

Xiao Ma

National University of Singapore

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EDUCATION

National University of Singapore (NUS), Singapore

2017 - Present

Doctor of Philosophy in COMPUTER SCIENCE

Supervisor: Prof. David Hsu

Shanghai Jiao Tong University (SJTU), Shanghai

2013 - 2017

Bachelor of Science in COMPUTER SCIENCE

PUBLICATIONS

Xiao Ma, Peter Karkus, David Hsu, Wee Sun Lee, Nan Ye. "Discriminative Particle Filter Reinforcement Learning for Complex Partial Observations", *International Conference on Learning Representations (ICLR)*, 2020

Xiao Ma, Peter Karkus, David Hsu, Wee Sun Lee. "Particle Filter Recurrent Neural Networks", *AAAI Conference on Artificial Intelligence (AAAI)*, 2020

Peter Karkus, **Xiao Ma**, David Hsu, Leslie Pack Kaelbling, Wee Sun Lee, Tomas Lozano-Perez. "Differentiable Algorithm Networks for Composable Robot Learning", *Robotics: Science and Systems (RSS)*, 2019 (**Best Student/System Paper Finalist**)

Xiao Ma, Peter Karkus, David Hsu, Wee Sun Lee "PF-LSTM: Belief State Particle Filter for LSTM", *In RLPO Workshop, Advances in Neural Information Processing Systems (NeurIPS)*, 2018

Xiao Ma, Xiaofeng Gao, Guihai Chen. "BEEP: a Bayesian perspective Early state Event Prediction model for online social networks", *IEEE International Conference on Data Mining (ICDM)*, 2017

Xiao Ma, Zhenzhe Zheng, Fan Wu and Guihai Chen. "Trust-Based Time Series Data Model for Mobile Crowdsensing", *IEEE International Conference on Communications (ICC)*, 2017

RESEARCH PROJECTS

Particle Filter Recurrent Neural Networks and Its Applications

July 2018 - present

Supervised by Prof. David Hsu and Prof. Wee Sun Lee

AdaComp@NUS

- Extend generic RNNs by maintaining a latent state distribution, approximated by a set of weighted particles
- Maintain the latent state distribution by a fully differentiable particle filter algorithm
- Apply to reinforcement learning under complex partial observations and achieve SOTA performance on 3 domains

Differentiable Algorithm Networks

July 2018 - present

Supervised by Prof. David Hsu and Prof. Wee Sun Lee

AdaComp@NUS

- Compose a robot system with neural network modules, each encoding a differentiable robot algorithm and an associated model, and optimize the policy by end-to-end learning

Early State Hot Event Prediction in Social Networks

Nov. 2016 - Jun. 2017

Undergraduate Research Assistant, Supervised by Prof. Xiaofeng Gao

Advanced Network Lab@SJTU

National Undergraduate Training Programs for Innovation and Entrepreneurship

- Designed two Semi-Naive Bayes Classifier based models, BEEP, SimBEEP, for early state event prediction

Time series modeling in Crowd Sensing Network

Oct. 2014 - Dec. 2016

Undergraduate Research Assistant, Supervised by Prof. Fan Wu

Advanced Network Lab@SJTU

- Quantified the users' reliability in Crowdsensing and modeled the Time Series Data with a Dynamic Bayesian Network

WORK EXPERIENCE

Research Intern at SenseTime Research, Singapore

Oct. 2019 - present

Software Engineer Intern at Intel Asia Pacific R & D Center, Shanghai

May 2017

AWARDS

Academic Excellence Scholarship

2014

Honorable Mention of Mathematical Contest In Modeling

2015

Academic Excellence Scholarship

2016

Honorable Mention of Mathematical Contest In Modeling

2016

Excellent Project of the *National Undergraduate Training Programs for Innovation and Entrepreneurship*

2016

NUS Research Scholarship

2017

Second Prize in iNTUition Hackathon

2017