Mufeng Tang

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⌽ C16Mftang   🌐 https://c16mftang.github.io/

Education

2021 – 2024   📕 **University of Oxford**
Ph.D. in Computational Neuroscience and Machine Learning
Advisors: Prof. Rafal Bogacz and Prof. Helen Barron
Research topic: *Neural network models of memory and generalization in the brain.*

2019 – 2021   📕 **University of Chicago**
M.Sc. Statistics
GPA: 3.8/4.0
Thesis topic: *Biologically plausible alternatives to backpropagation in self-supervised deep neural networks using localized learning.*

2016 – 2019   📕 **University College London**
B.A.Sc Science and Engineering
First Class Honours

Employment History

2020 – 2021   📕 **Research Intern**
Grossman Center for Quantitative Biology and Human Behavior
Developed a TensorFlow-based spiking neural network infrastructure to facilitate in-silico modeling of brain circuits.

2018 – 2019   📕 **Part-time Consultant**
DH Ready
Researched the impact of digital devices on human cognitive biases and authored a consulting report to identify cognitive biases in corporates' decision-making processes.

Publications/Preprints

([†]: co-first author)

📕   **Mufeng Tang**, Helen Barron, and Rafal Bogacz. "Sequential Memory with Temporal Predictive Coding." arXiv preprint arXiv:2305.11982 (2023). **(Accepted at NeurIPS 2023).**

📕   Yuqing Zhu, Chadbourne MB Smith, **Mufeng Tang**, Franz Scherr, and Jason N. MacLean. "Task Success in Trained Spiking Neuronal Network Models Coincides with Emergence of Cross-stimulus-modulated Inhibition." bioRxiv (2023): 2023-08.

📕   Beren Millidge[†], **Mufeng Tang**[†], Mahyar Osanlouy, and Rafal Bogacz. "Predictive Coding Networks for Temporal Prediction." bioRxiv (2023): 2023-05.

📕   **Mufeng Tang**, Tommaso Salvatori, Beren Millidge, Yuhang Song, Thomas Lukasiewicz, and Rafal Bogacz. "Recurrent Predictive Coding Models for Associative Memory Employing Covariance Learning." **PLoS Computational Biology 19.4 (2023): e1010719.**

Mufeng Tang, Tommaso Salvatori, Beren Millidge, Yuhang Song, Thomas Lukasiewicz, and Rafal Bogacz. "Associative Memory via Covariance-learning Predictive Coding Networks." **NeurIPS 2022 Memory in Artificial and Real Intelligence Workshop.**

Mufeng Tang[†], Yibo Yang[†], and Yali Amit. "Biologically Plausible Training Mechanisms for Self-Supervised Learning in Deep Networks." **Frontiers in Computational Neuroscience 16 (2022): 789253.**

Conference Abstracts

Beren Millidge[†], **Mufeng Tang**[†], Mahyar Osanlouy, and Rafal Bogacz. "Predictive Coding Networks for Temporal Prediction." **Computational Cognitive Neuroscience Conference (CCN). (Oral Presentation).**

Tianjin Li, **Mufeng Tang**, and Rafal Bogacz,. "Modelling Novelty Detection in the Cortex with Predictive Coding." **Computational Cognitive Neuroscience Conference (CCN).**

Awards and Honors

2021 - 2024	University of Oxford, **St Cross E.P. Abraham Scholarship**
2020	University of Chicago, **Scholarship for academic excellence**
2019	University of Chicago, **Scholarship for academic excellence**

Invited Talks

June 2023	**Neural and Machine Learning Group**, University of Bristol, UK.
May 2023	**Group of Machine Learning Research**, Jagiellonian University, Poland.

Academic Services

	Reviewer for *Neural Networks, Cognitive Computational Neuroscience Conference*
2022 - 2023	**Supervisor** of *MSc Mathematics project*, University of Oxford
2023	**Supervisor** of *Neuroscience project*, University of Oxford
2021	**Teaching assistant** of *STAT25025 Machine Learning and Large-scale Data Analysis*, University of Chicago

Competition

Dec 2019	Kaggle ASHRAE Great Energy Predictor, **Silver Medal** (among 3,600 teams) **Kaggle Data Science Competition** Developed a time-series prediction model of American household energy consumption using a combination of wavelet transform and machine learning approaches.

Skills

Coding	Python, MATLAB, R, JAVA, html
Frameworks	PyTorch, TensorFlow, JAX, Scikit-learn