

Huanrong LIU

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EDUCATION EXPERIENCE

China University of Geosciences(CUG) 'Project 211' Sept. 2019 - Jun. 2023

- **Major:** *Communication Engineering* GPA: **3.33/4** or **83.24/100**
- **Minor:** *Economics* GPA: **3.67/4** or **88.02/100**
- **Overall GPA:** **3.37/4** or **84.00/100**
- **Relevant Courses:** *Computer Vision, Pattern Recognition, Neural Network and Deep Learning, Digital Image Processing, Artificial Intelligence Application*

WORK EXPERIENCE

Research Assistant, BNU-HKBU UIC, Zhuhai, China

Jul. 2023 - Present

RESEARCH EXPERIENCE

National Innovation and Entrepreneurship Training Program **Project Leader**

Project: *'YOLOv5-based Domain Adaptive Object Detection'* May. 2022 - Jun. 2023

- *Designed knowledge distillation framework for cross domain object detection.*
- *Conduct cross-domain tasks without re-labeling new datasets.*
- *This method greatly reduces the negative effects of domain drift.*
- *The model performed well on two benchmark datasets: Pascal VOC to Clipart1k, Cityscapes to Foggy Cityscapes.*

Hubei Innovation and Entrepreneurship Training Program

Project Leader

Project: *'Radar Array Resource Allocation Method'*

May. 2021 - Jun. 2022

- *Proposed an efficient radar array resource allocation method.*
- *This method can address the requirements of multitasking scenarios.*
- *This method can reconfigure the array resources for new events.*

Teaching Laboratory Open Funding

Project Leader

Project: *'Semantic Segmentation of Remote Sensing Images'* Nov. 2022 - Mar. 2023

- *Designed three transfer learning methods for semantic segmentation of remote sensing images: adversarial, class center alignment and cycle consistency.*
- *The proposed method can be used to identify remote sensing images with altered features.*
- *All three methods achieved good results in a transfer task consisting of three datasets from Pavia University, University of Houston, and Washington DC Mall.*
- *Developed software(beta) that integrates transfer learning methods.*

Transversal Project of Prof. Dapeng Luo

Project Participant

Project: *'Video Counting System for Construction Materials'*

Sept. 2021 - Nov. 2021

- *Designed a video counting system(YOLOv5+DeepSORT) to help workers count*

construction materials on the worksite.

- Video counting systems can reach frame rates of 30 to 60 FPS and meet the requirements of operation.
- Increase model robustness to complex environments through data augmentation.

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 Hong Kong University of Science and Technology (Guangzhou) 2023 Red Bird Offline Challenge Camp
- 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
- Certificate of Computer Software Copyright Registration
- BNU-HKBU UIC 2024 Research Postgraduate Winter Camp

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.*