

## Po-Kai 'Alex' Chang

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Github: <https://github.com/Alex1114>



### Education

**M.S** in Institute of Electrical Control Engineering,  
National Chiao Tung University (NCTU), Taiwan.

2019 ~

**B.S.** in Electrical and Computer Engineering,  
National Chiao Tung University (NCTU), Taiwan.

09, 2016 ~ 2020

### Research Interests

Robotic Vision, Image Recognition and Processing, Automatic Control System, Machine Learning.

### Projects

#### **Duckietown: A Platform for Autonomy Research and Education**

##### **• A short introduction for Duckietown**

Duckietown is a robotic research and education platform developed in MIT in 2016.

Duckietown is based on the camera, Raspberry pi 3 and motor control board.

Representing sensing, core computing and sports.

Including the electronics, circuit science and programming courses that the electrical system will learn.

In the Duckietown, you will learn how to do your circuit well? How to simulate the entire system control? And how else can you use the program you designed to practice it?

##### **• Lecturer in Duckietown Summer School, Duckietown Summer School 2018**

Duckietown Summer School is a course for about one hundred students from Koera, Indonesia, and Taiwan. I performed as a teaching assistant during the course for a summer vacation. From this experience, I learn a lot of skills such as ROS (Robot Operating System), Python, OpenCV, Arduino.

[Duckietown Summer School](#)

#### **Darpa Subterranean Challenge 2019~2020:**

##### **• A short introduction for SubT**

The "SubT" Challenge aimed to seek a novel approach to rapidly map, navigate, and search in underground environment automatically.

Using UGV and UAV to do navigating, mapping and searching for the specific artifacts, which is lightless and hard to construct a fixed network system.

##### **• 2019 Tunnel Circuit in Pittsburgh**

In the team, I am responsible for Artifacts Searching. Using MobileNet SSD to predict artifact in

tunnel.

- **2020 Urban Circuit in Seattle**

In the team, I combined RGBD and thermal imagery to predict artifact with temperature.

Design a dual stream model “ERFNet-FCN-Pix2Pix” and generate semantic segmentation with less noise.

### Relevant Coursework

Automatic Control Systems, Probability, Signals and Systems, Digital Signal Processing, Human-Centric Project, Data Science, Machine Learning.

### Teaching Experience

- **Teaching Assistant**, Introduction to Artificial Intelligence (Fall 2019)
- **Teaching Assistant**, Human Centric Computing (Spring 2020)
- **Teaching Assistant**, Sensing and Intelligent System (Spring 2020)

### Technical Skills

- **Programming:** C/C++, Python, MATLAB.
- **Middleware and Libraries:** Robotic Operating System (ROS), OpenCV, Arduino, Pytorch.
- **Sensors and Hardware:** Raspberry pi 3, Depth camera (RealSense SR300, D435), NVIDIA Jetson (TX2, Xavier, Nano).
- **Others:** 3D printing and modeling, Gazebo.