

Benjin Zhu

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Education

The Chinese University of Hong Kong

Ph.D. in Electronic Engineering

Shatin, Hong Kong

Aug. 2021 – Present

South China University of Technology

B.E. in Software Engineering (Outstanding Engineer E&T Program)

First Class Honor, GPA: 3.64/4.0

GuangZhou, China

Sep. 2014 – Jul. 2018

Work Experience

MEGVII Technology

Researcher (Full-time)

Beijing, China

Feb. 2019 – Jun. 2021

3D Object Detection:

Built world's first open-source general 3D Object Detection framework: **Det3D**

Winner of the nuScenes 3D Object Detection Challenge, CVPR 2019

Object Detection:

Developed multitasking computer vision toolkit **cvpods**, a unified research framework at MEGVII Research

Proposed novel detector **AutoAssign**, achieving state-of-the-art performance on COCO (52.1% AP)

Self-supervised Learning:

Built training framework for self-supervised contrastive learning, including paper reproductions at SelfSup

Proposed **EqCo**: "Equivalent rule for contrastive visual representation learning"

Horizon Robotics

Algorithm Engineer (Full-time)

Beijing, China

Apr. 2018 – Feb. 2019

Led full-stack LiDAR perception projects, including data annotation, algorithm R&D, and FPGA deployment

Presented real-time LiDAR sensing demos at CES 2019

Selected Publications

Benjin Zhu, Zhe Wang, Shaoshuai Shi, Hang Xu, Lanqing Hong, and Hongsheng Li. **ConQueR: Query Contrast Voxel-DETR for 3D Object Detection**. *CVPR*, 2023 (**Highlight (top 2.5%)**)

Benjin Zhu*, Junqiang Huang*, Zeming Li, Xiangyu Zhang, and Jian Sun. **Eqco: Equivalent rules for self-supervised contrastive learning**. *arXiv preprint*, 2020

Benjin Zhu, Jianfeng Wang, Zhengkai Jiang, Fuhang Zong, Songtao Liu, Zeming Li, and Jian Sun. **Autoassign: Differentiable label assignment for dense object detection**. *arXiv preprint*, 2020 (~ **200 citations**)

Benjin, Zhu, Zhengkai Jiang, Xiangxin Zhou, Zeming Li, and Gang Yu. **Class-balanced Grouping and Sampling for Point Cloud 3D Object Detection**. *arXiv preprint*, 2019 (~ **400 citations**)

Projects

Det3D: World's first open source 3D object detection framework in PyTorch with state-of-the-art speed & performance on various datasets (e.g., nuScenes, KITTI, and Lyft) ([1400+ stars](#))

CVPods: All-in-one Toolbox for Computer Vision Research, integrating efficient experiment management and flexible task-switching, based on PyTorch ([600+ stars](#))

EFG: An efficient, flexible, and general deep learning framework, focusing on minimalism and user-friendliness for diverse research topics

Skills

Programming Languages	Python, C++, Swift
Deep Learning Frameworks	PyTorch, MXNet, TensorFlow, JAX
Backend Frameworks	SQL, MongoDB, CUDA
Languages	English (IELTS 7.5: L-8.5, R-8.5, W-7, S-6)

Honors & Awards

2022	1st Place of Waymo Open Dataset 3D Object Detection Challenge, till Aug, 2022
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
2014 – 2018	SCUT Scholarships & Honored Graduates

Patents

CN112686167A: View progressive 3D object detection from point cloud

CN112418244A: Objectness enhanced classification loss for dense object detection

CN111444814A: Class-balanced grouping and sampling for 3D object detection from point cloud

Services

Conference Reviewer: CVPR, ICCV, ECCV, NeurIPS, ICLR

Journal Reviewer: Neurocomputing

Teaching Assistant:

ELEG 4512: Digital Image Processing, 2021-22 Term 2

ELEG 2310B: Principles of Communication Systems, 2021-22 Term 1 & 2023-24 Term 1

Invited Talks

Aug 20, 2020 - Paper Sharing: "From VanillaDet to AutoAssign" at CVMart

Jun 17, 2019 - Winner's Report of nuScenes 3D Object Detection Challenge at WAD, CVPR 2019