HAIYANG YU

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EDUCATION

Cornell University Aug. 2021 - Dec. 2022
M.Eng. Electrical and Computer Engineering *GPA: 4.1/4.0*

Harbin Institute of Technology Sept. 2017 - July 2021
B.Eng. Automation *GPA: 89.2/100*

University of California, San Diego Aug. 2019 - Dec. 2019
Exchange Student, Electrical and Computer Engineering *GPA: 3.9/4.0*

- **Core courses:** *Network Systems and Games; Robot Perception; Embedded Operating Systems; Linear Systems Fundamentals; Introduction to Autonomous Vehicles; C Programming Language; Introduction to Intelligent Control; Innovation training: static optimization method; Fundamental of Robotics;*

TECHNICAL STRENGTHS

Simulation	Matlab/Simulink, Carsim
Programming language	Python, C++, C, Lingo, Mathematica
Mechanical design	AutoCAD, Solidworks

PROJECT EXPERIENCE

Trajectory Planning for Vehicle Collision Avoidance Mar. 2020 - July 2021
Harbin Institute of Technology

- Designed a trajectory planner based on ameliorated Theta* algorithm to conduct autonomous vehicles in a dynamic uncertain environment and avoid collisions with unpredictable moving obstacles.
- Generated an adaptive-MPC based control system for trajectory tracking and simulated the controller in complex scenarios by Simulink/Carsim co-simulation.
- Gave a presentation to show the performance improvement of our approach at IEEE ICPS 2021

Small Autonomous Car Performed on Simulated Tracks Sept. 2019 - Dec. 2019
University of California, San Diego

- Designed a mini self-driving car and programmed it by Python in Linux environment.
- Constructed the car by 3D printer and laser cutter. Applied LIDAR for distance measurement, designed an ACC controller to follow moving target. Utilized the YOLO network for traffic sign detection.
- The detector got 98% recognition accuracy. The ML tracker got 99.5% accuracy on unknown lanes.

Motion Sensing Game Sep. 2021 - Dec. 2021
Cornell University

- Designed a motion sensing game running on Raspberry Pi by PyGame package of Python in Linux environment. Implement OpenCV package, dlib package and IMU sensor.
- Analyzed player expression by pre-trained face segmatation model. Created a real-time data processing algorithm to Measure player motion.
- Generated a game machine which contains multiple functions under the funding limitation.

Automobile Anti-Locking System Based on Carsim-Simulink Jan. 2019 - May 2019

- Simulated movement of the automobile by Carsim Simulink co-simulation.
- Presented at the 12th student academic forum of HIT with this paper and got the first prize.

PUBLICATIONS

***H. Yu**, X. Wang and W. Sun. An Improved Theta*-based Trajectory Planner for Autonomous Vehicle With Obstacle Avoidance. IEEE ICPS 2021*

***H. Yu** and J. Liu. Research on Simple Automobile Anti-locking System Based on Carsim-Simulink. Journal of Harbin Institute of Technology*

AWARDS

Interdisciplinary Contest in Modeling	Honorable Mention
China Undergraduate Mathematical Contest in Modeling	First prize in the province
Excellent Student Leader	college level
Second-class Scholarship for Outstanding Students	top 10% of students