

JIANG CHENHAN

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Research Interest: 3D Vision Self-/Semi-/Weakly Supervised Learning Multi-modality Learning

EDUCATION

PhD. in Computer Science and Engineering

Hong Kong University of Science and Technology

Sep. 2022 – Ongoing

- Supervisor: Dit-Yan Yueng.
- Research topics are 3D generation and open-world tasks.

M.S. in Computer Science and Technology

Sun Yat-san University

Sep. 2016 – Jun. 2019

- Supervisor: Lin Liang. Co-supervisor: Liang Xiaodan.
- Research topics are large-scale detection and 2D/3D pose estimation.

B.S. in Intelligent Science and Technology

XiDian University

Sep. 2012 – Jun. 2016

- GPA: 3.7/4.0 (ranked: 15/130). Relevant courses: Machine Learning, Digital Image Process, Data Structure, etc.

WORK EXPERIENCE

Noah Ark's Lab, Huawei Co., Ltd | **Researcher**

Aug. 2019 – Jun. 2022

Work for Autonomous Driving, AutoML and Self-supervised Learning. *Supervised by Li Zhenguo*

Hong Kong

SenseTime | **Research Intern**

Jan. 2018 – Dec. 2018

Focus on Graph and Large-scale Object Detection. *Supervised by Kuang Zhanghui*

Shenzhen, CN

SELECTED RESEARCH PROJECTS

Open-world 3D Recognition for Indoor and Outdoor Scenes [CVPR23]

Sept. 2022 – Jan. 2023

- We propose a Contrastive Language-Image-Point cloud Pretraining framework that can directly align 3D space with broader raw text, facilitating zero-shot transfer in realistic scenarios.

LiDAR-based 3D Detection for Autonomous Driving

Oct. 2020 – Jun. 2021

- To facilitate future research on exploiting unlabeled data for 3D detection, we propose an autonomous driving dataset and build a benchmark to evaluate various self-supervised and semi-supervised methods on it. *Project link: <https://once-for-auto-driving.github.io/index.html>* [NeurIPS21]
- We propose a self-supervised learning method for LiDAR-based point cloud, which integrates geometry-aware contrast and clustering harmonization.[ICCV21]

AutoML for Object Detection [CVPR20]

Aug. 2019 – Nov. 2019

Project link: https://github.com/huawei-noah/vega/blob/master/docs/en/algorithms/sp_nas.md

- We proposed a two-phase serial-to-parallel architecture search framework named SP-NAS towards a flexible task-oriented detection backbone. The Swap-Expand-Reignite search algorithm is based on Network Morphism to avoid repeated ImageNet pertaining.

Large-scale Object Detection

Mar. 2018 – Nov. 2018

- To overcome long-tail data distributions and class ambiguities, we proposed Reasoning-RCNN to endow any detectors with the capability of adaptive global reasoning. We build a Global Semantic Pool by collecting the weights of the previous classification layer for each category. Then, we adaptively enhance object features via attending to different semantic contexts in the global semantic pool. [CVPR19]
- To encode high-order object relation in the detection system without any external knowledge, we introduce a Spatial-aware Graph Relation Network to discover and incorporate key semantic and spatial relationships for reasoning over each object. [CVPR19]
- We exploit diverse commonsense knowledges to reason large-scale object categories and reach semantic coherency within one image. Specifically, we construct explicit and implicit region-to-region graphs to enhance feature representation. The proposed method achieved improvement on VisualGenome and ADE datasets. [NeurIPS18]

HONORS AND AWARDS

- HKUST RedBird PhD Award 2022
- Huawei PhD Fellowship Award 2022
- Waymo 2D Detection Challenge [Top3](#), [Top1](#) 2020/2021
- EuroCity Person Detection [Top1](#) 2020
- Huawei Director Award-Outstanding New Employees 2020
- Tianchi Zero-shot Image Classification Competition [Top1](#) [1/3226] 2018
- FashionAI Global Challenge, Tianchi Competition [Top2](#) [2/2323] 2017
- First Class Scholarship, Huawei Scholarship [Top 3%](#) 2016/2018

PUBLICATIONS

Journal Articles

- Ding, J., Xie, E., Xu, H., **Jiang, C.**, Li, Z., Luo, P., & Xia, G.-S. (2023). Unsupervised pretraining for object detection by patch reidentification. *IEEE TPAMI*.
- Wang, K., Lin, L., **Jiang, C.**, Qian, C., & Wei, P. (2019). 3d human pose machines with self-supervised learning. *IEEE TPAMI*.

Conference Proceedings

- Chen, R., Mu, Y., Xu, R., Shao, W., **Jiang, Chenhan**, Xu, H., ... Luo, P. (2023). Co³: Cooperative unsupervised 3d representation learning for autonomous driving. In *Iclr*.
- **Jiang, C***, Zeng, Y., Mao, J., Han, J., Ye, C., Huang, Q., ... Xu, H. (2023). Clip²: Contrastive language-image-point pre-training from real-world point cloud data. In *Cvpr*.
- Du, X., **Jiang C.**, Xu, H., Zhang, G., & Li, Z. (2021). How to save your annotation cost for panoptic segmentation? In *Aaai*.
- **Jiang***, C., Liang*, h., Feng, D., Chen, X., Xu, H., Liang, X., & Li, Z. (2021). Exploring geometry-aware contrast and clustering harmonization for self-supervised 3d object detection. In *Iccv*.
- Mao*, J., Niu*, M., **Jiang, C.**, Liang, H., Liang, X., Li, Y., ... Yu, J., et al. (2021). One million scenes for autonomous driving: Once dataset. In *Neurips dataset and benchmark*.
- **Jiang***, C., Wang*, S., Xu, H., Liang, X., Lin, L., & Xiao, N. (2020). Elixirnet: Relation-aware network architecture adaptation for medical lesion detection. In *Aaai*.
- **Jiang***, C., Xu*, H., Zhang, W., Liang, X., & Li, Z. (2020). Sp-nas: Serial-to-parallel backbone search for object detection. In *Cvpr*.
- **Jiang***, C., Xu*, H., Liang, X., & Li, Z. (2019). Spatial-aware graph relation network for large-scale object detection. In *Cvpr*.
- **Jiang***, C., Xu*, H., Liang, X., Lin, L., & Li, Z. (2019). Reasoning-rcnn: Unifying adaptive global reasoning into large-scale object detection. In *Cvpr*.
- Yu, W., Liang, X., Gong, K., **Jiang, C.**, Lin, L., & Xiao, N. (2019). Layout-graph reasoning for fashion landmark detection. In *Cvpr*.
- **Jiang***, C., Xu*, H., Liang, X., & Lin, L. (2018). Hybrid knowledge routed modules for large-scale object detection. In *Neurips*.