

Shuo YANG

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EDUCATION

Department of Electrical Engineering, Tsinghua University 08/2014 – 07/2018 (*Expected*)

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

School of Economics and Management, Tsinghua University 09/2015 – 07/2018 (*Expected*)

- **Double Major in Economics**

Electrical and Computer Engineering, University of Texas at 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.

RESEARCH EXPERIENCE

Electrical Market Mechanism Validation with Reinforcement Learning 09/2017 – *Now*

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

- Integrated Reinforcement Learning to the traditional market equilibrium method for the model parameters estimation.
- Accomplished the market analysis for a 30-Nodes system for market mechanism validation.

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

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

- Independently developed a new planning method under the linear Dyna architecture.
- New method achieved 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.

Reinforcement Learning with External Memory 07/2017 – 09/2017

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

- Developed a reinforcement learning structure with limited size memory module. Proposed an on-line gradient estimation for memory.
- Implemented the new algorithm. The result demonstrated the new algorithm can solve the sharp long-term dependencies which can be problematic for recurrent models.

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 without specifying source tasks explicitly. Empirical results have demonstrated a 40% learning efficiency increase.
- Improved the experiment environment setting independently, which extends the previous experiment to a complex domain and allows for a more flexible configuration of tasks.

Probabilistic and Hierarchical Electrical Load Forecasting 10/2016 – 04/2017

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

- Attended Global Energy Forecasting Competition as the only undergraduate student in the team.

Curriculum Vitae

- Proposed a probabilistic forecasting frame which divided the forecast problem into different time resolution. The long-term factors and short time variance could be analyzed separately.

Traffic Lane Detection Based on CNN

09/2016 – 12/2016

Advisor: Professor Xiangyang JI, Tsinghua University

Beijing, CN

- Compared different network structures and designed the experimental network for this project.
- Systematically learnt TensorFlow and implemented the experimental network.

A Cascaded Electronic Modular Design for Loss-Capacity Li-ion Battery Reuse

11/2015 – 07/2016

Advisor: Associate Professor Zedong ZHENG, Tsinghua University

Beijing, CN

- Presented a new topology which allows for the combination of arbitrary number of batteries and output AC power at any certain phase number, amplitude, and frequency with high efficiency.
- Completed the control algorithm for the circuit. Enhanced the robustness and security of the newly designed power electronic device.
- Built up an experimental platform to validate the new circuit topology design.

HONORS AND AWARDS

Nominated for Tsinghua Prestigious Scholarship

2017

“Tang Lixin” Scholarship

2016

China Scholarship Council Excellent Undergraduate Fellowship

2016

Tsinghua Spark Program Membership

2016

National Scholarship

2015

Meritorious Winner of Interdisciplinary Contest in Modeling

2015

Tsinghua Siyuan Program Membership

2015

SKILLS AND OTHERS

Computer Skills: Proficient in Java / Python / MATLAB / C / C++

Language: Native in Chinese. Fluent in English.

TOEFL iBT 108/120 (Reading 30, Listening 30, Speaking 24, Writing 24)

GRE Verbal 157/170, Quantitative 170/170, Analytical Writing 4.0/6.0