Alex Lewandowski

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Work Experience

Teaching Assistant, Department of Computer Science
University of Alberta *01/2019 – Present*
- Organized discussion groups and worksheets for new introductory reinforcement learning course.
- Guided students through projects and group assignments for foundations in information retrieval.

Research Assistant, Department of Computer Science
University of Alberta *08/2018 – Present*
- Supervisor: Dale Schuurmans
- Researching methods that bridge the gap between online and batch reinforcement learning

Teaching Assistant, Department of Mathematical and Statistical Sciences
University of Alberta *09/2016 – 04/2018*
- Led help sessions in Introduction to Applied Statistics, Statistics I/II, Applied Regression Analysis and Time Series Analysis.
- Provided one on one assistance with assignments for first and second year classes at the Decima Robinson Support Centre.

Research Assistant, Department of Mathematical and Statistical Sciences
University of Alberta *05/2017 – 07/2018*
- Supervisor: Ivor Cribben
- Implemented various Gaussian process and deep learning methods to classify patients based on fMRI data using TensorFlow.
- Developed stochastic variational methods for recurrent neural network parameterized kernels in Gaussian process classification.

Projects

Hierarchical BiGAN using Wasserstein Distance and the Concrete Distribution
Topics in Deep Learning with Prof. Schuurmans *1/2017 – 4/2017*
- Derived a Wasserstein formulation of bidirectional GANs and investigated hierarchical and discrete extensions.

Structured Adversarial Inference and Learning
Probabilistic Graphical Models with Prof. Greiner *1/2017 – 4/2017*
- Proposed and implemented a method of inference in graphical models using adversarial networks.

Completing Tensors with Indian Buffet Processes
Introduction to Machine Learning with Prof. Greiner *9/2016 – 12/2016*
- Extended an MCMC algorithm to estimate missing values in tensors using an Indian Buffet Process prior.

Exchange Rate Duration Under a Markov-Switching Multifractal: A GMM Approach
Honours Essay Supervised by Prof. Xu *1/2016 – 4/2016*
- Derived a Generalized Method of Moments for the Markov-Switching Multifractal duration model.

Papers & Preprints

Batch and Sequential Policy Optimization with Doubly Robust Objectives
A. Lewandowski, D. Schuurmans *12/2019*
- Optimization Foundations of Reinforcement Learning Workshop (NIPS 2019)

Return Distribution Estimation for Off-Policy Control
A. Lewandowski, D. Schuurmans *08/2019*
- Deep Learning and Reinforcement Learning Summer School.

Batch Normalized Deep Kernel Learning for Weight Uncertainty
A. Lewandowski *12/2017*
- Second workshop on Bayesian Deep Learning (NIPS 2017)

Education

Ph.D. in Computing Science
University of Alberta *01/2019 – Present*
- Specialization: Statistical Machine Learning
- Supervisor: Dale Schuurmans

M.Sc. in Statistics
University of Alberta *09/2016 – 07/2018*
- 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 *09/2012 – 09/2016*
- Major: Mathematical Economics

Honors & Awards

Josephine Mitchell Scholarship
University of Alberta 2018

Profiling Alberta's Graduate Students Award
University of Alberta 2017

Josephine Mitchell Scholarship
University of Alberta 2017

Queen Elizabeth II Graduate Scholarship
University of Alberta 2016

Term Dean's Honour List
University of Waterloo 2015

President's Scholarship
University of Waterloo 2012

Research Interests

Reinforcement Learning Exploration, Off-policy learning
Probabilistic methods Approximate inference