JUNBIN GAO

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EDUCATION

Tsinghua University, China   Jul. 2021 - Exp. July 2023

Visiting Student in Department of Computer Science and Technology
- **Supervisor**: Dr. Xiaolin Hu
- **Research Interests**: Computer Vision and deep learning, especially object detection and 3D scene understanding.

Huazhong University of Science and Technology, China   August 2020 - Exp. July 2023

M.S. Student in school of artificial intelligence and automation (AIA)
- **Supervisor**: Prof. Zhigang Zeng (IEEE Fellow)
- **Fellowship**: First Prize Scholarship of HUST

Northeastern University, China   August 2016 - July 2020

Bachelor of Engineering, Measurement and Control Technology and Instrumentation
- **GPA**: 3.7/5.0, top 5%.
- **Fellowship**: National Scholarship, China Telecom Scholarship.

PUBLICATIONS

1. Xiaotian Chen, Yuwang Wang, **Junbin Gao**, Wenjun Zeng, Shenglong Zhou and Xuejin Chen. StructNet: Structural Representation Learning for Domain Generalization. (Submission in NeurIPS, 2021)
2. **Junbin Gao**, Junjie Zhang, Shaojin Wu, Hao Ruan, Junting Lv, Lianguang Liu, Yin Sheng and Zhigang Zeng. ESIDet: Extract Structure Information from Point Cloud for 3D Object Detection. (In preparation, 2022)

RESEARCH EXPERIENCE

Microsoft Research Asia (MSRA)   Jan. 2021 - Jun. 2021

Intern of Intelligent Multimedia Group   Beijing, China

I worked on object detection tasks and we proposed StructNet (consists of the SEM module and the residual block of Resnet) as the backbone to explicitly extract structure feature in multiple downstream tasks (classification, detection and segmentation). Our StructNet backbone leads to significant improvement of the generalization on all the tasks, and achieves the SOTA results.

Mech-Mind Robotics Technologies Ltd   Dec. 2019 - Mar. 2020

Intern of Deep Learning Group   Beijing, China

I worked on completing the development of deep camera SDK, remoting compilation, etc. We explored some detection networks to complete the analysis and recognition of object materials.

SELECTED PROJECTS

AI Innovation and Application Competition (AIAC)   Oct. 2021 - Dec. 2021

Second Prize   Shenzhen, China

We focus on 3D object detection task via point cloud. We analize the dataset provided by deeprout. We design a voxel-based network to exstract the features and use a fpn-like architecture to unique detect the different size of object by dilated conv layers for using high resolution feature map to detect small size of objects. Besides, we propose ROS-training and OD-IoU loss for getting higher performance. We finally get 66.7 mAP on the testset.

Rocket Army Artificial Intelligence Challenge   Sep. 2020 - Nov. 2020

Top 5%   Xi'an, China

We worked on designing algorithm to detect object from LIDAR images. Based on the object detection algorithm Yolov3, the backbone part of the convolutional neural network model suitable for the competition dataset is redesigned. we achieved 50.9 mAP and 60FPS while testing.

National Electronic Design Competition (TI Cup) Apr. 2019 - Sep. 2019

First Prize (Top 2%) Shanghai, China

We designed a vision based UAV, which can realize high-precision flight control and complete the automatic detection of power cables, including the functions of finding foreign objects and giving an alarm, returning the status of foreign objects and so on.

HONORS & AWARDS

- Second Prize of Huawei Cup Mathematical Modeling Contest 2020
- First Prize Scholarship of HUST 2020
- Second Prize of Freshman Scholarship of HUST 2019
- China Telecom Scholarship 2019
- First Prize of TI Cup Electronic Design Competition 2019
- Silver Prize of Challenge Cup Competition 2018
- Second Prize of Mathematical Contest in Modeling 2018
- National Scholarship (The highest scholarship for Bachelor students in China) 2017