

QIANG ZHANG

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Highly-motivated expert in Computer Technology with good foundations of image processing and deep learning. Passionate about open source and sharing projects in open source communities. Keen guitarist and music writer.

🎓 EDUCATION

MSc Computer Technology, **Ningbo University**, Ningbo, China 2019.09 – 2022.06
BS. Communication Engineering, **Ningbo University**, Ningbo, China 2015.09 – 2019.06

⚙️ SKILLS

- **Programming** Python = C > Shell Script = C++ > Java
- **Professional knowledge** Deep learning, Image processing
- **OS, Database, Tools** Windows, Linux, Docker, SSH, Git, Vim, Make, Tmux
- **Framework** Pytorch, MMDetection, OpenCV, Django
- **Languages** Chinese native speaker; **English** listening & speaking (fluent), reading & writing (proficient)

👨‍💻 PROJECT & INTERNSHIP EXPERIENCE

Intelligent assembly assistant Mar. 2021 – May 2021

Project leader and maintainer Laboratory Project

A teaching system used in industrial parts assembly, integrating gesture recognition, augmented reality(AR), voice and video prompts technologies to guide starters to assemble complex parts step by step.

Achievements:

- As the project leader, designed, developed and delivered the product with a teammate in two months
- Designed an assembled workbench, including visual data acquisition, AR interaction, and parts boxes positions; used a PC as the core computation device; used a Kinect V2 as the visual acquisition.
- Designed and implemented 4 software sub-modules: visual recognition, AR, audio prompts, and GUI using Python, OpenCV and PyQt.
- For **gesture recognition algorithm**, used *Google Media Pipe*; to resolve the problem that the accuracy decreases when the light changes, proposed a foreground contour extraction enhance method, making accuracy up to 99%.

3D model analysis system based on vector spherical network Aug. 2020 – Jan. 2021

Researcher and Maintainer Individual Research Projects

To resolve the inability that scalar network can't preserve the equivariance, proposed a vector network and designed a system for **rotated 3D object recognition** task.

- Proposed a novel vector spherical network and proved equivariance mathematically.
- Used *Pytorch* to implement a rotated 3D classification system, including preprocessing, training and evaluation, used *Horovod* for distributed training.
- Tested the proposed method on the system on ModelNet40 dataset, exceeded the baseline method by 7.7%.
- Used *crontab* and *pandas* to show results in real time to analyse results on multiple machines.
- Based on the system, first author of 1 top Chinese journal and third author of 2 SCI papers are in submitting.

Zhangjiang Business Security Information Technology Co., Ltd. July 2018 – Aug. 2018

Summer Intern Information Acquisition Engineer

The responsibility was to develop a crawler system acquiring trademark information from national trademark website. The main challenge was to surpass the anti-crawler policy of the website.

- Developed a complete crawler system using *Python* and *Selenium*.
- To resolve the anti-crawler problem, used IP pool to change IP when the IP was blocked, used different operation procedures and operation time to simulate human access.

♥️ HONORS & AWARDS

1st Prize, Award on 18th China Postgraduate Mathematical Contest in Modeling Oct. 2020
1st Prize, Academic Scholarship of Ningbo University Oct. 2019

📁 OPEN SOURCE CONTRIBUTION & PERSONAL PROJECTS

- Datawhale column, **Panoramic image segmentation**, <https://mp.weixin.qq.com/s/txc-FVC77vr3K5C98TfstQ>
- Datawhale column, **Edge detection**, <https://github.com/2209520576/CV-Image-Processing>
- Ali Tianchi column, **Introduction to CNNs**, <https://github.com/datawhalechina/dive-into-cv-pytorch>
- A configuration file manager for unix-like systems, **Qdotfiles**, <https://github.com/QiangZiBro/Qdotfiles>
- Create a transparent screen from hardware to software, <https://qiangzibro.com/2021/11/22/holocubic/>