Dylan M. Sandfelder

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EDUCATION

OXFORD, UNIVERSITY OF — Oxford, UK
Doctor of Philosophy, Engineering Science — **Expected 2026**
Fully funded by the Oxford-Man Institute of Quantitative Finance (OMI)

OXFORD, UNIVERSITY OF — Oxford, UK
Master of Science, Advanced Computer Science — **Aug. 2022**
Received Distinction on Thesis | Received Merit Overall

MCGILL UNIVERSITY — Montréal, QC
Bachelor of Science, Honors Computer Science — **Dec. 2020**
Minor in Mathematics | Received Distinction Overall (GPA: 3.86/4.00)

OBJECTIVES AND RESEARCH INTERESTS

I am currently doing a PhD at the intersection of machine learning and quantitative finance. My research interests include: **graph neural networks, network science, financial modelling, deep learning, big data, social networks**

REFERENCES

Prof. Xiaowen Dong (University of Oxford)	xiaowen.dong@eng.ox.ac.uk
Prof. Mihai Cucuringu (University of Oxford)	mihai.cucuringu@stats.ox.ac.uk
Prof. William Hamilton (McGill University)	will.leif.hamilton@gmail.com
Prof. Tom Melham (University of Oxford)	tom.melham@cs.ox.ac.uk

RESEARCH AND TEACHING EXPERIENCE

UNIVERSITY OF OXFORD (DPhil Researcher), Oxford, UK — **Oct. 2023 – Present**

- Supervised by Prof. Xiaowen Dong on a doctoral thesis at the intersection of machine learning and quantitative finance
- Co-supervised by Prof. Mihai Cucuringu through Oxford's Department of Statistics
- Fully funded by the Oxford-Man Institute of Quantitative Finance as an international student

UNIVERSITY OF OXFORD (MSc. Researcher), Oxford, UK — **Jan. 2022 – Aug. 2022**

- Supervised by Prof. Ismail Ceylan on a master's thesis project concerning the relational inductive bias of graph neural networks
- Collaborated with other Oxford computer science researchers and conducted experiments on Oxford's ARC computing cluster
- Received a Distinction for my master's thesis

MILA (Research Assistant), Montréal, QC **May 2020 – May 2021**

- Worked with Prof. William Hamilton at the Montréal Institute of Learning Algorithms to develop novel graph neural network frameworks using PyTorch and PyTorch Geometric
- Built and ran high-intensity graph learning models on clustered computer nodes
- Published work on building a graph taxonomy in a workshop paper to NeurIPS 2021

MCGILL UNIVERSITY (Researcher), Montréal, QC **Jan. 2020 – May 2020**

- Supervised by Prof. William Hamilton on an honour's project concerning a new kind of higher order graph model that leverages ego-nets
- Won a McGill Science Undergraduate Award for my work with graph neural networks
- Published the project as a special session paper in IEEE-ICASSP 2021

KOUZHU EDUCATIONAL TECHNOLOGY (Lecturer), Nanjing, China **Jun. 2017 – Aug. 2017**

- Taught classes in China on robotic design and the principles of good software development
- Built and programmed working robots with STEM students as a teaching tool
- Received excellent official reviews from students and other participants

LEADERSHIP AND INDUSTRY EXPERIENCE

KUMO AI (Resident Applied ML Engineer), Mountain View, CA **Sep. 2022 – Jun. 2023**

- Ran high-intensity graph neural network models on large customer datasets to predict future business metrics and give insight to clients
- Improved model efficiency by 20% by innovating network architecture
- Derived and implemented an auto-regression framework that improved GNN performance across different tasks

PIRIKO (Co-Founder, CTO), Montréal, QC **Feb. 2018 – Aug. 2022**

- Created an app with a hybrid TypeScript code base for iOS and Android using Ionic
- Designed and integrated a DynamoDB database using an AWS NodeJS backend
- Negotiated a partnership with Concordia University making Piriko their group-study app solution

MEDTRONIC (Software Engineering Intern), Boston, MA **Jun. 2018 – Aug. 2018**

- Collaborated with a team of senior developers on critical product software in the field of surgical robotics written in Python, C++, and C
- Solved complicated feedback control issues using Simulink/MATLAB controllers
- Implemented automated testing code to record and playback robotic movements in real-time

MCGILL ROBOTICS (Section Leader), Montréal, QC **Oct. 2016 – Nov. 2017**

- Led mission-critical Doppler velocity log group of the autonomous underwater vehicle team
- Implemented high-throughput sonar processing capable of analysing large data
- Rigorous robotics testing experience at our lab in Montréal and at the International RoboSub Competition in San Diego

AWARDS

- Scholarship from Oxford-Man Institute (Fully Funded) **2023**
- McGill Science Undergraduate Research Award ($7,000) **2020**
- International RoboSub Competition Finalist **2017**

PUBLICATIONS

- *D. Sandfelder, P. Vijayan and W. L. Hamilton, "Ego-GNNs: Exploiting Ego Structures in Graph Neural Networks," ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021, pp. 8523-8527.*
- *Liu, Renming, et al. "Towards a Taxonomy of Graph Learning Datasets." Presented at the Data-Centric AI Workshop at NeurIPS 2021, December 2021.*