

# Zhaoliang ZHENG

+1-(858)228-7972 | zh503@eng.ucsd.edu

Box 1133, 3869 Palmilla St., San Diego, CA 92092, U.S.A.

## EDUCATION BACKGROUND

### **University of California, San Diego**

*September 2017-June 2019*

MS in Mechanical and Aerospace Engineering, expected September 2019

Cumulative GPA: 3.71/4.00

ECE-related courses: ECE 228:ML for Physical Applications, MAE 247:Coop Control/Multi-Agent System

### **Dalian University of Technology (DUT)**

*September 2013 –June 2017*

BE in Processing Equipment and Control Engineering

Cumulative GPA: 3.50/4.00

## RESEARCH EXPERIENCE

### **Bio-inspired robot program (projected-based course)**

*March 2018-June 2018*

- Programmed in python, and simulated the motion process for control endpoints of robots' legs
- Designed the mechanical structures for the robot, and assembled the robot
- Made adjustments and improvements to resolve the structural defects for the robot
- Conducted programming for the robot

### **Human Frontier program**

*March 2018-June 2018*

- Build 3D models for scanned pictures with Agisoft PhotoScan
- Prepared manual for end-users on using Agisoft PhotoScan to build 3D model for stumps
- Tested the influences of different imaging qualities on 3D modeling
- Inspired by GPS and found an innovative and effective approach to calculate the minimum scanned pictures required for 3D modeling

### **Project-Based Machine Learning Research Program—Fake News Detection**

Team Leader

*January 2018-April 2018*

- Conducted hyper-tuning to choose a set of optimal hyper-parameters for the model of the classifier
- Processed news through integrating multiple Natural Language Processing methods, including text: doc2vec+title: word2vec,extended doc2vec, and TF-IDF+doc2vec
- Prepared the whole pipeline to process and classify original material of news

### **Ships Identification in Satellite Images (Machine learning project-based course)**

Team Leader

*March 2018-June 2018*

- Processed image data through multiple classifiers, including: XGBoost, random forest, Convolutional Neural Network with Stochastic Gradient Descent
- Compared different methods and their results
- Completed the design for the Poster, and drafted key parts of the research paper

### **Color Segmentation and Barrel Detection**

*January 2019-February 2019*

- Hand-label program design to label training data from the pictures
- Color segmentation using self-developed logistic regression and Gaussian Mixture Models (EM algorithm and K-mean algorithm)
- Using color information and refined mask to do barrel detection

### **Particle Filter SLAM**

*February 2019-March 2019*

- Multiple data combination and sensors data synchronization
- Mapping based on laser scan and make sure the transforms are correct
- Particle filter algorithm, includes prediction step and update step.
- Texture map based on RGBD sensor and the occupancy grid map generated by particle filter.

### **Path Planning Algorithm on Beagle Bone Platform**

*January 2019- Now*

- Finished mechanical design for Edu Rover
- Get the tracking system up and running
- Transporting signal back and finish MATLAB data streaming

### **Target-oriented UAVs Auto-control based on 3D Point Cloud Map**

*September 2018- Now*

- Finished Target-oriented RRT algorithm
- The algorithm has been tested in 3D point cloud map
- Working on the UAVs simulation

### **Patent**

Multifunctional Doula Chair for pregnant woman (designed and modeled with Inventor)  
Application has been approved by State Intellectual Property Office of the P.R.C in 01/04/2019

### **Thesis**

Position and attitude control of ROV based on dynamic positioning system

- Published in Dalian University of Technology in July. 2017, DUT Outstanding Undergraduate Thesis, p118

Missile Control Design

- To be submitted to EI International Conference in 12/2018

### **HONORS AND AWARDS**

**Outstanding Undergraduate Thesis**, DUT (3% of all the DUT students)

*June 2017*

**Academic Excellence Scholarship** 2015-2016 (15% of all the DUT students)

*October 2016*

**First Prize**, 2016 Mathematical Contest in Modeling ( 5% of all the Contestants)

*February 2016*

**Scientific Innovation Scholarship** 2014-2015 (4% of all the DUT students)

*October 2015*

### **SKILLS AND QUALIFICATIONS**

- **Programming Language**— C Language (5 years), python, Matlab (4 years)
- **Mechanical Design Software**— Inventor 3D (6 years), CAD (6 years), Solidworks (3 years)
- **Simulation Software**— Simulink(4 years), V-REP
- **Motion Tracking system**— VICON Tracker, OptiTrack
- **3D Images Software**— Agisoft photscan, Max Misher, VISCORE Viewer
- **3D Printing technique**— G-code generation, Ultimaker series 3D printers
- **Images/Video Post-processing**— Photoshop (6 years), Lightroom (5 years), Premiere (6 years), AE
- **Qualifications**— CLAD (Certified LabVIEW Associate Developer), Open-Water Diver (OWD)