WEI DU

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EDUCATION

Carnegie Mellon University (CMU) *08/2017 - 05/2019*
- M.S. in Mechanical Engineering
- GPA: $3.89/4.0$

Shanghai Jiao Tong University (SJTU) *02/2016 - 06/2016*
- 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) *06/2019 - Present*
- Research on executing multiple searches simultaneously in search-based planning to explore search spaces with different resolutions.
- Exploited different scheduling policies.
- Highly increased the success rate of planners and accelerated the search drastically.

Walker Project – Search-based Planning Lab (CMU & UBTech Inc.) *04/2019 - Present*
- Customized SLAM algorithms for Walker robot to assist its indoor navigation.
- Implemented ARA* algorithm on Walker robot for manipulation tasks.
- Constructed perception-planning-grasp peipeline for grasping tasks, e.g., grasp a box from conveyor.

Cruzr Project – Search-based Planning Lab (CMU & UBTech Inc.) *10/2018 - 04/2019*
- Responsible for SLAM module on Cruzr humanoid robot.
- Constructed a state machine coordinating planning and SLAM.
- Constructed local controllers to execute plans from planner.

Planning Using Soft Duplicate Detection – Search-based Planning Lab (CMU) *12/2017 - 02/2019*
- Explored search-based planning approaches in continuous state space with soft duplicate detection scheme.
- Implemented machine learning techniques in prioritizing states and map pattern recognition.
- Built a program in visualizing planning process.

Quad-rotor Tajectory Optimization – the Robotics Institute (SJTU) *05/2016 - 06/2016*
- In charge of 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 for the robot and conducted force analysis on it.
- Completed circuit design of single chip microcomputer based on STM32 minimum system board.
- PID controller implementation.

Nation College "Freescale Cup" Smart Car Contest *09/2014 - 04/2015*
- Applied PID controller and used Labview software to simulate and analyze the performance of the smart car.
- Applied Kalman filter to process magnetic field signals thus localizing the smart car in real-time.

COURSE PROJECTS

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

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

Inserting A Curve Into Mesh – Advanced Engineering Computation *03/2018 - 05/2018*
- Work on 2D mesh loading and rendering with OpenGL Library.
- Reproduced 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 model of an airplane based on kinematics and dynamics.

ACTIVITIES

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

Volunteer, HIT Library *02/2014 - 07/2014*
- Provided consultation services to students.
- Worked with librarians on book organization system.

Member, Charitable Association to Transmit Childhood *09/2013 - 01/2014*
- Planned and participated in public service activities for children with autism.
- In charge of designing activities and games that benefits the mental health of autistic children.

HONORS & AWARDS

- People's Scholarship in China for three consecutive years *12/2013 - 12/2015*
- SMC Scholarship *09/2015*
- 2nd Prize in Nation 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.