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

Cunjun Yu*, **Xiao Ma***, Jiawei Ren, Haiyu Zhao, Shuai Yi. Spatio-Temporal Graph Transformer Networks for Pedestrian Trajectory Prediction. *European Conference on Computer Vision (ECCV), 2020* (*equal contribution)

Zuowu Zheng, Xiaofeng Gao, **Xiao Ma**, Guihai Chen. "Predicting Hot Events in the Early Period through Bayesian Model for Social Networks", *IEEE Transactions on Knowledge and Data Engineering (TKDE), 2020*

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 Nomination**)

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 Reucurrent 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 Reseaerch 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 Dyanmic Bayesian Network

Work Experience

Software Engineer Intern at **Intel** Asia Pacific R & D Center, Shanghai May 2017 - Dec. 2017
Research Intern at **Sensetime Research**, Singapore Oct. 2019 - present

Awards

SJTU Academic Excellence Scholarship 2014
Honorable Mention of Mathematical Contest In Modeling 2015
SJTU 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 Hachathon 2017