

Huanrong LIU

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EDUCATION

China University of Geosciences(CUG)	<i>Sept. 2019 - Jun. 2023</i>
● Major: <i>Communication Engineering</i>	GPA: 83/100
● Minor: <i>Economics</i>	GPA: 88/100
● Relevant Courses: <i>Computer Vision, Pattern Recognition, Neural Network and Deep Learning, Digital Image Processing, Artificial Intelligence Application</i>	

RESEARCH EXPERIENCE

National Innovation and Entrepreneurship Training Program	Project Leader
Project: <i>'YOLOv5-based Domain Adaptive Object Detection'</i>	<i>May. 2022 - Jun. 2023</i>
● <i>Designed knowledge distillation framework for cross domain object detection.</i>	
● <i>Conduct cross-domain tasks without re-labeling new datasets.</i>	
● <i>This method greatly reduces the negative effects of domain drift.</i>	
● <i>The model performed well on two benchmark datasets: Pascal VOC to Clipart1k, Cityscapes to Foggy Cityscapes.</i>	

Hubei Innovation and Entrepreneurship Training Program	Project Leader
Project: <i>'Radar Array Resource Allocation Method'</i>	<i>May. 2021 - Jun. 2022</i>
● <i>Proposed an efficient radar array resource allocation method.</i>	
● <i>This method can address the requirements of multitasking scenarios.</i>	
● <i>This method can reconfigure the array resources for new events.</i>	

Teaching Laboratory Open Funding	Project Leader
Project: <i>'Semantic Segmentation of Remote Sensing Images'</i>	<i>Nov. 2022 - Mar. 2023</i>
● <i>Designed three transfer learning methods for semantic segmentation of remote sensing images: adversarial, class center alignment and cycle consistency.</i>	
● <i>The proposed method can be used to identify remote sensing images with altered features.</i>	
● <i>All three methods achieved good results in a transfer task consisting of three datasets from Pavia University, University of Houston, and Washington DC Mall.</i>	
● <i>Developed software(beta) that integrates transfer learning methods.</i>	

Transversal Project of Prof. Dapeng Luo	Project Participant
Project: <i>'Video Counting System for Construction Materials'</i>	<i>Sept. 2021 - Nov. 2021</i>
● <i>Designed a video counting system(YOLOv5+DeepSORT) to help workers count construction materials on the worksite.</i>	
● <i>Video counting systems can reach frame rates of 30 to 60 FPS and meet the requirements of operation.</i>	
● <i>Increase model robustness to complex environments through data augmentation.</i>	

Transversal Project of Prof. Guocheng Hao**Project Participant****Project:** 'Radar Pulse Signal Recognition'

Jun. 2021 - Jul. 2021

- Using BP neural networks to classify six types of radar signals.
- The classification accuracy rate reached 98.7%.

Transversal Project of Prof. Liang Zhong**Project Participant****Project:** 'Object Detection on Embedded Device'

Jan. 2022 - Feb. 2022

- Deployed tiny neural network models on NVIDIA Jetson Nano for real-time object detection tasks.

AWARDS & HONORS & CERTIFICATES

- National University Student Innovation and Entrepreneurship Training Program 5,000RMB Funding
- Hubei University Student Innovation and Entrepreneurship Training Program 5,000RMB Funding
- The 15th Siemens Cup China Intelligent Manufacturing Challenge Provincial Third Prize
- The 6th National Student Integrated Circuit Innovation and Entrepreneurship Competition Provincial Third Prize
- CUG Teaching Laboratory Open Funding 1,500RMB Funding
- CUG Internet+ University Student Innovation and Entrepreneurship Competition Second Prize
- CUG Challenge Cup University Student Entrepreneurial Project Competition Second Prize
- CUG Science and Technology Paper Presentation Second Prize
- Telecom Cup Electronic Design Competition Second Prize
- School of Mechanical and Electronic Information Science and Technology Paper Presentation First Prize
- The Hong Kong University of Science and Technology (Guangzhou) 2023 Red Bird Offline Challenge Camp
- Certificate of Computer Software Copyright Registration

UNDERGRADUATE THESIS

Domain Adaptive Object Detection based on Knowledge Distillation

- Using Teacher-Student model to learn target domain features and reduce degradation due to domain shift.
- Using the advanced YOLOv5 to replace the out-dated Faster-RCNN in previous work.
- Using consistency loss to reduce the source and target domain gap to enable models to learn common features.
- In Benchmark: CityScapes->FoggyCityScapes reached MAP: 56.1%.

LANGUAGES & SKILLS

Languages: Mandarin, Cantonese, IELTS - 6, CET4 - 515, CET6 - 460.**Computer Tools:** Microsoft Office, Python, C, C++, MATLAB, Linux, PyTorch.

