

Xiaoyu (Lucy) Song

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EDUCATION

ShanghaiTech University (Shanghai Campus of Chinese Academy of Sciences)

Bachelor of Engineering in Computer Science, GPA: 3.6/4.0

Shanghai, China

Expected July 2020

Research Interests: Natural Language Processing, Machine Learning, Machine Learning System

SKILLS

- **Programming Language:** C, C++, Python, C# with ASP.NET, Objective-C
- **Research Tools:** TensorFlow, PyTorch, Git, Linux/GNU, Bash Scripts, \LaTeX

RESEARCH EXPERIENCE

Next Generation Machine Learning System, Microsoft Research

Advisor: Ying Cao

Beijing, China

Sept. 2019 - Present

- Implementing transformer and several recurrent neural networks in TensorFlow, on which designing experiment to study their respective advantages on Language Model and investigate the reasons behind.
- Discovering merits of recurrent neural networks in specific scopes compared with transformer by experiments and analysis.
- Exploring advanced implementation in source to source automatic differentiation through optimizing control flow graph.
- Participating in studies and contributing code to a next generation machine learning system.

Unsupervised Structured Prediction, ShanghaiTech University

Advisor: Kewei Tu

Shanghai, China

Jan. 2019 - July 2019

- Conducted study on latest unsupervised machine learning methods in typical natural language processing tasks.
- Implemented a novel unsupervised model based on Structured Prediction Energy Networks using PyTorch.
- Tested the new model in multi-label classification tasks to show that it offers better performance than similar methods.

Advanced "Pay As You Wish" Movie Pricing Model, ShanghaiTech University

Advisor: Dengji Zhao

Shanghai, China

Mar. 2019 - June 2019

- Proposed a movie pricing mechanism applying "Pay As You Wish" strategy on market model resulted from desktop research.
- Performed mathematical deduction and programmatic simulation, proving the model's superiority in multiple benchmarks.
- Collected and analyzed data from stimulative experiments, drew best practice of the mechanism.

INDUSTRY EXPERIENCE

Microsoft

Software Engineer Intern

Suzhou, China

May 2019 - Aug. 2019

- Developed a robot independently answering users' and engineers' questions about routing system in natural language.
- Implemented customized request inquire service in C# with blurred information for users in over 130 billion requests a day, averagely saving 3 hours a day for every engineer.
- Collaborated remotely with an intern in the US to extract routing data and feedback to user through the bot using APIs.
- Devised a program to analyze request routing data to identify reasons of request failures.

Google

Engineering Practicum Intern

Shanghai, China

July 2018 - Sept. 2018

- Developed an iOS App in Objective-C to simulate test processes and collect data for billions of mobile ads.
- Built full-stack infrastructure for tests and integrated it with Google test system, improving test efficiency by about 10%.
- Implemented report system to auto-generate and publish graphical test report, intuitively showing the results in multimedia.

PROJECTS

- Machine Learning Self-Balanced Addressing Robot**, *Mechatronics Project*, Shanghai Mar. 2019 - June 2019
- Designed the circuit and control system and built a two-wheel robot using Arduino and 3D printed components.
 - Implemented control system in C++ as well as ensured robot self-balance based on PID negative feedback regulation.
 - Trained the robot using Q-learning algorithm to reach certain location.
- EasyMeeting**, *Conference Subtitle Tool*, Google, Shanghai Aug. 2018
- Devised and built a Chrome plugin to provide real-time subtitle generate record for video conference with partners.
 - Won *Best Business Value Award* on *Google Innovation Week 2018*.

TEACHING EXPERIENCE

- Teaching Assistant**, ShanghaiTech University, Shanghai Feb. 2017 - Jun. 2018
- SI100: Introduction to information Science and Technology (2017 Spring), *Instructor: Prof. Hao Chen, etc.*
 - SI100E: Introduction to Electrical Engineering (2018 Spring), *Instructor: Prof. Yajun Ha, etc.*
 - SI100B: Introduction to Information Science and Technology B (2018 Spring), *Instructor: Prof. Jingyi Yu, etc.*
- English Teacher**, Shanghai Mar. 2019 - July 2019
- Taught English to grade six international school students on weekends to improve skills especially in oral English.

HONORS AND AWARDS

- Champion in Great China Region (1st place)**, *Accenture Global Digital Pioneer Marathon Event*, Shanghai 2017
- Academic Excellence Scholarship**, *ShanghaiTech University*, Shanghai 2017
- Outstanding Student Award**, *ShanghaiTech University*, Shanghai 2017
- Second Prize**, *China Undergraduate Mathematical Contest in Modeling*, *Shanghai Contest District*, Shanghai 2017
- Second Prize**, *China College Computer Contest*, Shanghai 2017

SELECTED COURSES

- **Mathematics:** Mathematical Analysis, Discrete Mathematics, Linear Algebra, Probability and Mathematical Statistic, Logic
- **Computer Science:** Programming, Data Structure, Algorithms, Signals and systems, Computer Architecture, Operating System, Compiler, Artificial Intelligence, Introduction to Algorithmic Game Theory, Mechatronics

ACTIVITIES

- Operator & Translator**, *Column "Football Megaphone"* Aug. 2019 - Present
- Translate and introduce Reddit discussions into Chinese and publish in multiple media.
 - Operate a popular column on the largest Chinese sport forum Hupu, and a WeChat official account with 3000+ subscribers.
- President**, *Liberal and Arts Club*, ShanghaiTech, Shanghai June 2017 - Present
- Manage all general issues of the club, hold serial lectures, weekly seminars and outdoor activities.
- Vice-Chair**, *ACM Association*, ShanghaiTech, Shanghai Mar. 2017 - July 2019
- Organize training and algorithm contests, maintain relations with school and companies and make development plan.
- Principle of Percussion**, *ShanghaiTech Orchestra*, Shanghai May 2017 - Oct. 2018
- Perform on concerts, manage device, members and rehearsal issues of percussion department.