Yuanhao Xiong

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EDUCATION

Zhejiang University **Hangzhou, China**
College of Information Science and Electronic Engineering
Bachelor of Engineering in Information Engineering ***09/2015 – 06/2019***

- Overall GPA: 3.95/4.0 Major GPA: 4.0/4.0 Ranking:1/176
- GRE: Verbal 163 / Quantity 170 / AW 4.0
- TOEFL: Reading 30 / Listening 27 / Speaking 24 / Writing 30 / Total 111
- Relevant Courses: Information Theory (98), Data Analysis and Algorithm Design (95), Fundamentals of Machine Learning (92), Optimization Algorithms (96)

RESEARCH INTERESTS

- Data Mining, Information Retrieval, Natural Language Processing

PUBLICATIONS

[1] Mengyuan Lee, **Yuanhao Xiong**, Guanding Yu, and Geoffrey Ye Li. **Deep Neural Networks for Linear Sum Assignment Problems. IEEE Wireless Communications Letters. 2018**.

[2] **Yuanhao Xiong**, Liangchen Luo, Yan Liu. **Adaptive Gradient Methods with Dynamic Bound of Learning Rate.** Under review of the **International Conference on Learning Representations (ICLR). 2019**.

RESEARCH EXPERIENCES

NESA Lab (Zhejiang University) **Hangzhou, China**
Undergraduate Research Assistant, Advisor: Prof. Shouling Ji ***03/2017 – 07/2017***

- **Project: Design of A System Against Cheating**

Aimed to design a system against cheating in Electronic Commerce based on machine learning.

- Read relevant papers about applications of neural networks and natural language processing in the field of security like using word embeddings to classify black words.
- Designed a deep learning model to learn the distributed representation of a word and identified more than one thousand black keywords through this model starting from a seed set of only 30 keywords.
- Built a system based on word embedding and cosine similarity to detect websites that were enrolled in cheating behaviors like the click farm.

Communication Lab (Zhejiang University) **Hangzhou, China**
Undergraduate Research Assistant, Advisor: Prof. Guanding Yu ***11/2017 – 02/2018***

- **Project: Deep Learning for Linear Sum Assignment Problems**

Explored the potential of deep learning in dealing with complex optimization problems.

- Employed Hungarian method to obtain the datasets of optimal solution for the four-people assignment problem and divided them into training, validation and testing datasets to build a deep learning model.
- Transformed the optimization problem into a classification problem, used MLP and CNN to solve it, and achieved over 90% accuracy in four-people problem.
- Increased the size of the problem and compared different results to evaluate the potential of machine learning to solve such NP problems.

City Brain Research Group **Hangzhou, China**

Research Assistant, Advisor: Prof. Zhenhui Jessie Li ***10/2018 – Present***

- **Project: Reinforcement Learning for Intelligent Transportation**

Leveraged reinforcement learning methods with spatiotemporal data to achieve intelligent traffic signal control.

- Examined the existing traffic signal control system as well as classical transportation theories
- Designed a deep Q-learning network to utilize mobility data, which guided the agent to make decision whether to switch the signal intelligently
- Attempted to expand our model to the scenario of multi-intersections road network

WORK EXPERIENCES

DiDi AI Labs **Beijing, China**

AI Labs of DiDi aim at employing AI techniques such as deep learning in smart city, intelligent agents and so on.

Research Intern, Advisor: Prof. Yan Liu ***07/2018 – Present***

- **Project: Multi-turn Dialog System; Optimization Algorithms**

Expected to design an effective and efficient chatbot with NLP techniques to assist people in online shopping and at the same time to dig down on optimization methods for deep learning models.

- Considered applying the dual learning mechanism to dialog systems, which could enable a dialog model to automatically learn from unlabeled data through a dual learning game.
- Devised a Personalized End-to-End Memory Network to deal with the problem of current dialog systems which tended to produce quite general answers without understanding the user's profile, involved in the paper **Learning Personalized End-to-End Goal-Oriented Dialog** (accepted by AAAI 2019).
- Demonstrated that extreme learning rates in adaptive methods could lead to poor performance, provided new variants of Adam, employing dynamic bounds on learning rates to achieve a gradual transition from Adam to SGD and gave a theoretical proof of convergence

COMPETITIONS

- Be the meritorious winner of Mathematical Contest in Modeling in 2017.
- Owned the second prize of Physics Competition for College Students in Zhejiang Province in Dec. 2016.
- Owned the third prize of Calculus Competition in Zhejiang Province in June 2016

SKILLS

- **Programming:** Proficient in C, Python, MATLAB, Verilog, and R.
- **Development Framework:** Tensorflow, PyTorch
- **Language:** Chinese (native), English (fluent)

HONORS&AWARDS

- National Scholarship (top 1%) ***2017 – 2018***
- First-Class Scholarship for Outstanding Merits (top 3%) ***2016 – 2017***
- First-Class Scholarship for Outstanding Merits (top 3%) ***2015 – 2016***

MISCELLANEOUS

- Took charge of the game part of New Year's Eve at Zhejiang University (as a member of Student Union)
- Served as a volunteer for the concert of Jessie J in Beijing
- Enjoyed playing tennis and hiking