

# Benjin Zhu

Email: poodarchu@gmail.com Homepage: benjinzhu.com

## Education

### Chinese University of Hong Kong

Ph.D in Electronic Engineering

Shatin, Hong Kong SAR

Aug. 2021 – Jun. 2025

### South China University of Technology

B.Eng. in Software Engineering (**Excellent Engineer Program**)

First Class Honor with GPA 3.64/4.0

GuangZhou, China

Sep. 2014 – Jul. 2018

## Publications

**Benjin, Zhu\***, Junqiang Huang\*, Zeming Li, Xiangyu Zhang, and Jian Sun. **EqCo: Equivalent Rules for Self-supervised Contrastive Learning**. *In submission*.

**Benjin, Zhu**, Jianfeng Wang, Zhengkai Jiang, Fuhang Zong, Songtao Liu, Zeming Li, and Jian Sun. **AutoAssign: Differentiable Label Assignment for Dense Object Detection**. *In submission*.

**Benjin, Zhu**, Zhengkai Jiang, Xiangxin Zhou, Zeming Li, and Gang Yu. **Class-balanced Grouping and Sampling for Point Cloud 3D Object Detection**. *arXiv preprint:1908.09492*, 2019

## Projects

1. **Det3D**: World's first open source 3D object detection framework, with state-of-the art performance on multiple datasets (e.g., nuScenes), based on PyTorch. (**>1k stars**)
2. **cvpods**: All-in-one Toolbox for Computer Vision Research, based on PyTorch. The aim of **cvpods** is to achieve efficient experiments management and smooth tasks-switching.

## Research Experience

### Megvii Research

Researcher (**Full-time**)

Beijing, China

Feb. 2019 – Present

1. 3D Object Detection
  - 1.1 Build world's first open source general 3D Object Detection framework: **Det3D**.
  - 1.2 Winner of the nuScenes 3D Object Detection Challenge in WAD, CVPR 2019.
  - 1.3 Propose a new 3d Object Detection method: **ViP**: View Progressive 3D Object Detection.
2. Object Detection
  - 2.1 Build a multitasking computer vision toolkit **cvpack2**. **cvpack2** serves as the unified research framework at Megvii Research.
  - 2.2 Propose a novel detector **AutoAssign**, achieving state-of-the-art performance on COCO (52.1% AP). In submission to CVPR 2021.
3. Self-supervised Learning
  - 3.1 Research on the training framework of self-supervised contrastive learning. Reproduce many classical CLR models.
  - 3.2 Break the existing cognition about contrastive learning and propose an **equivalent rule for contrastive visual representation learning**. Paper in submission to ICLR 2021.

## Work Experience

### Horizon Robotics

Algorithm Engineer (**Full-time**)

Beijing, China

Apr. 2018 – Feb. 2019

1. Setup a full LiDAR 3D Object Detection pipeline from scratch, including data annotation, algorithm design & training, and deploying on FPGA devices.
2. Work out a real-time LiDAR sensing demo which was presented in **CES 2019**.

## Honors & Awards

- 2019      **1st Place** of nuScenes 3D Object Detection challenge in WAD, CVPR 2019  
2019      **3rd Place** of Lyft 3D Object Detection challenge in NeurIPS 2019  
2018      Honor Graduate  
2015 – 2017      SCUT School Scholarship

## Skills

- |                                 |                            |
|---------------------------------|----------------------------|
| <b>Programming Languages</b>    | Python, C++                |
| <b>Deep Learning Frameworks</b> | PyTorch, MXNet, TensorFlow |
| <b>Backend Frameworks</b>       | MongoDB, CUDA              |
| <b>Languages</b>                | English (IELTS 7.5)        |