Lantao Yu

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Education

Shanghai Jiao Tong University — **Shanghai, China**
Sep. 2014-Jun. 2018

- Senior undergraduate, Dept. of Computer Science
- Zhiyuan Honors Program of Engineering
- Cumulative GPA: Overall: 91.17/100 | Major: 92.83/100
- Research Assistant, Apex Data and Knowledge Management Lab
- Advisors: Prof. Yong Yu, Prof. Weinan Zhang and Prof. Jun Wang (University College London)

Carnegie Mellon University — **Pittsburgh, USA**
Aug. 2017-Feb. 2018

- Research Intern, Institute for Software Research, School of Computer Science
- Advisors: Prof. Fei Fang

Research Interests

The general area of machine learning, especially in deep representation learning, reinforcement learning, and their applications in sequential decision making, generative modeling, natural language understanding, recommender system and information retrieval.

Publications

SeqGAN: Sequence Generative Adversarial Nets with Policy Gradient

- **Lantao Yu**, Weinan Zhang, Jun Wang, Yong Yu.
- In Proceedings of the 31st AAAI Conference on Artificial Intelligence. **AAAI 2017**

A Dynamic Attention Deep Model for Article Recommendation by Learning Human Editors' Demonstration

- Xuejian Wang*, **Lantao Yu***(equal contribution), Kan Ren, Guanyu Tao, Weinan Zhang, Yong Yu, Jun Wang.
- In Proceedings of the 23rd SIGKDD Conference on Knowledge Discovery and Data Mining. **KDD 2017**

IRGAN: A Minimax Game for Unifying Generative and Discriminative Information Retrieval Models

- Jun Wang, **Lantao Yu**, Weinan Zhang, Yu Gong, Yinghui Xu, Benyou Wang, Peng Zhang, Dell Zhang.
- In Proceedings of the 40th International ACM SIGIR Conference on Research and Development in Information Retrieval. **SIGIR 2017**. **Best Paper Award Honorable Mention**

An Empirical Study of AI Population Dynamics with Million-agent Reinforcement Learning

- Yaodong Yang*, **Lantao Yu***, Yiwei Bai*(equal contribution), Jun Wang, Weinan Zhang, Ying Wen, Yong Yu.
- Submitted to *AAAI 2018*.

Deep Reinforcement Learning for Green Security Game with Online Information

- **Lantao Yu**, Yi Wu, Rohit Singh, Lucas Joppa and Fei Fang.
- Submitted to *The AAAI-18 Workshop on AI for Imperfect-Information Games*.

Honors and Awards

- **Best Paper Award Honorable Mention, SIGIR 2017**.
- **Microsoft Azure Research Award**, Carnegie Mellon University. 2017.
- **Scholarship of Excellent Undergraduates** (Top 2 students in School of Electronic Information and Electrical Engineering), Shanghai Jiao Tong University. 2017
- **National Scholarship** (Top 3 students in CS Department), Ministry of Education of P.R.China. 2016.
- **Zhiyuan College Honored Scholarship** (Top 5%), Shanghai Jiao Tong University. 2015 & 2016.

- **Yuan-Ze Scholarship** (Top 2% in Computer Science Department), Zhiyuan College, Shanghai Jiao Tong University. 2015.
- **Second Prize in China Undergraduate Mathematical Contest in Modelling**. 2015

Research Experiences

Deep Reinforcement Learning for Security Game with Online Information
Guide: Prof. Fei Fang, SCS, CMU *Aug. 2017-Present*
- Proposed a novel game model incorporating the vital element of online information, which has been previously neglected by the research community, and no previous mathematical programming methods are applicable.
- Leverage convolutional neural networks for learning spatio patterns and combine deep reinforcement learning with double oracle algorithms to compute the Nash Equilibrium for such a complicated game.

Learning and Planning for Wildlife Security
Guide: Prof. Fei Fang, SCS, CMU *Aug. 2017-Present*
- Design machine learning algorithms to predict poaching activities and improve patrolling strategies.
- Deployed by WWF China Organization for improving real-world patrolling.

Adversarial Training for Discrete Sequential Data Generation
Guide: Prof. Weinan Zhang, Prof. Jun Wang, Prof. Yong Yu, CSD, SJTU *Jun. 2016-Sep. 2016*
- Proposed a novel framework combining adversarial training and policy gradient methods for generating discrete sequential data.
- Accepted as a full paper at *AAAI 2017*. Received 65+ citations during last year.
- Successfully applied to dialogue systems, machine translations, image captions and music generation, etc.

Minimax Framework for Information Retrieval
Guide: Prof. Jun Wang, Prof. Weinan Zhang, CSD, SJTU *Sep. 2016-Jan. 2017*
- Propose a minimax framework unifying two schools of information retrieval methodologies
- Achieved significant performance gains over strong baselines in a variety of applications including web search, item recommendation, and question answering.
- Accepted as a full paper at *SIGIR 2017*. Won the **Best Paper Award Honorable Mention**.

Dynamic Attetion Deep Model for Article Recommendation
Guide: Prof. Weinan Zhang, Prof. Jun Wang, Prof. Yong Yu, CSD, SJTU *Dec. 2016-Feb. 2016*
- Proposed a hybrid attention-based model to model the editors' dynamic underlying criterion.
- Outperformed strong baselines through a 9-day A/B testing, with more stable and robust predictions.
- The attetion-based article recommendation system was deployed in a commercial article feed platform.
- Accepted as a full paper at *SIGKDD 2017*.

Emerging Collective Dynamics from Large AI Population
Guide: Prof. Weinan Zhang, Prof. Jun Wang, Prof. Yong Yu, CSD, SJTU *May. 2017-Aug. 2018*
- Designed and developed a platform for large scale Multi-Agent Reinforcement Learning experiments.
- Discovered the ordered collective dynamics from a large population of RL agents driven by self-interest.
- Verified the principles developed in the real world could be applied to understand AI population.

Detecting Click Fraud in Computational Advertising
Guide: Prof. Weinan Zhang, Prof. Yong Yu, CSD, SJTU *May. 2017-Aug. 2018*
- Apache Spark cluster computing for processing massive data from YOYI Inc.
- Implemented state-of-the-art click fraud detection algorithms on real world datasets.

Open Source Projects
- Implementation of SeqGAN. 750+ stars in Github.
- Implementation of IRGAN. 200+ stars in Github.
- Million-level Multi-Agent Reinforcement Learning Platform.
- Multi-agent Reinforcement Learning Paper Collection. 200+ stars in Github.

Selected Academic Presentations
- Generative Adversarial Networks for Discrete Data. Online talk, at PaperWeekly.
- Adversarial Training for Information Retrieval. Apex Lab, SJTU.
- Sequence Generative Adversarial Networks. AAAI 2017, San Francisco.