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
- GPA: Overall: 91.17/100 | Major: 93.47/100 | Final Year: 93.93/100
- Standard Test: TOEFL: 108(R30, L29, S23, W26), GRE: V160, Q167, W4.0
- 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

Machine learning in general, including deep learning, representation learning, reinforcement learning, as well as their applications in sequential decision making, generative modeling, natural language understanding, multi-agent systems and data mining.

Publications (Google Scholar Profile)

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.** **(75+ citations)**

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

- **Lantao Yu***, Xuejian Wang*(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**

Deep Reinforcement Learning for Green Security Game with Online Information

- **Lantao Yu**, Yi Wu, Rohit Singh, Lucas Joppa and Fei Fang.
- In *Workshop on Artificial Intelligence for Imperfect-Information Games at **AAAI 2018***.

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

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

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 Honorable 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.
- **First Prize** in China Undergraduate Mathematical Contest in Modeling, Shanghai Division. 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 **75+ 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. 2017*

- 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. 2017*

- 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 *Jan. 2016-Jun. 2016*

- Apache Spark cluster computing for processing massive data from YOYI Inc.
- Implemented state-of-the-art click fraud detection algorithms on large-scale 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.