Alex Lewandowski

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Papers & Preprints

Uncertainty and Regularization in Deep Kernel Learning
A. Lewandowski, I. Cribben *In Preparation*

Wasserstein Style Transfer with Shared Critic
A. Lewandowski, D. Schuurmans *In Preparation*

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

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.

Dealing with Zeros in Duration Data: A Nonparametric Approach
Topics in Econometrics with Prof. Tao Chen *1/2016 – 4/2016*
» Developed a nonparametric imputation method for duration data that leverages inherent long range dependencies.

Research Interests

Reinforcement Learning Uncertainty and exploration
Probabilistic methods Bayesian deep learning

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

Work Experience

Research Assistant, Department of Computer Science
University of Alberta *08/2018 – Present*
» Supervisor: Dale Schuurmans
» Working on 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