Alex Lewandowski

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Research Interests

Reinforcement Learning	Uncertainty and exploration
Probabilistic methods	Bayesian deep learning

Papers & Preprints

Bayesian and Recurrent Deep Kernel Learning

A. LEWANDOWSKI, I. CRIBBEN   *In Preparation*

Wasserstein Style Transfer with Shared Critic

A. LEWANDOWSKI   *In Preparation*

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

Projects

Hierarchical BiGAN using Wasserstein Distance and the Concrete Distribution

TOPICS IN DEEP LEARNING WITH
PROF. DALE 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. RUSSELL 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. RUSSELL   *9/2016 – 12/2016*
GREINER

- 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. DINGHAI XU   *1/2016 – 4/2016*

- Derived a Generalized Method of Moments for the Markov-Switching Multifractal duration model.

Work Experience

Research Assistant, Department of Computer Science

UNIVERSITY OF ALBERTA   *08/2018 – Present*

- Supervisor: Dale Schuurmans
- Working on model-based deep reinforcement learning.

Teaching Assistant, Department of Mathematical and Statistical Sciences

UNIVERSITY OF ALBERTA   *09/2016 – 04/2018*

- Lead help sessions in Introduction to Applied Statistics, assist with Statistics I/II, Applied Regression Analysis and Time Series Analysis.
- Provide 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.

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