy. *Chaos*. doi:10.1063/5.0023987.

T. M. Bury, C. T. Bauch, M. Anand. Detecting and distinguishing tipping points using spectral early warning signals. *Journal of the Royal Society Interface*. doi:10.1098/rsif.2020.0482.

- Code: ThomasMBury/ewstools

2019

T. M. Bury, C. T. Bauch, M. Anand. Charting pathways to climate change mitigation in a coupled socio-climate model. *PLoS computational biology*. doi:10.1371/journal.pcbi.1007000.

- Code: ThomasMBury/socio_climate_model

D. A. Pananos, **T. M. Bury**, C. Wang, J. Schonfeld, S. P. Mohanty, B. Nyhan, M. Salathé, C. T. Bauch. Critical dynamics in population vaccinating behavior. *Proceedings of the National Academy of Sciences* doi:10.1073/pnas.1704093114.