MUFENG TANG

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EDUCATION

University of Oxford — Oxford, UK
DPhil Computational Neuroscience — *2021 - 2025 (expected)*

University of Chicago — Chicago, IL
MS Statistics, **GPA:3.8/4.0** — *2019 - 2021*

University College London — London, UK
BASc Science and Engineering, **First Class Honours** — *2016 - 2019*

RESEARCH EXPERIENCE

University of Oxford, Brain Network Dynamics Unit — Oxford, UK
DPhil Student, with Prof. Rafal Bogacz — *Sep 2021 - present*

- Currently working on network models with predictive coding to model associative memories in the hippocampus. The research also aims to provide a more powerful machine learning model for memory storage and retrieval.

University of Chicago, Neuroscience Institute — Chicago, IL
Student Researcher, with Prof. Jason MacLean — *Aug 2020 - Oct 2021*

- Working with researchers from neurobiology and computer science to build a biologically realistic spiking neural network to model the neo-cortical processing of visual signals, pre-processed using a convolutional network pre-trained by natural movies. The model presents similar activities to those observed in biological neurons.

University of Chicago, Department of Statistics — Chicago, IL
Student Researcher, advised by Prof. Yali Amit — *June 2020 - Sep 2021*

- Trained self-supervised neural networks using layer-wise learning and localized objective functions to better model the learning in cortical areas. The model achieved comparable performance to standard, backprop-trained self-supervised models, and better performance in transfer learning.

UCL Centre for Advanced Spatial Analysis — London, UK
Undergraduate Researcher, with Prof. Steve Gray — *Oct 2018 - June 2019*

- Created an emoji-based training dataset for Twitter sentiment classification, and used this dataset to train sentiment classifiers (e.g. SVM) for congestion predictions based on traffic-related Tweets.

PUBLICATIONS/PREPRINTS

Mufeng Tang, Yibo Yang, and Yali Amit. Biologically plausible training mechanisms for self-supervised learning in deep networks. Frontiers in Computational Neuroscience, 16, 2022. [URL]

COMPETITIONS

Kaggle ASHRAE Great Energy Predictor, Silver Medal (among 3,600 teams)
Kaggle Competition — *Dec 2019*

- Built a model that 1) fits the signal of time-dependent energy consumption data using wavelet transform and 2) predicts the residuals of the wavelet model using LightGBM

AWARDS AND SCHOLARSHIPS

University of Oxford, **St Cross E.P. Abraham Scholarship £15,000/annum** — *Sep 2021*
University of Chicago, **increased tuition scholarship for academic excellence $5540/quarter** — *July 2020*
University of Chicago, **tuition scholarship $4610/quarter** — *July 2019*

TEACHING EXPERIENCE

Worked as a TA for **STAT25025 Machine Learning and Large-scale Data Analysis** at the University of Chicago, Spring 2021.

SKILLS

Programming Languages and Frameworks
Python (PyTorch, Tensorflow, Scikit-learn), R, Matlab, Java, CSS, HTML