Jun Wang

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Education

University of California, San Diego   Jun.2024(Expected)
M.S. in Computer Science   *GPA: 4.0/4.0*
Relevant Courses: Recommender Sys & Web Mining(A+), ML in few Labels(A+), ML: Learning Algorithms(A+), Interpretable & Explainable ML(A+)
Teaching Assistant: Intro to Computer Architecture(140A), Principle of Computer Architecture(240A)

Zhejiang University   Jun.2022(Graduated)
B.E. in Computer Science and Technology & B.E. in Ocean Engineering and Technology   *GPA: 3.92/4.0 | Rank: 2/80*
Relevant Courses: Probability and Mathematical Statistics(100/100), University Physics (A) I (100/100)
Linear Algebra (A)(97/100), Computer Vision(97/100)

University of Illinois, Urbana-Champaign   July.2018-Aug.2018
Summer Program: Information Science & Engineering   *GPA: 4.0/4.0*
Relevant Courses: Artificial Intelligence Algorithms (A+), Network Analysis (A+)

Publication

- **CyberDemo: Augmenting Simulated Human Demonstration for Real-World Dexterous Manipulation**

  Jun Wang, Yuzhe Qin, Kaiming Kuang, Yigit Korkmaz, Akhilan Gurumoorthy,
  Hao Su, Xiaolong Wang   arXiv 2023 (Under Review)

Research Experience

Augmenting Simulated Human Demonstration for Real-World Dexterous Manipulation   Mar.2023-Now
Research Intern   *Advised by Prof. Xiaolong Wang | UC San Diego*

- Proposed Sensitivity-Aware Kinematics Augmentation to randomize object pose for human demonstration.
- Designed a novel approach to imitation learning that leverages simulated human demonstrations for real-world tasks.
- Developed an Auto Curriculum Learning algorithm for sim2real policy transfer, resulting in an impressive average performance improvement of 31.67% across various tasks, including pick and place, rotating, and pouring. This algorithm demonstrates enhanced generality, extending its effectiveness to previously unseen objects.

Zero-shot Singing Voice Synthesis   Mar.2023-Sep.2023
Research Intern   *Advised by Prof.Taylor Berg-Kirkpatrick | UC San Diego*

- Collected and processed singing data for various singers and trained a timbre encoder.
- Used Conditional Diffusion Models to generate a mel-spectrum and converted it to target speakers with a Singing Voice Synthesis backbone.

Automatic Speaker Verification Based on Deep Learning   Mar.2022-Jun.2022
Research Intern   *Advised by Prof. Yuexuan Wang | Zhejiang University*

- Extracted wav2vec deep network feature to replace the original MFCC feature input.
- Improved FullSubNet model by adding the complex part into the network and used it to depress the noise in the cn-celeb dataset and trained with ECAPA-TDNN model to improve the (equal error rate) EERs from 14.31% to 7.38%.

Multi-agent collaborative planning and formation   Sep.2020-Mar.2021
Research Intern   *Advised by Prof. Zheng Chen | Zhejiang University*

- Employed the follower kinematics model and artificial potential field method to design and enhance the formation algorithm for robots and further improved the algorithm's performance. This optimized algorithm was successfully implemented and tested on a group of robots within the laboratory setting.

Audiovisual Fusion   August.2020-Mar.2021
Research Intern   *Advised by Prof. Kejun Zhang | Zhejiang University*

- Extracted some high-level and low-level features of the personality and emotion of the users as well as selected music, and output what music to listen to for the music recommendation system with a transformer model.
- Developed the video-X platform, which can automatically learn, deduct and summarize, learn the chords, rhythm, and style of music, and predicted the direction of notes by using the optimized Transformer XL method and massive MIDI data, combined with the theory of music reasoning method.

Work Experience

Multi Speakers Diarization Based on Deep Learning   Jun.2022-Sep.2022

Research Scientist (Internship)   *Advised by Senior Engineer Jingsong Wang | 4Paradigm Inc., Beijing, China*

- Created a standard dataset labeled by mixing speakers' utterances to simulate the real conversation with different preset overlap rates, number of speakers, background noise, and reverberant sound.
- Developed a novel pipeline for Multi-Speaker Diarization, capable of handling recordings with a variable number of speakers and effectively addressing the permutation problem associated with the cluster method on long recordings.
- Utilized distributed data parallelism to train the model on our synthesized dataset and fine-tuned the model using real conversation data, resulting in notable improvements to the DER (Diarization Error Rates) both online and offline.
- Wined fifth in the ISCSLP 2022 (CSSD) competition with the model.

Projects

Course of Machine Learning for Robotics   Mar.2023

Multi-Level General Specialist Learning   *Pytorch, Sapien*

- Redefined the General Specialist on different levels: multi-objects, multi-tasks on one environment, and multi-tasks on different environments.
- Used SAC algorithm to pre-train a general model and then fine-tuned on different specialists.

Course of Underwater Robot Design   Mar.2023

Underwater Robot Navigation   *ROS, OpenCV, STM32*

- Utilized OpenCV in Raspberry Pi to do the OCR, obstacle avoidance, and route tracking under the water.
- Used STM32 to control the sensors and transfer the data to Raspberry Pi for calculation.

Course of Software Engineering   Nov.2021

Stock Trading Platform   *Django, MySQL, JavaScript, HTML/CSS*

- Developed and implemented four distinct sub-systems, namely the User module, Forum module, Transaction module, and Stock Information Retrieval Module. These sub-systems were seamlessly integrated into a website.
- Devised two modes for utilizing the platform. The first mode allows users to engage in simulated transactions using historical stock trading data. The second mode enables users to interactively visualize real-time stock trading data in a dynamic and engaging manner.

Course of Fintech   Sep.2020

Portfolio Management   *Pytorch, Flask, Mini SQL, Xgboost*

- Used scrapy, pandas, numpy to get the stock data and get some keywords from the news with jieba from the website, and pre-process the data. And analyzed the data and extracted the features to predict the up or down of the stock in the future in a week by using the XGBoost;
- Implemented Markowitz's portfolio strategy (MV), EG algorithm, and ONS algorithm to do the Portfolio Management with data we get from the website and visualized this using a website with flask.