JIAWEI LU

403 West 115th Street, Apt. 63A
New York, NY 10027

+86 18852002508
jl5999@columbia.edu

EDUCATION

Columbia University — New York, NY
Master of Science in Electronic Engineering — Expected Dec 2022
Overall GPA: 3.89/4.00 (by now)
Related Courses: Neural Networks & Deep Learning, Internet of Things, Reinforcement Learning, Operating Systems

Nanjing University — Nanjing, China
Bachelor of Science in Acoustics — Sep 2017 – Jun 2021
Overall GPA: 4.46/5.00
Honors and Awards: National Scholarship (8/600), Sep 2019

SKILLS

Programming	Python, Java, C++, C, SQL, MATLAB
Python Packages	TensorFlow, PyTorch, OpenCV, Pandas, Scikit-Learn, Keras
Cloud Services	Google Could Platform, Amazon Web Services

RESEARCH EXPERIENCE

Motion Planning in Understructured Road Environments with Stacked Reservation Grids — Feb 2020 – Oct 2021
Supervisor: Prof. Alexandre Bayen, University of California, Berkeley

- Used the Annotation Tool to select pixels in each frame of the video in the data set.
- Designed the corresponding algorithm to improve the picture stability.
- Used the Georeferencer plugin in QGIS and wrote Python script to achieve the correspondence between image pixel coordinates and QGIS coordinates, thus realizing image deformation and re-projection.
- Realized video stabilization by applying color detection to according program.

A Regional Intelligent Vehicle Dispatching Method for Intersections without Traffic Lights — Sep 2018 – Nov 2019
---National Undergraduate Innovation and Entrepreneurship Training Program
Supervisor: Associate Prof. Haibo Zhou, Nanjing University

- Took advantage of the CNN to predict future traffic flow information.
- Planned the path in stages based on the idea of rasterization and optimal path algorithm according to the prediction of future traffic flow and the real-time change of traffic flow, so as to realize the effect of dynamic path planning.
- Showed the whole scheme in the form of video based on U3D through writing C# script to produce animation effect.

COURSE PROJECTS

Improvements of Active Object Localization with Deep Reinforcement Learning — Dec 2021

- Replaced feature extractor part of Q-Network with several advanced CNN network in state space.
- Proposed a more flexible 25-action model and used extra trigger training to avoid the unbalance of trigger samples.
- Changed reward function to avoid undesired activity in agent.
- Improved Inhibition of Return mechanism by a new prediction algorithm for multiple objects.

A New Backbone for Hyperspectral Image Construction and Improvement based on Mask Mixture Training and Energy Normalization — Dec 2021

- Implemented a modified version of U-Net named SSI-ResU-Net.
- Utilized Mixed Training and Energy normalization to improve the accuracy of prediction.

PUBLICATION

Fangyu Wu, Dequan Wang, Minjune Hwang, Chenhui Hao, **Jiawei Lu**, Trevor Darrell, and Alexandre Bayen. Motion Planning in Understructured Road Environments with Stacked Reservation Grids. IEEE International Conference on Robotics and Automation 2020 (PAL 2020 ICRA)