Announces the Ph.D. Dissertation Defense of

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“Meta-Learning and Ensemble Methods for Deep Neural Networks”

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ABSTRACT OF DISSERTATION
Meta-learning and Ensemble Methods for Deep Neural Networks
Deep Neural Networks have been widely applied in many different applications and achieve significant improvement over classical machine learning techniques. However, training a neural network usually requires large amount of data, which is not guaranteed in some applications such as medical image classification. To address this issue, people propose to implement meta learning and ensemble learning techniques to make deep learning trainers more powerful. This thesis focuses on using deep learning equipped with meta learning and ensemble learning to study specific problems. In the first part, we consider the suggestion mining problems and apply the ensemble method, Random Multi-model Deep Learning (RMDL). In the second part, we propose a new meta-learning method -- named HARMLESS (Hawkes Relational Meta Learning method for Short Sequences) for learning heterogeneous point process models from short event sequence data along with a relational network. In the third part, we propose two generic ensemble approaches, gradient boosting and meta-learning, to solve the catastrophic forgetting problem in tuning pre-trained neural network models. Numerical experiments on multiple datasets are presented to justify the good performance of our methods.

BIOGRAPHICAL SKETCH
Born in China
B.S., University of Minnesota-Duluth, Duluth, Minnesota, 2016
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CONCERNING PERIOD OF PREPARATION & QUALIFYING EXAMINATION
Time in Preparation: 2016 - 2020
Qualifying Examination Passed: Semester Spring 2017

Published Papers:
Yujia Xie, Haoming Jiang, Feng Liu, Tuo Zhao, Hongyuan Zha, “Meta Learning with Relational Information for Short Sequences,” Annual Conference