KERU CHEN

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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: 3.4/4.3*

RELEVANT COURSEWOEK

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

EXPERIENCE

University of North Carolina at Chapel Hill **Jan 2024 – Present**

Research intern

- Supervised by **Prof. Tianlong Chen** from Broad Institute of MIT and Harvard, who will soon join The University of North Carolina at Chapel Hill as an Assistant Professor of Computer Science.
- Focus on the emergent abilities in multi-modal large language models.
- Conduct relevant experiments and expect to produce conference papers.

University of Houston **Sep 2023 – Present**

Research intern

- Supervised by **Prof. Sen Lin** from University of Houston.
- Combine jump start reinforcement learning and constrained reinforcement learning and design and analyze the algorithm theoretically.
- Carry out related experiments and anticipate generating papers.

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.
- Undertook the task of improving Fourier Ptychography Microscope algorithm and helped the professor complete the experiment.
- Published review article titled *Fourier ptychographic microscopy 10 years on: A review* on *Cells* (JCR Q1, IF=7.67).

PROJECTS

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 deep learning and signal processing techniques, i.e. encoder block of Transformer, convolutional auto-encoder and wavelet transform to classify sleep stages using EEG, and reached a classification accuracy of 75% in a private dataset, the highest level in this course.
- This project and its report have been uploaded to Github.

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.
- Designed a more efficient propagation simulation algorithm by combining with Monte Carlo algorithm and heuristic algorithm according to the given network and the number of nodes required to be propagated.
- This project and its report have been uploaded to Github.

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

- Project description *National Training Program of Innovation and Entrepreneurship for Undergraduates.*
- Supervised by **Prof. Jingang Shi** from School of Software Engineering, Xi 'an Jiaotong University.
- Participate in designing and conducting experiments of IDPT algorithm, which published in IJCAI2022.
- Improved IDPT algorithm and build web-demo 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.
- Used MATLAB and Simulink to complete the simulation of the manipulator control and tuned PID control.

HONORS AND AWARDS

Mathematical modeling competition of Xi 'an Jiaotong University *Second Prize* **Aug 2022**

Second National Artificial Intelligence Knowledge Compitition for College Students *First Prize* **Jun 2022**

SKILLS

Language: Mandarin (Native speaker) and English (fluent)
Standard test: IELTS 6.5 test date 01/19/2024
Technical Skills: Python (PyTorch, Numpy, Pandas, etc.), C/C++, Matlab, LaTeX, Git/GitHub, Linux, Altium Designer, SolidWorks
Hobbies: Photography, Cuisine, Basketball