

# Alex Lewandowski

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I am working to build an agent that effectively uses its experience to continually adapt its behaviour.

## Education

### Ph.D. in Computing Science

UNIVERSITY OF ALBERTA

2019 – Present

- » Supervisors: Dale Schuurmans, Marlos C. Machado
- » Research Area: reinforcement learning, continual learning, meta-learning
- » Anticipated Graduation: 04/2026

### M.Sc. in Statistics

UNIVERSITY OF ALBERTA

2016 – 2018

- » Specialization: Statistical Machine Learning
- » Supervisors: Ivor Cribben, Rohana Karunamuni
- » Thesis: Recurrent and Bayesian Kernel Learning for Small Data with Applications to Neuroimaging

### Honours Bachelor in Mathematics

UNIVERSITY OF WATERLOO

2012 – 2016

- » Major: Mathematical Economics

## Papers & Preprints

### The World is Bigger: Interaction and Learning Within a World

06/2025

- » **A. Lewandowski**, A. Ramesh, E. Meyer, S. Kumar, D. Schuurmans, M. C. Machado
- » Reinforcement Learning and Decision Making (RLDM)

### Plastic Learning with Deep Fourier Features

04/2025

- » **A. Lewandowski**, D. Schuurmans, M. C. Machado
- » International Conference on Learning Representations (ICLR)

### Learning Continually by Spectral Regularization

04/2025

- » **A. Lewandowski**, M. Bortkiewicz, S. Kumar, A. György, D. Schuurmans, M. Ostaszewski, M. C. Machado
- » International Conference on Learning Representations (ICLR)

### The Need for a Big World Simulator: A Scientific Challenge for Continual Learning

08/2024

- » S. Kumar, H. J. Jeon, **A. Lewandowski**, B. Van Roy
- » Finding The Frame Workshop at RLC (Oral Presentation)

### Directions of Curvature as an Explanation for Loss of Plasticity

11/2023

- » **A. Lewandowski**, H. Tanaka, D. Schuurmans, M. C. Machado
- » Preprint

### Reinforcement Teaching

06/2023

- » C. Muslimani\*, **A. Lewandowski**\*, D. Schuurmans, M. Taylor, J. Luo
- » Transactions on Machine Learning Research (TMLR)

### ZORB: A Derivative-Free Backpropagation Algorithm for Neural Networks

12/2020

- » V. Ranganathan, **A. Lewandowski**
- » Beyond Backpropagation Workshop at NeurIPS (Oral Presentation)

## Work Experience

### Research Associate (Part-time), Noah's Ark Lab

HUAWEI TECHNOLOGIES CANADA CO., LTD.

2022 – 2023

- » Supervisor: Jun Luo
- » Developed a reinforcement learning framework for meta-learning to improve training speed of new agents

## Research Associate (Full-time), Noah's Ark Lab

HUAWEI TECHNOLOGIES CANADA CO., LTD.

2021 – 2022

» Supervisor: Jun Luo

» Designed an evaluation methodology for generalization of reinforcement learning agents, applied to autonomous vehicles

## Teaching Assistant, Department of Computer Science

UNIVERSITY OF ALBERTA

2019 – Present

» Facilitated discussion groups and developed worksheets for a new reinforcement learning course

» Provided mentorship and guidance for student projects in foundations of information retrieval

## Teaching Assistant, Department of Mathematical and Statistical Sciences

UNIVERSITY OF ALBERTA

2016 – 2018

» Conducted help sessions in Applied Statistics, Statistics I/II, Applied Regression Analysis and Time Series Analysis.

» Offered personalized academic support to students in all first and second-year classes in mathematics and statistics at the Decima Robinson Support Centre

## Honors & Awards

### Alberta Innovates Graduate Student Scholarship

University of Alberta, Department of Computing Science

2022–2024

### President's Doctoral Prize of Distinction

University of Alberta, Department of Computing Science

2021–2024

### NSERC Postgraduate Scholarships – Doctoral

University of Alberta, Department of Computing Science

2021–2024

### Josephine Mitchell Scholarship

University of Alberta, Department of Mathematical and Statistical Sciences

2017–2018

### Profiling Alberta's Graduate Students Award

University of Alberta, Department of Mathematical and Statistical Sciences

2017

### Queen Elizabeth II Graduate Scholarship

University of Alberta, Department of Mathematical and Statistical Sciences

2016

### President's Scholarship

University of Waterloo

2012

## Skills

### Languages

Python (Jax, PyTorch), Julia, VC (git)

## Service

### Organizer

Openmind Research Institute Banff Retreat 2023-2024, ICLR SSBM Social 2021, NeurIPS SSBM Social 2020, ICLR Reinforcement Learning Social 2020

### Reviewer

CoLLAs 2025, RLC 2024-2025, Finding the Frame Workshop at RLC 2024, ICML 2021-2024 (Outstanding Reviewer Award 2022), ICLR 2020-2024 (Outstanding Reviewer Award 2021-2022), NeurIPS 2021-2024 (Top Reviewer Award 2022), ICML RL4RealLife Workshop 2021, NeurIPS Offline RL Workshop 2021, OPTRL Workshop at NeurIPS 2019, TNNLS 2018-2019

### University

Academic Director at Computing Science Graduate Student Association 2022–2023