

Benjin Zhu

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Education

The Chinese University of Hong Kong

Ph.D. in Electronic Engineering

Shatin, Hong Kong

Aug. 2021 – est. Jul. 2025

South China University of Technology

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

GuangZhou, China

Sep. 2014 – Jul. 2018

Selected Publications

Benjin Zhu, Zhe Wang, and Hongsheng Li. **nuCraft: Crafting High Resolution 3D Semantic Occupancy for Unified 3D Scene Understanding**. In *ECCV*, 2024 ([Dataset Release](#))

Benjin Zhu, Zhe Wang, Shaoshuai Shi, Hang Xu, Lanqing Hong, and Hongsheng Li. **ConQueR: Query Contrast Voxel-DETR for 3D Object Detection**. In *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 (~ [300 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 (~ [600 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) ([1500+ 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

Work Experience

MEGVII Technology

Researcher (Full-time)

Beijing, China

Feb. 2019 – Jun. 2021

2D & 3D Object Detection:

World's first general 3D Object Detection framework: **Det3D**, and an all-in-one computer vision toolkit **cvpods**

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

Propose differentiable label assignment **AutoAssign** with state-of-the-art performance on COCO (52.1% AP)

Self-supervised Learning:

Built large-scale training framework for SSL methods on top of **cvpods**: **SelfSup**

Propose EqCo: "Equivalent Rules for Self-supervised Contrastive Learning"

Horizon Robotics

Algorithm Engineer (Full-time)

Beijing, China

Apr. 2018 – Feb. 2019

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

Presented real-time LiDAR sensing demos at CES 2019

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

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, AAAI

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