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Address: Bahen Centre BA8292, University of Toronto, Toronto, Canada

Education

University of Toronto	TORONTO, CANADA
Industrial Engineering PhD candidate	<i>2016-now</i>
<ul style="list-style-type: none">• Specialization: Deep Learning and Planning• Supervisor: Scott Sanner• Cumulative GPA: Not Available	
Oregon State University	CORVALLIS, UNITED STATES
Computer Science PhD candidate	<i>2015-2016</i>
<ul style="list-style-type: none">• Specialization: Machine Learning• Supervisor: Scott Sanner• Cumulative GPA: 3.92/4	
Australian National University	CANBERRA, AUSTRALIA
Master of Computing	<i>2013-2014</i>
<ul style="list-style-type: none">• Specialization: Artificial Intelligence• Cumulative GPA: 3.71/4• Research Project: Bayesian Model Averaging Naive Bayes(Published on AAAI-15)	
Northwest Normal University	LANZHOU, CHINA
Bachelor of Computer Science	<i>2005 – 2009</i>
<ul style="list-style-type: none">• Cumulative GPA: 3.2/4	

Work Experience

Oregon State University	CORVALLIS, UNITED STATES
<ul style="list-style-type: none">• Teaching Assistant	<i>Sep'2015-Dec'2015</i>
Mongolian Middle School of BaoTou	BAOTOU, CHINA
<ul style="list-style-type: none">• Course Lecturing• Network Technician	<i>Aug'2009-Jul'2013</i> <i>Part-Time Work</i>

Research Projects

Bayesian Model Averaging Naive Bayes

Mar '2014 - Aug' 2014

My research project was about Bayesian Model Averaging on some basic classifiers, this project aimed at improving prediction accuracy of those basic classifiers to make them capable for text classification task with high reliability but faster than SVM. The time complexity of final algorithm derived was linear.

Prediction-based, Centralized Urban Traffic Control via MCTS

May '2015 - Jun' 2015

Traffic control, especially traffic light control, is a complex markov decision processes problem. However, since the traffic condition is changing over time, the states of this MDPs is infinite and continuous. Learning complete transition function or reward function is almost impossible. Therefore, instead of using off-line algorithm, we tried Monte Carlo methods to make sequential decisions.

Global optimization for deterministic HMMs with aggregated observation

Jul '2015 - Aug' 2015

We attempted to recover continuous data from aggregated traffic data set. The most obvious model is Hidden Markov Model, and we can train it through EM algorithm directly. However, we observed that some of the transition between hidden variables are deterministic. Under that condition, EM tends to be limited to find local optimal, while there is still opportunity to find global optimization by using quadratic programming.

Incomplete in-typing sentence chunking and fluent speech transformation

Oct '2015 - Dec' 2015

Disable people (e.g. ALS) have to use text to speech (type really slowly), person listening gets bored/awkward/distracted if they have to sit there for awhile. They will potentially lose track of the conversation. We attempted to chunk the meaningful part of sentence out and speak it out to audience before whole sentence is written out. This project involve CRF, structured SVM and HMM(baseline)

Geospatial Prediction on real-estate, crime and weather

Oct '2015 - Jan' 2016

This project aims to make temporal- special prediction on some geometric information data. We propose a novel hypothesis space that maintain piecewise property to make geospatial prediction. This work is still undergoing.

Multi-Scale Boundary Detection via Mixture Convolution-Deconvolution Network

Jan '2016 - Mar' 2016

The purpose of this project is to extend convolution-deconvolution network to support multiple convolution-deconvolution network configuration in a single network.

Workflow detection via Interleaved Logical Hierarchical HMM

Mar '2016 - Jun' 2016

Publications

G. Wu, S. Sanner, and R. F.S.C. Oliveira Bayesian Model Averaging Naive Bayes: Averaging over an Exponential Number of Feature Models in Linear Time. In Proceedings of the 29th Conference on Artificial Intelligence (AAAI-15). Austin, USA.

Skills

Programming Languages: Python/Java/C/C++/C#/Haskell

Natural Languages: Mongolian (*mother tongue, working proficiency*), Chinese (*full professional proficiency*), English (*working proficiency*).

Computer Science: 1. Deep Learning(GAN, VAC, CNN, RNN) with practical experience on (Keras, Tensorflow and Theano)

2. Probabilistic Graphical Model (MCMC, Variational Inference)

3. Traditional Machine Learning (SVM, Linear/Logistic Regression, etc)

4. Classic Planning(A* and heuristic guided variants)

5. AI and Reinforcement Learning (Deep Q-learning, Sarsa, Monte Carlo Tree Search)

6. Map-Reduce
