王湘淳 Hsiang-Chun Wang

Research Interests: Computer Vision, Reinforcement Learning, Robotics, LLM

hsiang-chun-wang-8a4798269/
hsiangchun0205.github.io/
nathan.wang.company@gmail.com
+886 930216676

Education

M.S, Communication Engineering, National Taiwan University (NTU), Advisors: Shao-Hua Sun Sep 2022 - Jun 2024

B.S., Information Engineering, Shanghai Jiao Tong University (SJTU), Advisor: Jiaxin Ding Sep 2018 - Aug 2022

Research Projects

Diffusion Rewards Guided Adversarial Imitation Learning Apr 2023 - Present

`GenAI4DM Workshop at International Conference on Learning Representations (ICLR) 2024`

- Inspired by the recent dominance of diffusion models in generative modeling, this work proposes integrating a diffusion model into GAIL, aiming to yield more precise and smoother rewards for policy learning.
- Specifically, we propose a diffusion discriminative classifier to construct an enhanced discriminator; then, we design diffusion rewards based on the classifier's output for policy learning.

Diffusion Model-Augmented Behavioral Cloning | Project Page| Poster | Jun 2022 - Present

`Frontiers4LCD Workshop at International Conference on Machine Learning (ICML) 2023`

- This work aims to augment BC by employing diffusion models for modeling expert behaviors and designing a learning objective that leverages learned diffusion models to guide policy learning.
- We propose combining the diffusion model guided learning objective with the BC objective, which complement each other.

Engineering Projects

Automated Video Editing Oct 2021-Jun 2022

`Python/OpenCV/Pytorch/C3D(Convolutional 3D)/Git`

- Collected data and created an open-source tennis matches dataset.
- Trained a model to recognize tennis match behaviors for automated video editing.

Graph Neural Network for Trajectory Data Embedding Jul 2020 - Sep 2020

`Python/Pytorch/PCA(Principal Component Analysis)/DeepWalk/GNN(Graph Neural Network)/Git`

- Implemented PCA, Deepwalk, GCN, and VGAE for GPS trajectory data dimensionality reduction, to get the similarity-based embedding, which can be used for downstream tasks.

Autonomous Driving Team, Algorithm Group Aug 2019 - Dec 2020

`Python/OpenCV/C++/YOLO/SLAM/Git`

- Designed and built autonomous racing cars to compete on a track without human intervention, adhering to technical specs, safety rules, and competition guidelines, with challenges including speed and obstacle avoidance.

RoboMaster Robotics Team, Algorithm Group, Second Place in 2019 National Competition Dec 2018 - Sep 2019

`Python/OpenCV/C++/Eigen3/Camera Calibration/Git`

- Designed, built, and programmed robots to compete in various challenges, such as shooting projectiles at targets, navigating obstacles, and engaging in robot-to-robot combat.