Benjin Zhu

Phone: (86) 185-2015-9000 Email: poodarchu@gmail.com Homepage: benjinzhu.com

Research Interests

My research interests are mainly in computer vision related fields, such as object detection, 3D, and self-supervised learning. I'm looking for a PhD position related to **3D computer vision** or **robotics**.

Education

South China University of Technology GuangZhou, China
B.Eng. in Software Engineering (**Distinguished Engineer Program**) Sep. 2014 – Jul. 2018
First Class Honor with GPA 3.64/4.0

Publications

Benjin, Zhu*, Junqiang Huang*, Zeming Li, Xiangyu Zhang, and Jian Sun. **Equivalent Rule for Contrastive Visual Representation Learning**. *in submission*, 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 e-prints: 2007.03496*, 2020

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

Ke Xu, Xushen Zheng, Yi Cai, Huaqing Min, Zhen Gao, **Benjin, Zhu**, Haoran Xie, and Tak-Lam Wong. **Improving user recommendation by extracting social topics and interest topics of users in uni-directional social networks**. *Knowledge-Based Systems*, 140:120–133, 2018

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. (**800+ stars**)

2. **cvpack2**: A coherent codebase for many computer vision tasks. cvpack2 is featured by diverse model zoo, flexible experiments management and diverse tasks & datasets support (Classification, Self-supervised Learning, Detection, Segmentation, Keypoint, etc.), based on PyTorch. (**Widely used at megvii research**)

Research Experience

Megvii Research Beijing, China
Researcher (**Full-time**) 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).

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.

DiDi AI Lab Beijing, China

Research **Intern** Jul. 2017 – Nov. 2017

1. Using domain adversarial learning to improve CTC's recognition accuracy on multi-source speech datasets.
2. Transfer methods in image domain adaptation into speech scenario, decrease recognition error by 1∼2%.

Work Experience

Horizon Robotics Beijing, China

Algorithm Engineer (**Full-time**) 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**.

Alibaba Group Hangzhou, China

Algorithm Engineer (**Intern**) Nov. 2017 – Mar. 2018

1. Use ODPS(a type of SQL) to perform large scale user activity analysis and video recommendation.

2. Feature Engineering using logistic regression, GBDT, DNN, LDA to extract features to perform collaborative filtering.

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

Programming Languages	Python, C++
Deep Learning Frameworks	PyTorch, MXNet, TensorFlow, MegDL
Backend Frameworks	MongoDB, MPI, CUDA
Languages	English, Chinese, Japanese