

# Changyi Lei

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29 Haidian Sanxi Road, Meilan District, Haikou City, Hainan Province, 570209, China

## **EDUCATION**

### **Beihang University**

09/2016-07/2020

- Bachelor of Engineering in Mechanical Engineering

## **STANDARDIZED TESTS**

**TOEFL:** 109 (R: 30; L: 28; S: 23; W: 28)

03/23/2018

**IELTS:** 7.5 (R: 8.5; L: 8.0; S: 7.0; W: 6.0)

09/05/2018

**GRE:** 328 (V: 159; Q: 169; AW: 3.0)

05/20/2018

## **RESEARCH EXPERIENCE**

### **Graduation Project, Intelligent Machine Design and Control Laboratory**

12/2019-06/2020

**Advisor:** Professor Yang Yang

**Project:** Construction and Implementation of Software Control Platform for Ophthalmic Operation Robot Based on ROS, originated from National Natural Science Foundation of China (51875011), and National Major R&D Project (2017YFB1302702). GitHub link: [https://github.com/AndyRay1998/eye\\_operating\\_system](https://github.com/AndyRay1998/eye_operating_system)

#### **Responsibility:**

- Established ROS workspace and packages
- Conducted data communication and processing between four devices
- Sent the command and retrieved the data from hardware devices
- Designed user interface
- Completed the calculation of Jacobian matrix and kinematics as well as related programming

### **College Students' Innovation and Entrepreneurship Training Plan Program**

03/2018-03/2020

**Advisor:** Associate Professor Meiqing Wang

**Project:** Design of a Hand Gesture Controlled Multi-functional Quadcopter

#### **Responsibility:**

- Designed the overall structure of the quadcopter
- Wrote the core control code, including transformation, movement in air as well as on land mode, and gestures recognition code
- Controlled the whole progress and the organization of this project
- Looked up assays about Bluetooth, drone control and serial communication

#### **Innovation:**

- Implemented the recognition and control of gestures through written deep learning framework
- Adopted no wheel hub design and ducted design to achieve the organic transformation of land and air

### **Research Assistant, Industrial Design Laboratory**

07/2018-03/2019

**Advisor:** Associate Professor Jinsheng Ma

**Project:** Application of Satellites and Unmanned Aerial Vehicles in National Environmental Protection and Flood Control and Disaster Relief in Lanmei Basin, supported by 2018 Lancang-Mekong River Cooperation Special Fund

#### **Responsibility:**

- Took charge of organizing the conference and assigning the task
- Designed and produced a website with Dreamweaver
- Wrote the code of picture processing based on Matlab
- Designed and modeled the connecting mechanism of the satellite camera

### **Relevant Course Projects**

Design of an Automatic Water Pouring Machine Based on Computer Vision Recognition	03/2019-06/2019
Design of an Industrial Attitude Transformation Mechanism	02/2019-06/2019

### **INTERNSHIP**

**Student, State Key Laboratory of Software Development Environment, Beihang University**

07/2019-08/2019

#### **Responsibility:**

- Tested the accuracy of 2D pictures recognition code based on deep learning network
- Learned the structure, construction, test and other basic knowledge about deep learning and reinforcement learning
- Performed independent code practice of the construction and training of simple models (including Linear Regression, Logistic Regression, K-mean, Value Iteration, Policy Iteration, Sarsha, Qlearning, Rccurrent Network and so on)
- Grasped relevant softwares and systems of machine learning (Linux and Anaconda)

**Technician, Beijing Jingdiao Group Co.,Ltd.**

07/2019

#### **Responsibility:**

- Designed formulas and fingertip gyroscopes in CAD softwares
- Manufactured formulas and fingertip gyroscopes in Jingdiao's machine tools
- Assembled Jingdiao's typical workpieces

### **EXTRACURRICULAR ACTIVITIES**

Participant of the "Fengru Cup" Competition of Beihang University	05/2019
Participant of China-ASEAN Beidou Satellite System Application Research and Seminar	12/2018
Volunteer, the National Centre for the Performing Arts of China	11/2016
Volunteer, Beijing Olympic Park	11/2016
"Zero to Hero", Local Volunteer, Association Internationale des Etudiants en Sciences Economiques et Commerciales (AIESEC)	07/2017-08/2017
"Health Care", International Volunteer, Association Internationale des Etudiants en Sciences Economiques et Commerciales (AIESEC)	01/2017-02/2017
Volunteer, the Paleozoological Museum of China	12/2016-01/2017
Volunteer, the Family Classroom for Disabled Children Project	10/2016-12/2016
Officer, the Activities Department of Students' Union of Beihang University	09/2016-02/2017

### **HONOR & AWARD**

Third Prize in the Thirty-fourth National College Physics Competition Non-physics Class A	12/2017
Third Prize in Class C of the National English Competition for College Students	05/2017

### **PROFESSIONAL SKILL**

**Languages:** C, Python, C++ (introductory)

**Software skills:** Opencv, Matlab, Solidworks, Arduino IDE, ADAMS, Photoshop, Dreamweaver, Spyder (Python), Visual Studio, Ubuntu system, Tensorflow, ROS (robot operating system)

#### **Certificates:**

- Got the Engineer of Computer Aided Technology Certificate
- Obtained the Internship certificate from Beijing Jingdiao Group Co.,Ltd.