

Matthew Schlegel

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Education

University of Alberta – Edmonton, Alberta, CA PhD in Computing Science	Present
Indiana University – Bloomington, IN Master of Science in Computer Science	May 2017
Indiana University – Bloomington, IN Bachelor of Science in Physics with Distinction Minors: Computer Science, Math, Music	May 2015

Publications

Journal

General Value Function Networks. **Matthew Schlegel**, Andrew Jacobsen, Andrew Patterson, Zaheer Abbas, Adam White, Martha White. Journal of Artificial Intelligence Research (JAIR). 2021.

Conference

Continual Auxiliary Task Learning. Matthew K. McLeod, Chunlok Lo, **Matthew Schlegel**, Andrew Jacobsen, Raksha Kumaraswamy, Adam White, Martha White. Neural Information Processing System Conference (NeurIPS). 2021.

Structural Credit Assignment in Neural Networks using Reinforcement Learning. Dhawal Gupta, Gabor Mihucz, **Matthew Schlegel**, James E. Kostas, Philip S. Thomas, Martha White. Neural Information Processing System Conference (NeurIPS). 2021.

Importance Resampling for Off-Policy Prediction. **Matthew Schlegel**, Wesley Chung, Jian Qiang, Daniel Graves, Martha White. Neural Information Processing System Conference (NeurIPS). 2019.

Meta-descent for online, continual prediction. Andrew Jacobsen, **Matthew Schlegel**, Cameron Linke, Martha White, Adam White. AAAI Conference on Artificial Intelligence. 2019.

Context-dependent upper-confidence bounds for directed exploration. Raksha Kumaraswamy, **Matthew Schlegel**, Adam White, Martha White. Neural Information Processing System Conference (NeurIPS). 2018.

Adapting kernel representations online using submodular maximization. **Matthew Schlegel**, Yangchen Pan, Jiecao Chen, Martha White. International Conference on Machine Learning (ICML). 2017.

Workshop

Predictions predicting predictions. **Matthew Schlegel**, Martha White. The Multi-disciplinary Conference on Reinforcement Learning and Decision Making, 2022.

A Baseline of Discovery for General Value Function Networks under Partial Observability. **Matthew Schlegel**, Adam White, Martha White. Reinforcement Learning under Partial Observability Workshop at NeurIPS. 2018.

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Stable predictive representations with general value functions for continual learning. **Matthew Schlegel**, Adam White, Martha White. Continual Learning and Deep Networks workshop at NeurIPS. 2016.

Awards

Grants

IVADO PhD Excellence Scholarship (\$100k)	2019-2023
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Other Awards

Graduate Student Teaching Award	2020
Runner up for Early PhD Achievement Award	2018
University of Alberta Doctoral Recruitment Award (\$10k)	2017-2018
CL&DNs Workshop NeurIPS student travel award	2017
Dean's List (9 Semesters)	2010-2015
Founders Scholar (4 Semesters)	2011, 2012
John Philip Sousa Band Award	2010

Research Experience

University of Alberta – Research Assistant	January 2019 – Present
BorealisAI – Research Intern	September 2021 – December 2021
Huawei – Research Intern	May 2018 – September 2018
University of Alberta – Research Assistant	August 2017 – May 2018
Indiana University – Research Assistant	May 2016 – July 2017

Teaching Experience

CMPUT 397: Reinforcement Learning University of Alberta - Teaching Assistant	Fall 2020
CMPUT 466/551: Machine Learning University of Alberta - Teaching Assistant	Fall 2018, Fall 2019
CSCI B659: Reinforcement Learning Indiana University - Teaching Assistant	Spring 2017
CSCI C335: Computer Structures Indiana University - Teaching Assistant	Spring 2017
BIO L111: Foundations of Biology Indiana University - Teaching Assistant	Fall 2014

Course Development

CMPUT 396: Machine Learning - Intermediate University of Alberta	Fall 2021, 2022
CMPUT 267: Machine Learning - Basics University of Alberta	Fall 2021

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Presentations and Posters

Conferences (poster)

IJCAI	2021
NeurIPS	2019, 2021
AAAI	2019

Reinforcement Learning and Decision Making (poster) 2022

Tea Time Talk — University of Alberta (RLAI) 2018, 2019, 2020, 2021, 2022

Barbados Workshop on Reinforcement Learning (talk) 2019

Cognitive Neuroscience Seminar Series (talk) 2019

Startup Edmonton (talk) November 14, 2018

- Presented to a non-technical audience on the formulation and use of General Value Functions focusing on work done in the University of Alberta's RLAI and BLINC labs.

Deep Learning Reinforcement Learning Summer School (poster) Summer 2018

- Presented a poster on the General Value Function Networks. See recent publications for more information.

Community

Lab Manager 2022

- Organize various activities and resources for Martha White's lab including lab meetings, lab documents, and various other admin responsibilities to ensure a smooth lab experience.

AI4Good Lab — Lecture 2021, 2022

- Lectured on several topics: Markov decision processes, dynamic programming, value functions, Monte Carlo methods, and temporal-difference learning.

ICLR Reviewer Mentorship Program 2021

- Participated as a mentor for the ICLR (2022) reviewer mentorship program. Provided advice and comments for new reviewers.

Making Minds Reading Group July 2018 - January 2021

- Organized and planned the University of Alberta's "Making Minds Reading Group" (MMRG).

Reinforcement Learning NeurIPS Social 2019

- On the organizing committee for the first reinforcement learning social hosted at the International Conference for Neural and Information Processing Systems.
- Found sponsorship, planned event, managed relationship with the convention center.

Indiana University – Diversity and Inclusion Workshop Leader September 2015 – May 2017

- Create and present workshops, and other events to influence an inclusive environment within the School of Informatics and Computing as a part of the group Promoting Inclusion in Technology (PIT).

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Institute for International Business – Program Assistant

Summer 2014 and 2015

- Acted as a counselor for the Institute's flagship Global Social Entrepreneurship Institute. This 5-week immersive business, sponsored by the US State Department, targeted European University Students.

Reviewing Experience

Journals

JMLR

TMLR

Conferences

AAAI (2019, 2020, 2021)

AISTATS (2022)

COLLAs (2022)

ICLR (2019, 2020, 2021)

ICML (2019, 2021)

NeurIPS (2019, 2020, 2021)

Workshops

Self-supervision for Reinforcement Learning, ICLR (2021)

Reproducibility Challenge, ICLR (2021, 2022)

Biological and Artificial Reinforcement Learning, NeurIPS (2019)

Optimization Foundations in Reinforcement Learning, NeurIPS (2019)

Technical Skills

- Proficient in several languages including Julia, Python, C/C++, R, Bash scripting, and others; with experience using various build environments including make, and cmake.
- Hands on experience with several machine learning, linear algebra, and miscellaneous libraries including Flux, Pytorch, Tensorflow, Eigen, SDL, and GNU Scientific Library.
- Demonstrated capabilities in writing and communication through published works, and several teaching and leadership experiences.