KERU CHEN

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PERSONAL PROFILE

I am currently a junior majoring in Automation at Xi'an Jiaotong University. My research interests span the field of artificial intelligence, particularly reinforcement learning and its applications in areas like healthcare and robotics. I possess a strong sense of self-motivation, an aptitude for self-directed learning, and a knack for problem-solving. My fervent passion lies in scientific research.

EDUCATION

Xi'an Jiaotong University University **Sep 2021 – Present**
Bachelor of Engineering in Automation *Current GPA: 3.6/4.3*

RELEVANT COURSEWOEK

- Data structures
- Programming design
- Operational research
- Machine learning
- University Physics
- Pattern recognition
- Computer graphic
- Reinforcement learning

EXPERIENCE

Chinese Academy of Sciences **Feb 2023 – Oct 2023**
Research intern *Xi'an, China*

- Supervised by **Prof. An Pan** from Pioneering Interdiscipline Center, State Key Laboratory of Transient Optics and Photonics, CAS.
- I undertook the task of improving Fourier Ptychography Microscope algorithm and helped the professor complete the experiment.
- A review article titled *Fourier ptychographic microscopy 10 years on: A review* will be published soon on *Cells* (JCR Q1, IF=7.67).

University of Houston & Washington State University **Aug 2023 – Present**
Research intern *Remote*

- Supervised by **Prof. Sen Lin** and **Prof. Honghao Wei** from University of Houston and Washington State University respectively.
- Combining jump start reinforcement learning and constrained reinforcement learning, the algorithm is designed and analyzed theoretically.

PROJECTS

Face super-resolution based on deep learning **May 2022 – May 2023**

- Participated in *National Training Program of Innovation and Entrepreneurship for Undergraduates.*
- Supervised by **Prof. Jingang Shi** from School of Software Engineering, Xi 'an Jiaotong University.
- We improved IDPT algorithm and build webdemo based on Flask and Ajax according to the algorithm to realize face detection, crop and super-resolution restoration of a given photo.

Four-wheeled robot with mechanical arms based on Mecanum wheel **Feb 2022 – Jun 2022**

- Supervised by **Prof. Jun Xu** from State Key Laboratory for Manufacturing System Engineering, school of Mechanical Engineering, Xi'an Jiaotong University .
- Participated in the design of the robot arm structure, and completed the modeling and simulation with SolidWorks. Use Matlab and Simulink to complete the simulation of the manipulator control, and tune PID control.

Information propagation in social networks based on independent cascade model **Apr 2023 – Jun 2023**

- Supervised by **Prof. Zhanbo Xu** from Ministry of Education Key Lab For Intelligent Networks and Network Security, school of Automation Science and Engineering, Xi'an Jiaotong University.
- For a given network and the number of nodes that want to propagate, a more efficient propagation simulation algorithm is designed by combining Monte Carlo algorithm and heuristic algorithm.
- This project and its report have been uploaded to Github.

Waveformer: A Transformer based EEG Sleep Stage Classifier **Oct 2023 – Nov 2023**

- Supervised by **Prof. Gang Wang** from The Biomedical-Information Engineering laboratory of State Ministry of Education, school of Life Science and Technology, Xi'an Jiaotong University.
- Combined with transformer, wavelet transform and convolutional autoencoder, EEG is used to classify sleep stages, and the classification accuracy reaches 75%.
- This project and its report have been uploaded to Github.

SKILLS

Technical Skills: Python (PyTorch, Numpy, Pandas, etc.), C/C++, Matlab, LaTeX, Git/GitHub, Linux, Altium Designer, SolidWorks
Language: Mandarin (Native speaker) and English (Advanced)