

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 (**Spotlight**)
- 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

- Software Engineer Intern at **Intel** Asia Pacific R & D Center May 2017 - Dec. 2017
- Optimize the Javascript compiler, V8 engine, of the Google Chrome browser
 - Develop automatic testing framework, target and submit fixes to the patches, mainly about regular expressions

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 <i>National Undergraduate Training Programs for Innovation and Entrepreneurship</i>	2016
NUS Research Scholarship	2017
Second Prize in iNTUition Hackathon	2017