curriculum vitæ of

Dongyan Lin

COMPUTATIONAL NEUROSCIENCE · BRAIN-INSPIRED AI · NEURAL NETWORKS

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EDUCATION

Sep. 2019 – present	**Ph.D.** in Computational Neuroscience MCGILL UNIVERSITY, CANADA

I am a PhD candidate in computational neuroscience at the Integrated Program of Neuroscience at McGill University and Mila. My research lies at the intersection of neuroscience and artificial intelligence. Specifically, I am interested in understanding the principles that underlie animal behaviours (especially memory) and neural activity using the reinforcement learning framework, and applying these principles of biological intelligence to build better artificial intelligence.
cGPA: 4.00/4.00

Sep. 2015 – Jun. 2019	**Hon. B.Sc.** in Physiology (high distinction) UNIVERSITY OF TORONTO, CANADA

Minored in Mathematics and Psychology.
cGPA: 3.87/4.00

RESEARCH EXPERIENCE

Sep. 2019 – present	Ph.D. Student MILA; MCGILL UNIVERSITY

Advisor: Dr. Blake Richards
Project: An artificial intelligence framework for the neural basis of time-dependent working memory

Sep. 2018 – Apr. 2019	Lab Manager / Research Assistant DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF TORONTO

Advisor: Dr. Katherine Duncan
Project: Investigating the retrieval of semantic memory in human by measuring the familiarity to objects with the naming experiment

Jun. 2018 – Aug. 2018	Bioinformatics Intern RIKEN, JAPAN

Advisor: Dr. Michiel de Hoon
Project: Elucidating the functional roles of anti-sense transcripts in human THP-1 leukemia cells with computational methods

May. 2017 – Aug. 2017	Research Student SICKKIDS HOSPITAL; UNIVERSITY OF TORONTO

Advisor: Dr. Steven Prescott
Project: *In vitro* chloride regulation of mouse hippocampal gamma oscillations

PUBLICATIONS

PAPERS

1. **D. Lin**, B. A. Richards. *Time cell encoding in deep reinforcement learning agents depends on mnemonic demands.* bioRxiv (2021). doi: https://doi.org/10.1101/2021.07.15.452557.

POSTERS & PRESENTATIONS

1. **D. Lin**, A. Z. Huang, B. A. Richards. *Heterogeneous Representations of Variables in Task-Optimized DRL Agents Depend on Task-Relevance.* The Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM), Providence, Rhode Island, USA. June 2022. Link to paper

2. **D. Lin**, B. A. Richards. *Time cell encoding in deep reinforcement learning agents depends on mnemonic demands.* Computational and Systems Neuroscience (COSYNE), Lisbon, Portugal. March 2022. Link to poster

3. **D. Lin**, B. A. Richards. *Representations of space, time, and memory in deep reinforcement learning agents,* UNIQUE Student Symposium, virtual. May 2021. Link to presentation

4. **D. Lin**, FANTOM Consortium, M. de Hoon. *Elucidating the functional roles of anti-sense transcripts in human THP-1 leukemia cells with computational methods,* Summer Undergraduate Research Symposium, Department of Cell & System Biology, University of Toronto. September 2018. **Received the Best Poster Award.** Link to poster

5. **D. Lin**, S. Ratté, S. A. Prescott. *The chloride regulation of mouse hippocampal gamma oscillation in vitro,* University Research Opportunity Program Awardee Seminar, University of Toronto. July 2017. Link to presentation

Honours

2022	Alexander Graham Bell **Canada Graduate Scholarship - Doctoral**	$105,000 OVER 3 YEARS
2021	**Healthy Brains, Healthy Lives** PhD Fellowship	$15,000 OVER 1 YEAR
2020	**IVADO** MSc Excellence Scholarship	$40,000 OVER 2 YEARS
2019	**Integrated Program in Neuroscience** Recruitment Award	$5,000
2019, 2018, 2017, 2016	**University of Toronto** Dean's List	
2018	**Innis College** Exceptional Achievement Award	$735
2017	**Unversity of Toronto** Research Opportunity Program Award	$2,000
2017	**Innis College** Later Life Learning OSOTF Award	$1,336
2016	**Innis College** Later Life Learning OSOTF Award	$1,289
2016	**University of Toronto** Beatty Scholarship	$1,500
2015	**University of Toronto** Entrance Scholarship	$6,000
2015	**Canada Governor General's** Academic Bronze Medal	

Teaching Experience

Sep. 2021 – Dec. 2021	Teaching Assistant: INF8953DE (Reinforcement Learning)	POLYTECHNIQUE MONTRÉAL
May. 2021 – Jun. 2021	Teaching Assistant / Project Manager	AI4GOOD LAB, MONTRÉAL, CANADA
Nov. 2019 – Mar. 2020	Volunteer Classroom Instructor	BRAINREACH, MONTRÉAL, CANADA
Sep. 2018 – Apr. 2019	Teaching Assistant: MAT135 (Calculus I), MAT136 (Calculus II)	UNIVERSITY OF TORONTO

Volunteer & Community Service

Nov. 2021 – present	Lab Representative	MILA
Sep. 2021 – present	Trainee Representative	HBHL EQUITY, DIVERSITY, AND INCLUSION COMMITTEE
Feb. 2021 – present	Mental Health First Aider	MILA
Oct. 2020 - Nov. 2020	Organizer	MONTRÉAL AI & NEUROSCIENCE (MAIN) CONFERENCE, MONTRÉAL, CANADA
Feb. 2020 - May. 2020	Organizer	UNIQUE STUDENT SYMPOSIUM, MONTRÉAL, CANADA
May 11, 2019	Demo Day Volunteer	SCIENCE RENDEZVOUS, UNIVERSITY OF TORONTO
May 2018 – Apr. 2019	Peer Mentor	FIRST-YEAR LEARNING COMMUNITY, UNIVERSITY OF TORONTO
May 2018 – Apr. 2019	Event Leader	CENTRE FOR INTERNATIONAL EXPERIENCE, UNIVERSITY OF TORONTO
May 2017 – Apr. 2018	Mentor	CENTRE FOR INTERNATIONAL EXPERIENCE, UNIVERSITY OF TORONTO

Workshops & Summer Schools

Jul. 2021	CIFAR Deep Learning Reinforcement Learning Summer School
Feb. 2021	Computational and Systems Neuroscience (COSYNE) Workshop: Recurrent Neural Networks
Jul. 2020	Neuromatch Academy (Interactive Track): Computational Neuroscience
Jul. 2019 - Aug. 2019	L'École d'immersion française de Trois-Pistoles, Western University

Other

Paper Reviewing: NeurIPS 2021 AI4Science Workshop, ICML 2022 AI4Science Workshop
Programming: Python, UNIX, MATLAB, LaTeX, HTML, PyTorch, Git
Experimental neuroscience: extracellular recording, surgery, slice preparation
Languages: Mandarin (native), English (fluent), French (basic)

Media Coverage

- HBHL Fellow Feature: Dongyan Lin:
  https://www.mcgill.ca/hbhl/article/fellow-features/fellow-feature-dongyan-lin

- Students of Mila: Dongyan Lin: https://www.youtube.com/watch?v=wVYD30inEzc

Paper Reviewing: NeurIPS 2021 AI4Science Workshop, ICML 2022 AI4Science Workshop
Programming: Python, UNIX, MATLAB, LaTeX, HTML, PyTorch, Git