Wei Du

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EDUCATION

Carnegie Mellon University (CMU) (to be expected in 05/2019) 08/2017-05/2019
- MS in Mechanical Engineering
- GPA: 3.89/4.0

Shanghai Jiaotong University (SJTU) 01/2016-07/2016
- Mechanical Engineering (Joint Program)
- GPA: 3.83/4.3

Harbin Institute of Technology (HIT) 08/2013-06/2017
- BEng in Mechanical Design, Manufacturing and Automation
- GPA: 3.76/4.00

RESEARCH & PROJECTS

Cruzr Project -- Search-based Planning Lab (CMU) 10/2018-Present
- In charge of SLAM and Navigation for Cruzr humanoid robot.
- Organizing pipeline between planning and SLAM.

Planning using soft duplicate detection -- Search-based Planning Lab (CMU) 12/2017-Present
- Exploring planning algorithm in continuous state space with soft duplicate detection scheme.
- Implementing machine learning techniques in penalizing states and map pattern recognition.
- Applied several different planning algorithms as baseline for the analysis of my algorithm.
- Wrote a program in visualizing planning process.

Hand written Chinese Character Recognition -- Pattern Recognition Theory (CMU) 09/2018-12/2018
- Implemented CNNs in recognizing hand written Chinese Characters.
- Implemented decision trees in recognizing hand written Chinese Characters.

Flight control simulator with OpenGL-- Engineering Computation (CMU) 10/2017-12/2017
- Built flight control simulator graphics using OpenGL library.
- Taken care of UIs and Inputs from devices.
- Built 2D and 3D graphics model .png file and .stl file APIs.

***Leader*, Quad-rotor Trajectory Optimization -- the Robotics Institute (SJTU)** 05/2016-06/2016
- Being responsible for quad-rotor trajectory planning with dynamic constraints by using optimization techniques.
- Adopted differential smoothing algorithm to reduce jitter.
- Adopted DDP algorithm for optimization with nonlinear constraints.

***Leader*, National College "Freescale Cup" Smart Car Contest (HIT)** 09/2014-04/2015
- Applied PID controller (3 feedback loop) for the car motor.
- Implemented Kalman filter for localization.
- Using Labview software to simulate and analyze the performance of the smart car.

PUBLICATIONS

- Wei Du, Sung-Kyun Kim, Oren Salzman and Maxim Likhachev. (under review). Efficient Search-Based Kinodynamic Planning using Soft Duplicate Detection. (IROS)
- Wei Du and Yingxiang Liu. (2017). *Design on Test System and Experimental Research of Foot Piezoelectric Ultrasonic Motor*. Graduation Thesis, School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China.

SKILLS

- Language: Chinese, English
- Programming: C\C++, Java, Python, MATLAB
- Operation System: Linux, MacOS
- Extra skills: ROS, LabView
- Interest: Chinese brush writing, biking, fishing

RELATED COURSEWORK

- Data Structures and Algorithms for Engineers;
- Engineering Computation;
- Advanced Engineering Computation;
- Planning Techniques for Robotics;
- Java for Application Programmers;
- Pattern Recognition Theory;
- Bayesian Machine Learning for Scientists and Engineers;
- Robot Localization and Mapping;
- Engineering Optimization;