Wei Du

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EDUCATION

Carnegie Mellon University (CMU) 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 EXPERIENCE

Multi-Resolution A* Algorithm -- Search-based Planning Lab (CMU) 04/2019-Present
- Research on leveraging search-based planners with multiple resolution action space to speed up the search and increase the success rate of planners.

Walker Project -- Search-based Planning Lab (CMU) 04/2019-Present
- Implementing SLAM algorithms on Walker robot for its indoor navigation.
- Implementing planning algorithms on Walker robot for manipulation.
- Organizing vision-planning-grasping pipeline for grasping tasks on conveyor.

Cruzr Project -- Search-based Planning Lab (CMU) 10/2018-04/2019
- Responsible for SLAM module on Cruzr humanoid robot.
- Organizing pipeline between planning and SLAM.

Planning Using Soft Duplicate Detection -- Search-based Planning Lab (CMU) 12/2017-02/2019
- Exploring planning algorithm in continuous state space with soft duplicate detection scheme.
- Implementing machine learning techniques in penalizing states and map pattern recognition.
- Wrote a program in visualizing planning process.

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.

Small Wheeled Jumping Robot -- Lab of Advanced Actuation Technologies (HIT) 08/2015-01/2016
- Designed cellular wheel structure force analysis.
- Completed circuit design of single chip microcomputer based on STM32 minimum system board.
- PID controller implementation.

National College "Freescale Cup" Smart Car Contest 09/2014-04/2015
- Applied PID controller, Kalman filter and used Labview software to simulate and analyze the performance of the smart car.

COURSE PROJECTS

Power plant Substation-to-feeder Path Prediction -- Bayesian Machin Learning 02/2019-05/2019
- Worked with Kevala company on predicting feeder-path endpoints by CNNs.
- Employed motion planning algorithms in generating the substation-to-feeder paths.

Offline Hand-written Chinese Characters Recognizing -- Pattern Recognition Theory 09/2018-12/2018
- Implemented CNNs in recognizing hand-written Chinese characters.
- Implemented decision-trees, SVM to as baselines against CNNs in recognizing hand-written Chinese characters.

Inserting a curve into an Existing Two Dimensional Mesh -- Advanced Engineering Computation 03/2018-05/2018
- Working on 2D mesh loading and rendering with OpenGL Library.
- Reproduce the work of one research paper about inserting a curve into one mesh figure in order to increase the smoothness on the edges between different components of this figure.

Aviation Game -- Engineering Computation 09/2017-12/2017
- Designed a GUI for an aviation simulator.
- Achieved the basic functionality of an aviation game including control of airplane based on kinematics and dynamics.

ACTIVITES

Visitor, HIT Robot Group 07/2015
- Technical communications on combination of production and academia research about industrial robots.

Volunteer, HIT Library 02/2014-07/2014
- Provided services to students.
- Worked with the librarian to organize books.

Member, Charitable Association to Transmit Childhood 09/2013-01/2014
- Organized and participated in public service activities for children with autism.
- Being responsible for designing activities and games that benefits mental health in autistic children.

HONORS & AWARDS

- People's Scholarship in China for three consecutive years 12/2013-12/2015
- SMC Scholarship 09/2015
- 2nd Prize in National College "Freescale Cup" Smart Car Contest 04/2015
- Shanghai Huiyi Scholarship 09/2014
- 2nd Prize in annual project at HIT 09/2014

PUBLICATIONS

- Wei Du, Fahad Islam and Maxim Likhachev. ***Multi-Resolution A****. (under review)
- Wei Du, Sung-Kyun Kim, Oren Salzman and Maxim Likhachev. ***Escaping Local Minima in Search-Based Planning using Soft Duplicate Detection***. (IROS 19')
- Wei Du and Yingxiang Liu. (2017). Design on Test System and Experimental Research of Foot Piezoelectric Ultrasonic Motor. School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China.

SKILLS

- Programming: C\C++, Java, Python, MATLAB
- Operation System: Linux, MacOS

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;