

Qingyao Li

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<https://github.com/SIMONLQY>

Undergraduate

Xi'an Jiaotong University

Major: Automation major of Qian Xuesen experimental class

2016~2018: Junior class 2018~2022: Automation

Academic performance ranking: 1/25

CET6 score: 572 CET4 score: 596

Scores of major courses:

Advanced mathematics: 98	Function of complex variable: 100	Probability theory: 99
Calculation method: 98	Automatic control theory: 98	Operations research: 96
Signal and system: 95	Mathematical equation: 96	

Awards

- 2019~2020 **National second prize of mathematical modeling**
- 2020~2021 Baidu big data competition international excellent award
- 2019~2020 Qiu Changrong second class scholarship
- 2020~2021 The first prize of Tengfei cup competition
- 2019~2020 Excellent students

Practical experiences

- In 2019, we completed the development of maze game project based on C++. It includes the design of game mechanism, the implementation of pathfinding algorithm, the code implementation of game operation and graphical interface, etc. the graphical interface uses EasyX graphics library, and the pathfinding algorithm uses A* pathfinding algorithm. The final game includes different map selection, difficulty selection and character selection with different skills. Code content in <https://github.com/SIMONLQY/Maze-Game>.
- In 2020, I entered **the elite class of Baidu** through selection, accepted the joint training of Baidu company and Xi'an Jiaotong. The company provided internal teaching materials under the guidance of senior engineers, and taught us some algorithms and models related to machine learning and deep learning through course learning. We participated in Baidu big data competition for assessment. In 2019, the topic is to solve the epidemic transmission model established among multiple cities to predict the number of infected people. We built LSTM sequence model to predict according to the past data, and finally win the international excellent award.
- In the summer of 2019, I participated in the AIF project of **Cambridge University and Oxford University** in the UK. The Academy selected 10 students to participate in the project. The main content is the structure and construction process of the main deep learning model in the field of computer vision and NLP. Finally, the team selected the topic to study the style integration of artificial intelligence. By referring to the paper [a neural algorithm of artistic style], we can understand the most important content in this issue: the construction of cost function and style cost function.
- From 2018 to 2019, I engaged in web development work in the community, helped build the voice of youth website of Jiaotong University, and I was mainly responsible for front-end development. Using HTML and CSS combined with vue.js framework, I realized page routing conversion, content typesetting, and requested and obtained content from database according to user operation. Current website address: <https://tuanwei.xjtu.edu.cn/>

Research experiences

- In 2021, I have studied the related content of **graph neural network**, the deep learning model on GCN, GAT, Graphsage, etc., also I have read a lot of literature to understand the important problems including how to deal with heterogeneous graph, how to improve the robustness of GNN, how to deal with dynamic graph, etc., and try to practice my idea: apply GAN structure to QA. I used R-GCN as generator and Bert as discriminator to form GAN structure to solve multi-hop QA problem.
- 2021~ My research on image completion in **the Institute of artificial intelligence and robotics** mainly realized the optimization of the structure of GAN by adding the U-net image completion model and the discriminating loss. The original U-net network is used as generator, and the discriminator uses the encoder decoder structure mentioned in a paper published in CVPR in 2020. Compared with the traditional discriminator in GAN, this structure can better capture the details.
- 2021~ By using the pre training word embedding model and LSTM, I've worked on the task of emotion classification of IMDB data set, and completed the process from data preprocessing to model establishment to training and testing. In the process, the word embedding uses the glove pre-trained word embedding model, and the training model is bidirectional LSTM, which achieves the F-score of 0.8966 on the test set, and the precision and recall also reach 0.89.
- 2019~2021 I participated in the research of pacemaker wireless charging project with my classmates. I mainly participated in the competition of Tengfei cup. I was mainly responsible for the control algorithm and related experiments. I mainly worked on the calculation of gradient by sampling the primary current and voltage, and quickly converged to the optimal output duty cycle by Newton iteration method, which could automatically control its power, voltage and current. In order to achieve stable energy transmission. The project won the first prize in the Tengfei cup competition.

Skills

- Deep learning project development: pytorch
- Paper writing: Latex
- Good command of programming language: python&c++
- Desktop game development: c++&EasyX