Shuo YANG

Department of Computer Science, University of Texas at Austin

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EDUCATION EXPERIENCE

Department of Computer Science, University of Texas, Austin *08/2018 – Now*

- GPA: 4.0 Ph.D. student. Advisor: Sujay Sanghavi; Co-advisor: Inderjit Dhillon.

Department of Electrical Engineering, Tsinghua University, Beijing *08/2014 – 07/2018*

- Major GPA: 92.35 Top 3 out of 140 in the department.

School of Economics and Management, Tsinghua University, Beijing *09/2015 – 07/2018*

- Double Major in Economics

Electrical and Computer Engineering, University of Texas, Austin *01/2017 – 05/2017*

- GPA: 4.0 International Exchange Student Program.

RLAI Lab, University of Alberta *07/2017 – 09/2017*

- Summer internship, supervised by Richard Sutton.

INDUSTRY EXPERIENCE

Google *06/2020 – 09/2020*

Student Researcher. Manager: Xiaodan Song & Denny Zhou *Austin, TX (Remote)*

- Fast training of large-scale deep learning model (BERT).

Amazon *06/2019 – 09/2019*

Applied Scientist Intern. Manager: Dan Hill *Berkeley, CA*

- Customer search query understanding and inline search suggestion.

RESEARCH INTEREST

My research interest lies in theoretical machine learning, optimization and sequential decision making under uncertainty. My research goal is to build machine learning algorithms that are theoretical sound and efficient in runtime/space/sample complexity.

RESEARCH EXPERIENCE

Slate Bandits *01/2020 – 06/2020*

Advisor: Professor Sujay Sanghavi, Professor Inderjit Dhillon. University of Texas *Austin, US*

- Proposed the slate bandits to model the recommendation system that interacts with the user by offering multiple recommendations at one time and observing user's binary feedback (accept or not).
- Proved the lower bound for regret and proposed an algorithm that achieves a matching lower bound.
- Empirically demonstrated the algorithm's great performance and wide applicability.

[NeurIPS 2019] *09/2018 – 05/2019*

Consistent Sparse Quadratic Regression in Sub-quadratic Time and Space *Austin, US*

Advisor: Professor Sujay Sanghavi, University of Texas

- Developed a sub-quadratic time gradient estimation method for quadratic model.
- Combining the sketching method with iterative hard threshold, obtained a provable linear convergence rate and consistent parameter estimation for solving quadratic regression.

Electrical Market Equilibrium Analysis with Accelerated Gradient Descent *09/2017 – 07/2018*

Advisor: Professor Qixin CHEN, Chongqing KANG, Tsinghua University *Beijing, CN*

- The new method framed the electrical market bidding in a reduced form, gives a simple and accurate market model for equilibrium calculation.
- Integrated accelerated gradient descent algorithm to solve for the market equilibrium.

Reinforcement Learning: Fast Planning with Linear Dyna *07/2017 – 09/2017*

Advisor: Professor Richard Sutton, University of Alberta *Edmonton, CA*

- Developed a new planning method under the linear Dyna architecture.
- New method achieved the same data efficiency as previous Dyna method with linear time complexity and constant per-step computation. Suitable for large scale, long-term learning.
- Developed a novel extension to the control problem, with empirical results showing both high data efficiency and computation efficiency.

Automatic Curriculum Generation in Reinforcement Learning *02/2017 – 07/2017*

Advisor: Professor Peter Stone, University of Texas *Austin, US*

- Designed a method to generate agent-specific curriculum automatically. Empirical results have demonstrated a 40% learning efficiency increase.
- Improved the experiment environment setting, which extends the previous experiment to a complex domain and allows for a more flexible configuration of tasks.

GRADUATE COURSES

Spring, 2020

- Markov Chains/Mixing Time (Prof. Joe Neeman)
- Statistical Machine Learning (Prof. Haris Vikalo)

Fall, 2019

- Online Learning (Prof. Sanjay Shakkottai)
- Randomized Algorithm (Prof. Eric Price)
- Natural Language Process (Prof. Greg Durrett)
- Deep Learning Seminar (Prof. Philipp Krahenbuhl)

Spring, 2019

- Large-Scale Optimization II (Prof. Constantine Caramanis)
- Algorithm: Techniques and Theory (Prof. Greg Plaxton)
- Theoretical Statistics (Prof. Purnamrita Sarkar)

Fall, 2018

- Large-Scale Optimization I (Prof. Sujay Sanghavi)
- Probability and Stochastic Process (Prof. Sanjay Shakkottai)