Bryan Chan

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Education

University of Alberta *PhD in Computing Science, Statistical Machine Learning* *2022–Present*

- Supervisory Committee: Dale Schuurmans (supervisor), Csaba Szepesvári, and András György
- Research Interests: In-context learning and reinforcement learning (RL)

University of Toronto *MSc in Applied Computing, Computer Science* *2018–2019*

- Supervisors: Florian Shkurti, Animesh Garg, and James Bergstra
- Research: Average Reward Reinforcement Learning for System Optimization in Robotics Application

University of Toronto *HBSc in Computer Science* *2013–2018*

- Graduated with high distinction, specializing in software engineering (Co-op)

Experience

Machine Learning Researcher/Research Intern *Toronto, Canada*
Kindred AI (Acquired by Ocado Technology) *May 2019–Oct. 2024 (intermittent)*

- Developed a novel average-reward RL algorithm to optimize SORT KPIs (robotic bin-picking system), increasing 30 units per hour on held-out data
- Designed and deployed RL pipelines to train ∼30 production robots in parallel, with safeguards implemented via bandits to prevent performance degradation
- Built teleoperation systems for data collection and human-in-the-loop control to recover from failures; currently used in production deployment
- Built simulation frameworks to test manipulation strategies and hardware designs, enabling rapid experimentation by cross-functional teams
- Full-time employment from April 2020–June 2022

Student Researcher *Remote, Canada*
Google DeepMind *Sep. 2023–Feb. 2024*

- Studied sample efficiency of RT-X variants via CLIP-based demonstration diversity metrics
- Scaled training transformer models on TPU clusters using Jax and FSDP for distributed inference optimization

Sessional Instructor *Toronto, Canada*
University of Toronto *Sep. 2020–Apr. 2025* (intermittent)

- Designed and taught ML and AI courses (120+ students/term), covering classical ML, deep learning, and decision-making under uncertainty

Selected Publications/Projects

Please see Google Scholar for the complete list of publications and GitHub for more open-source projects

Toward Understanding In-context vs. In-weight Learning
International Conference on Learning Representations, 2025
Theoretical and empirical analysis of when transformers and LLMs exhibit emergent in-context learning

JaxL
A modular framework in Jax that unifies training ML/RL models; supporting scalable, composable pipelines for academic and applied research.

RL Sandbox
PyTorch-based toolkit for fast development and ablation of RL/IL algorithms in discrete/continuous environments; used in several publications.

Technical Skills

Frameworks/Infra: Jax, PyTorch, TensorFlow, NumPy, OpenAI Gym, PyBullet, FSDP, Docker, GCP

ML Techniques: Classical ML, online/offline RL, imitation learning, in-context learning