

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 (Junior: 3.7/4.0)

Shanghai, China

Expected Jul 2020

Research Interests: Natural Language Processing, Machine Learning

SKILLS

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

RESEARCH EXPERIENCE

Experimental Study in RNNs and the Transformer in a Systematic View, Microsoft Research

Beijing, China

Advisor: Ying Cao

Sep 2019 - Present

- Designing experiments to compare the training cost for recurrent neural networks (RNNs) and the transformer model when reaching the same performance.
- Analyzing experimental data and model principles to explain the results and find best practices for different scenarios.
- Building a system-friendly machine learning system at lower cost with the team base on the study.

Energy Networks Based Semi-supervised Structured Autoencoder, ShanghaiTech University

Shanghai, China

Advisor: Kewei Tu

Jan 2019 - Jul 2019

- Developed a semi-supervised autoencoder based on Structured Prediction Energy Networks to capture labels' dependencies and predict structured output for partially labeled data.
- Reduced the complexity of computation by stochastic gradient descent (SGD) approximation.
- Proposed a new method to solve the difficulty of computing partition function in traditional methods.

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

Shanghai, China

Advisor: Dengji Zhao

Mar 2019 - Jun 2019

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

INDUSTRY EXPERIENCE

Microsoft

Suzhou, China

Software Engineer Intern

May 2019 - Aug 2019

- Developed an MS bot to proxy user requests and resolve routing problems by natural language conversation.
- Implemented customized request inquire service in C# with blurred information for users in over 130 billion requests every day, saving three hours a day on average for every engineer.
- Designed a program to analyze logs of Exchange's distributed load balancer collaborating remotely with an intern in the US.

Google

Shanghai, China

Engineering Practicum Intern

Jul 2018 - Sep 2018

- Developed an iOS test system in Objective-C to simulate and test ads rendering for billions of mobile ads.
- Built full-stack test infrastructure and integrated it with Google test system, improving test efficiency by about 10%.
- Implemented a report system to auto-generate and publish visualized test reports.

PROJECTS

- Machine Learning Self-Balanced Addressing Robot**, *Mechatronics Project*, Shanghai Mar 2019 - Jun 2019
- Designed the circuit and control system and built a two-wheel robot using Arduino and 3D printed components.
 - Implemented control system in C++ and ensured robot self-balance based on PID negative feedback regulation.
 - Trained the robot using Q-learning algorithm to reach specified destination.
- EasyMeeting**, *Conference Subtitle Tool*, Google, Shanghai Aug 2018
- Devised and built a Chrome plugin to provide real-time subtitle and generate record for video conference with partners.
 - Won *Best Business Value Award (1st of 20+ competitors)* on *Google Innovation Week 2018*.

TEACHING EXPERIENCE

- Teaching Assistant**, ShanghaiTech University, Shanghai Feb 2017 - Jun 2018
- Ran weekly review lesson, held office hours, answered questions online and graded problem sets for students.
 - Collected students' feedback and provided advice for instructors to optimize course quality.
 - Courses instructed, including SI100B for students major in neither Computer Science nor Electrical Engineering:
 - * 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 - Jul 2019
- Taught English to grade six international school students on weekends to improve skills, especially in oral English.

HONORS AND AWARDS

- Outstanding Student Award (65 Winners in 652 Candidates)**, *ShanghaiTech University*, Shanghai 2019
- Champion in Great China Region (1st Place)**, *Accenture Global Digital Pioneer Marathon Event*, Shanghai 2017
- Academic Excellence Scholarship (Selected from Top15%)**, *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 4300+ subscribers.
- President**, *Liberal and Arts Club*, ShanghaiTech, Shanghai Jun 2017 - Present
- Manage all general issues of the club, such as financial plan and activity arrangement.
 - Invite scholars and experts for lectures, and hold serial lectures, weekly seminars and outdoor activities.
- Vice-Chair**, *ACM Association*, ShanghaiTech, Shanghai Mar 2017 - Jul 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 quarterly school concerts and invited concerts on international academic conferences and special events.
 - Organize rehearsal issues, and manage members and devices of percussion department.