Bowen Jiang | bjiang@g.hmc.edu
340 E Foothill Blvd, Claremont, CA 91711 | +1 909-319-557

EDUCATION

Harvey Mudd College, Claremont, CA
Expected, May 2022
B.S., Engineering; Concentration in Visual Arts.
GPA 3.69, Dean's List, 2018-2022

RELEVANT COURSEWORK

Discrete Math | Data Structures | Digital Elec & Computer Engineering | Advanced Lin Alg | Engr Math | Reinforcement Learning | Path Planning | State Estimation (Ongoing)

EXPERIENCE

Policy-Oriented Robotic Arm Picking, Institute of Automation, Chinese Academy of Science Sept 2020 – March 2021
Publication: First author (coauthor). *POIS: Policy-Oriented Instance Segmentation for Ambidextrous Robot Picking.* ICRA 2021. Website: https://bit.ly/3oJj8Tu.

- POIS Implementation – Implemented a PyTorch pipeline that generates a pair of target masks by fusing several network outputs.
- POIS Dataset – Generated a synthetic dataset of 6000 scenes using BlenderProc. The dataset features a variety of clutteredness and an equal distribution of graspable and suckable objects; designing a metric to select the best grasp pair.

Selective Reinforcement Learning Research, Harvey Mudd College (Advisor - Erin Talvitie) 2020 - Present
Utilizing the uncertainty in RL prediction models for selective, hence more efficient learning.

- Object-based Representations – Implementing a set network for object-based state input, adapted from PointNet and DSPN. It specifically addresses the permutation invariance and variable cardinality problem.
- Implementations & Framework – Atari Game for test platform. Implementing with PyTorch C++ frontend for the NN version, with Eigen for a deictic tree version.

Indoor Perception Corner Cases, Project Heimdall, Harvey Mudd College Engineering Clinic Sept 2021 – Present
Overcoming indoor perception corner cases. Developed under ROS2. Using LIO-SAM and ML vision learning algorithms on top of sensor fusion with radar, RGBD camera, Velodyne VLP LiDAR.

ML-based Hand Gesture Recognition Internship, Ioasonic, Chinese Academy of Science May 2020 – August 2020
A ML-based hand gesture recognition solution developed for laptops using ultrasonic signals.

- Audio Processing – Using RTAudio library for system-level audio IO and Eigen for SFT and audio feature extractions.
- NN Structure – Implementing VAD using biLSTM that take in variable lengths of signals to distinguish between noise and gestures, and finally feeding the features into a CNN.
- NN Runtime Development – Training in MATLAB, outputting and deploying in runtime. Comparing several frameworks (ONNX runtime, PyTorch C++, Tensoflow C API).

Robotics, First Robotics Competition 2014 - 2018

- Robot Coding - Mainly C++ and Java using FRC's official library WPLib. Object detection (OpenCV) with RaspberryPi. SLAM. Actuator PID tuning. Kalman filtering sensor signals.
- National Championship (CRC, China, Hangzhou) for 2017 and 2018

Graphic Designer, Zhennovate 2017 - 2018

- Designing for brochures and posters. Document and presentation layout.

SKILLS

Programming Languages: C++, Python, Matlab

Software: Solidworks, Blender, Adobe Photoshop & Premiere, Unreal, Quartus Prime

Others: ROS, Graphic Design

INTERESTS

Academic: Robotics | Path Planning | Motion Planning | SLAM | Reinforcement Learning

Others: Badminton | Illustration