Jiahe Xu

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Educational Background:

- **Johns Hopkins University** *08/2020 – 05/2022(expected)*
  Whiting School of Engineering, Robotics MSE ***Cumulative GPA: 3.9/4***
- **Jilin University** *09/2016 - 07/2020*
  Tang Ao-qing Honors Program in Computer Science ***Cumulative GPA: 89/100 3.6/4***
- **Massachusetts Institute of Technology** *08/2019*
  2019MIT Machine Learning & Artificial Intelligence Short Course ***Course Grade: 91.5/100***

***Github**: https://github.com/JiaheXu*
(Personal codebase, includes course projects and useful materials)
***CSDN**: https://blog.csdn.net/EOD_realize*
(A blog of code notebook back to high school, the click number is over 200K)

Interested Area:

Reinforcement Learning, Optimal Control, Motion Planning, MPC, Deep Learning, Meta-Learning, Computer Vision.

Professional Skills:

Programming Languages: C/C++, Java, Python, Matlab, Simulink, Julia, Javascript, PHP, VHDL.
Familiar with Linux, Windows, Mac OSX, SpringBoot, ROS, MySQL, Pytorch & Tensorflow.
Worked with UR5, Jackal, TurtleBot, PX4, RaspberryPi.
Hands-on experiences with RGB, RBG-D, Lidar, IMU, Point Cloud data.

Research Experiences:

Research on Unmanned Aerial Vehicle: Pick-and-Place task with UAV
Research Assistant Dept. of ME, JHU ASCO Lab Director: Prof. Marin Kobilarov 09/2021-now

- Created an interactive visualization framework of debugging, optimizing, and state-checking. Implemented a GUI to represent the state of *UAV(PX4)* with Qt and QcustomPlot.
- Took part in constructing the simulation environment in Gazebo.
- Implemented pick-and-place test routines and calibrations (camera & position estimator) in Gazebo.
- Deployed CNN to predict waypoints and used MPC for local trajectory planning.

Research on Intelligent Pressure Control Ventilator
Research Assistant Dept. of AMS Director: Prof. Antwan D Clark 09/2021-now

- Implemented a mathematical lung model and Pressure Control Ventilator in Simulink
- Designed an evaluation metric for the Reinforcement Learning agent's behavior (reward function)
- Applied DQN to train a professional controller for the intelligent ventilator machine.
- Designing new methods of measuring the ventilator controller's action.

Research on Data Augmentation (DA) in CNN
Research Assistant Dept. of CS, Jilin University Director: Prof. Lan Huang 07/2019-09/2019

- Implemented different types of DA methods (geometric and photometric) in different tasks.
- Applied Camera imaging Characteristics-based DA methods in different tasks and different datasets (KITTI COCO CIFAR-10 CIFAR-100)
- Compared the combination of DA methods and their effects on imbalanced datasets and simple CNN models

Core courses (Control and Machine Learning related):

JHU: Nonlinear Control and Planning in Robotics, Applied Optimal Control, Computer Vision, Nonlinear Optimization I & II, Machine Learning: Advanced Topics, Deep Learning, Deep Reinforcement Learning.

Teaching experience: *Jilin University EECS department 09/2020 – 06/2021*

Teaching Assistant of course "Data structure" 2020 Fall.
Teaching Assistant of course "Machine Learning and Python" 2021 Spring.