

Lei Xu

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Tsinghua University, Beijing, China

EDUCATION

COMPUTER SCIENCE AND TECHNOLOGY, TSINGHUA UNIVERSITY

September 2013 – Present

Average Score: 92 Rank: 5/127

Main Courses and Scores

Fundamentals of Programing	100	Object-Oriented Programing	100	Program Training	100
Discrete Mathematics	99	Computer Science: An Overview	98	Computer Graphics	98
Software Engineering	97	Computer Organization	97	Signal Processing	96

PUBLICATIONS

- B Amos, L Xu, JZ Kolter. Input Convex Neural Networks. Arxiv. (short version previously on NIPS 2016 Workshop)
- B Amos, L Xu, JZ Kolter. Continuous Action Reinforcement Learning using Input Convex Neural Networks. NIPS 2016 Workshop.
- X Chen*, L Xu*, Z Liu, M Sun, H Luan. Joint Learning of Character and word Embeddings. IJCAI 2015. (* indicates equal contribution.)
- L Xu, Z Wang, Ayana, Z Liu, M Sun. Topic Sensitive Neural Headline Generation. Arxiv.

RESEARCH EXPERIENCES

COMPUTER SCIENCE DEPARTMENT

Carnegie Mellon University

Supervised by Professor J. Zico Kolter

Project: Continuous Action Reinforcement Learning using Input Convex Neural Networks

July 2016 – September 2016

- Generalized a recent Q-learning model on continuous control from a quadratic function to a convex function using input convex neural networks (ICNN).
- Implemented ICNN and several baselines using Tensorflow.
- Used the bundle entropy method to do efficient optimization on a convex function.
- Evaluated models on OpenAI Gym and ICNN outperforms other models on several tasks.

NATURAL LANGUAGE PROCESSING AND SOCIAL COMPUTING LAB

Tsinghua University

Supervised by Professor Zhiyuan Liu

Project 1: Joint Learning of Character and Word Embeddings

September 2014 – February 2015

- Proposed to jointly learn character and word embeddings.
- Handled new words by composing character vectors.
- Addressed the ambiguity challenge of characters by multiple character embeddings.

Project 2: Topic-sensitive Document Summarization

September 2016 – June 2016

- Used a sequence-to-sequence model to do text summarization.
- Explicitly considered topic information and gain significant 5% improvement.

Project 3: Weibo (micro blog) Keyword Extraction and Display

January 2014 – September 2014

- Improved the efficiency and stability of the TF-IDF keyword extraction algorithm.

NEXT RESEARCH CENTER

National University of Singapore

Supervised by Professor Huanbo Luan

Project: Representation Learning Toolbox

July 2015

- Implemented efficient representation learning algorithms on GPU.

SELECTED COURSE PROJECTS

Real-time Digit Recognition

Digit Logical Design by Professor Youjian Zhao

- Trained a convolutional neural network digital recognizer using MNIST dataset on computer.
- Used a camera and an FPGA to do real-time digit recognition.

English Speech Auto-scoring System

Principles of Signal Processing by Professor Mingxing Xu

- Built an English speech auto-scoring system on a very small dataset according to scoring rules.
- Used voice analysis tools to align voice and text and extract related features.
- Trained statistical models like naïve-Bayes, decision tree and SVM using limited labeled data.

AWARDS AND HONORS

Excellent Student, Tsinghua University

October 2014; October 2015; October 2016

Second Prize, Tsinghua University Mathematical Contest in Modeling

June 2015