

Lantao Yu

Wean Hall 4201 – Carnegie Mellon University – Pittsburgh, USA

✉ lantaoyu@hotmail.com • 🌐 lantaoyu.com

Education

Shanghai Jiao Tong University

Shanghai, China

Sep. 2014–Jun. 2018

- Senior undergraduate, Dept. of Computer Science
- Zhiyuan Honors Program of Engineering (an elite program for top 5% talented students)
- GPA: Overall: 91.30/100 (**Ranking: 3rd/151**) | Major: 93.47/100 | Final Year: 93.93/100
- Standard Test: TOEFL: 108 (R30, L29, S23, W26), GRE: V160, Q167, W4.0
- Advisors: Prof. [Weinan Zhang](#), Prof. [Yong Yu](#) 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
- Advisor: 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, computer vision 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. **(81 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. (9 citations)**

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](#).
- In *Workshop on Aligned Artificial Intelligence at NIPS 2017*. (Follow-up work submitted to AAMAS 2018)

Honors and Awards

- **Best Paper Award Honorable Mention** ([Link](#)), 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 Honors Scholarship** (Top 5%), Shanghai Jiao Tong University. 2015 & 2016.
- **Overall GPA Ranking Top 3** ([Link](#)) (Sophomore GPA Ranking 1st/151), Department of Computer Science, Shanghai Jiao Tong University. 2014-2017.

- **Yuan-Ze Scholarship** (Top 2% in Computer Science Department), Zhiyuan College. 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, double oracle algorithm and meta-learning 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 World Wildlife Fund to improve real-world patrolling and featured on Cheddar TV.

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 SeqGAN combining adversarial training and policy gradient algorithm for generating discrete sequential data.
- Accepted as a full paper at **AAAI 2017**. Received **80+ citations**.
- **Included in the deep learning course in University of Waterloo.**
- 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

- Proposed 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 Attention 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 deep model to capture the editors' dynamic underlying criterion.
- Outperformed strong baselines through a 9-day A/B testing, with more stable and robust predictions.
- Accepted as a full paper at **KDD 2017**, deployed by a commercial article feed platform.

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](#). 820+ stars in Github.
- [Implementation of IRGAN](#). 200+ stars in Github.
- [Million-level Multi-Agent Reinforcement Learning Platform](#).
- [Multi-agent Reinforcement Learning Paper Collection](#). 270+ stars in Github.

Selected Academic Presentations

- [Sequence Generative Adversarial Networks](#). AAAI 2017 Conference, San Francisco.
- [Generative Adversarial Networks for Discrete Data](#). Invited talk, at PaperWeekly.
- [Adversarial Training for Information Retrieval](#). Apex Lab, SJTU.

Review Experience: PIC 2016, SIGIR 2017