

## EDUCATION

<b>Carnegie Mellon University (CMU)</b>	08/2017-05/2019
<ul style="list-style-type: none"> <li>MS in Mechanical Engineering</li> <li>GPA: 3.89/4.0</li> </ul>	
<b>Shanghai Jiaotong University (SJTU)</b>	01/2016-07/2016
<ul style="list-style-type: none"> <li>Mechanical Engineering (Joint Program)</li> <li>GPA: 3.83/4.3</li> </ul>	
<b>Harbin Institute of Technology (HIT)</b>	08/2013-06/2017
<ul style="list-style-type: none"> <li>BEng in Mechanical Design, Manufacturing and Automation</li> <li>GPA: 3.76/4.00</li> </ul>	

## RESEARCH EXPERIENCE

<b>Multi-Resolution A* Algorithm -- Search-based Planning Lab (CMU)</b>	04/2019-Present
<ul style="list-style-type: none"> <li>Research on leveraging search-based planners with multiple resolution action space to speed up the search and increase the success rate of planners.</li> </ul>	
<b>Walker Project -- Search-based Planning Lab (CMU)</b>	04/2019-Present
<ul style="list-style-type: none"> <li>Implementing SLAM algorithms on Walker robot for its indoor navigation.</li> <li>Implementing planning algorithms on Walker robot for manipulation.</li> <li>Organizing vision-planning-grasping pipeline for grasping tasks on conveyor.</li> </ul>	
<b>Cruzzr Project -- Search-based Planning Lab (CMU)</b>	10/2018-04/2019
<ul style="list-style-type: none"> <li>Responsible for SLAM module on Cruzzr humanoid robot.</li> <li>Organizing pipeline between planning and SLAM.</li> </ul>	
<b>Planning Using Soft Duplicate Detection -- Search-based Planning Lab (CMU)</b>	12/2017-02/2019
<ul style="list-style-type: none"> <li>Exploring planning algorithm in continuous state space with soft duplicate detection scheme.</li> <li>Implementing machine learning techniques in penalizing states and map pattern recognition.</li> <li>Wrote a program in visualizing planning process.</li> </ul>	
<b>Quad-rotor Trajectory Optimization -- the Robotics Institute (SJTU)</b>	05/2016-06/2016
<ul style="list-style-type: none"> <li>Being responsible for quad-rotor trajectory planning with dynamic constraints by using optimization techniques.</li> <li>Adopted differential smoothing algorithm to reduce jitter.</li> </ul>	
<b>Small Wheeled Jumping Robot -- Lab of Advanced Actuation Technologies (HIT)</b>	08/2015-01/2016
<ul style="list-style-type: none"> <li>Designed cellular wheel structure force analysis.</li> <li>Completed circuit design of single chip microcomputer based on STM32 minimum system board.</li> <li>PID controller implementation.</li> </ul>	
<b>National College "Freescall Cup" Smart Car Contest</b>	09/2014-04/2015
<ul style="list-style-type: none"> <li>Applied PID controller, Kalman filter and used Labview software to simulate and analyze the performance of the smart car.</li> </ul>	

## COURSE PROJECTS

<b>Power plant Substation-to-feeder Path Prediction -- Bayesian Machine Learning</b>	02/2019-05/2019
<ul style="list-style-type: none"> <li>Worked with Kevala company on predicting feeder-path endpoints by CNNs.</li> <li>Employed motion planning algorithms in generating the substation-to-feeder paths.</li> </ul>	
<b>Offline Hand-written Chinese Characters Recognizing -- Pattern Recognition Theory</b>	09/2018-12/2018
<ul style="list-style-type: none"> <li>Implemented CNNs in recognizing hand-written Chinese characters.</li> <li>Implemented decision-trees, SVM to as baselines against CNNs in recognizing hand-written Chinese characters.</li> </ul>	
<b>Inserting a curve into an Existing Two Dimensional Mesh -- Advanced Engineering Computation</b>	03/2018-05/2018
<ul style="list-style-type: none"> <li>Working on 2D mesh loading and rendering with OpenGL Library.</li> <li>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.</li> </ul>	
<b>Aviation Game -- Engineering Computation</b>	09/2017-12/2017
<ul style="list-style-type: none"> <li>Designed a GUI for an aviation simulator.</li> <li>Achieved the basic functionality of an aviation game including control of airplane based on kinematics and dynamics.</li> </ul>	

## ACTIVITIES

<b>Visitor, HIT Robot Group</b>	07/2015
<ul style="list-style-type: none"> <li>Technical communications on combination of production and academia research about industrial robots.</li> </ul>	
<b>Volunteer, HIT Library</b>	02/2014-07/2014
<ul style="list-style-type: none"> <li>Provided services to students.</li> <li>Worked with the librarian to organize books.</li> </ul>	
<b>Member, Charitable Association to Transmit Childhood</b>	09/2013-01/2014
<ul style="list-style-type: none"> <li>Organized and participated in public service activities for children with autism.</li> <li>Being responsible for designing activities and games that benefits mental health in autistic children.</li> </ul>	

## HONORS & AWARDS

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| • 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

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- 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. Graduation Thesis, School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China.

## SKILLS

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

## RELATED COURSEWORK

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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;