

# Sidi Lu

UNDERGRADUATE STUDENT · ACM HONORS CLASS, SJTU

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“Embrace solitude to better understand communication.”

## Research Interests

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My research interests lie in unsupervised learning of sequential data, including improving the training of auto-aggressive models and learning a structural form of such data via modern machine learning approaches.

My previous work especially focuses on natural language generation, neurally-guided Bayesian Program Learning and building combinatorially-generalizable deep learning systems. I'm also interested in improving the sample efficiency of Reinforcement Learning/Inverse Reinforcement Learning systems.

## Education

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### ACM Honors Class, Zhiyuan College(Shanghai Jiao Tong University)

B.S. IN COMPUTER SCIENCE (ZHIYUAN HONORS PROGRAM)

Shanghai, P.R.C.

Sept. 2015 - Exp. Jul. 2019

- ACM Honors Class accepts only top 5% out of all Computer Science majored students.

## Publication

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### CoT: Cooperative Training for Generative Modeling of Discrete Data

ICLR-2019 (Under Review, 7-7-7)

SIDI LU, LANTAO YU, SIYUAN FENG, YAOMING ZHU, WEINAN ZHANG, YONG YU

2018

- Proposed the whole idea.
- Designed and finished most experiments.
- Did most of the theoretical analysis.
- Finished the majority of the paper's writing.

### Long Text Generation via Adversarial Training with Leaked Information

AAAI-2018 (Accepted, Poster)

JIAXIAN GUO, SIDI LU, HAN CAI, WEINAN ZHANG, YONG YU, JUN WANG

2017

- Proposed the training technique called bootstrapped rescaled activation, which stabilizes the training process.
- Helped to reproduce part of the baselines.
- One of the main contributors of the paper's writing.

### Texygen: A Benchmarking Platform for Text Generation Models

SIGIR-2018 (Accepted, Short)

YAOMING ZHU, SIDI LU, LEI ZHENG, JIAXIAN GUO, WEINAN ZHANG, JUN WANG, YONG YU

2018

- Proposed part of the academical ideas of the project.
- Helped in writing the paper.

### Neural Text Generation: Past, Present and Beyond

Informal Essay

SIDI LU, YAOMING ZHU, WEINAN ZHANG, YONG YU

2018

- Summarized the research of training an auto-aggressive discrete generative model, with necessary theoretical and empirical analysis.
- Pointed out a few pain points of current attempts in this field, proposed several possible future directions.
- Served as an important prospective work of the paper "CoT".

## Research Experience

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### Visiting Student (CSAIL, Massachusetts Institute of Technology)

Cambridge, MA, U.S.A.

RESEARCH INTERNSHIP

Jul. 2018 - PRESENT

- Invited by and under supervision of Professor Joshua B. Tenenbaum.
- Studying the extension of the power of Bayesian Program Learning.
- Having attempts at combining the power of deep neural networks and BPL to improve the combinatorial generalization ability and sample efficiency of the learning system.

### APEX Lab, Shanghai Jiao Tong University

Shanghai, P.R.C.

UNDERGRADUATE MEMBER

Jun. 2017 - PRESENT

- Under supervision of Professor Weinan Zhang and Professor Yong Yu.
- Working on improving the training of auto-aggressive discrete generative models (typically, text generation models)
- Studying the inverse reinforcement learning problem and Imitation Learning algorithms.

# Teaching Experience

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## TEACHING ASSISTANT

2016	<b>Junior TA</b> , Programming	Shanghai Jiao Tong University
2017	<b>Senior TA</b> , Data Structure	Shanghai Jiao Tong University
2017	<b>Senior TA</b> , Programming Practice	Shanghai Jiao Tong University
2018	<b>Senior TA</b> , Computer System (II): Operating System	Shanghai Jiao Tong University
2018	<b>Junior TA</b> , Compiler: Practice and Design	Shanghai Jiao Tong University

## Open-source Projects

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### Code for reproducing results in “CoT: Cooperative Training for Generative Modeling of Discrete Data”

*Available on GitHub*

SOLE CONTRIBUTOR

*Jul. 2018*

- <https://github.com/desire2020/CoT>

### Code for reproducing results in “Adversarial Ranking for Language Generation”

*Available on GitHub*

FORKED FROM THE SEQGAN REPOSITORY

*Jul. 2017*

- <https://github.com/desire2020/RankGAN>

### Unofficial Implementation of “Training RNNs as Fast as CNNs”

*Available on GitHub*

MAIN CONTRIBUTOR

*Sep. 2017*

- <https://github.com/desire2020/SRU-tensorflow>

### ALeX: A-Light-educational-\*nix OS kernel

*Available on GitHub (incomplete)*

SOLE CONTRIBUTOR

*May. 2018*

- <https://github.com/desire2020/ALeX>

### M#: A C-Java Hybrid Programming Language and its Compiler

*Available on Bitbucket*

SOLE CONTRIBUTOR

*Jun. 2017*

- <https://bitbucket.org/desire2020/msharp>

### Back-end of an Online Course-work AI Competition Server

*Available on GitHub*

FORKED FROM REPOSITORY “ACM-2015-AI-SERVER”

*Nov. 2016*

- <https://github.com/desire2020/ACM-2016-AI-Server>