# Changqing Lu

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## OBJECTIVE

**Short-term**
Actively pursuing an internship or full-time position in autonomous / electric vehicle industry.

**Long-term**
Engineering towards sustainable development of the world.

## EDUCATION

### STANFORD UNIVERSITY
MS in Mechanical Engineering
Expect Grad. Dec 2021 | Stanford, CA
Current GPA: 3.78/4.3

### UNIVERSITY OF MICHIGAN, ANN ARBOR
BS in Aerospace Engineering
Grad. Apr 2019 | Ann Arbor, MI
Cum. GPA: 3.94 / 4.0

### SHANGHAI JIAO TONG UNIVERSITY
UM-SJTU Joint Institute
BS in Mechanical Engineering
Grad. Aug 2019 | Shanghai, China
Cum. GPA: 3.76 / 4.0

## COURSEWORK

### GRADUATE
Advanced Robotics Manipulation
Machine Learning
Robot Autonomy System
Optimal and Learning Based Control
Computer Vision
Vehicle Dynamics and Control
Algorithm Design and Analysis

### UNDERGRADUATE
Aircraft Design
Aerodynamics
Fluid Mechanics
Computational Method in Aerospace Engineering
Spacecraft Dynamics
Design and Manufacturing
Solid Mechanics
Thermodynamics
Heat Transfer

## SKILLS

Matlab • Python • C++
ROS • Solidworks • CATIA • NX

## PROJECT

### TURTLEBOT SELF-DRIVING IN URBAN ENVIRONMENT
Team Member | Sep 2019 - Present | Stanford, CA

- Implemented robot autonomy techniques such as localization, SLAM on TutleBot in a simulation environment Gazebo
- Extensive ROS application and Python programming

### COMPUTER VISION FOR AUTONOMOUS VEHICLES
Team Member | Sep 2019 - Present | Stanford, CA

- Initial idea: CNN application on night time pedestrian detection under complex illumination situations
- Extensive Python programming and application of tensorflow

### STANFORD NIKI VEHICLE DYNAMICS AND CONTROL
Team Member | May 2019 | Stanford, CA

- Developed the PID solution for MATLAB control program for Niki
- Vehicle dynamic simulation performance reached all project requirements

### CONTROLLABLE ROTATION OF ELECTROMAGNETICALLY LEVITATED OBJECT
Team Member | May 2019 - Aug 2019 | Shanghai, China

- Generated the final solution concept
- Manufactured the prototype
- Designed and tested of the PID rotation control system (Arduino)

### SHORT-DISTANCE ELECTRIC AIRPLANE PRELIMINARY DESIGN AND OPTIMIZATION
Team Member | Sep 2018 - Dec 2018 | Ann Arbor, MI

- Preliminary theoretical aerodynamic analysis using AVL
- Completed the optimization Python framework for the engineering parameters
- Validated parameters with aerodynamic analysis of wing area

### MACHINE LEARNING ON AIRFOIL TRANSITION AND SEPARATION LOCATION
Individual Project | Sep 2018 - Dec 2018 | Ann Arbor, MI

- Integrated Xfoil with python for airfoil training data collection
- Used tensorflow package to predict the airfoil friction coefficient curves
- Extensive Python Programming

## ABOUT ME

**Personality**
Strongly-motivated • Responsible • Self-disciplined • Perseverant • Good listener • Team player • Curiosity

**Interests**
Food • Cooking • Photography • Films

**Career Planning**
Working towards building a career in autonomous vehicle / electric vehicle industry. Eager to enter the future of automotive industry because I want to contribute to the sustainable development of the world.