QI BI

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EDUCATION

University of Amsterdam, The Netherlands *September 2020 - September 2024 (Expected)*
PhD. candidate in Computer Vision
Supervised by Dr. Shaodi You and Prof. Theo Gevers
Working on Vision in Bad Weather, Semantic Segmentation and Domain Generalization
Doctoral Thesis: *Robust Vision in Adverse Conditions* (tentative)
Student Member of IEEE
Graduate Courses: Computer Vision by Learning, Efficient Deep Learning, Distributed Systems, Hardware & System Security

Wuhan University, China *September 2017 - June 2020*
MSc. in Information Engineering
Advised by Prof. Kun Qin and Prof. Gui-Song Xia
Master Thesis: *Enhancing Local Semantic Representation for Remote Sensing Scene Classification*
Student Member of IEEE
Graduate Courses: Image Interpretation & Pattern Recognition, Model Recognition & Machine Learning, Matrix Theory, Machine Vision & Photogrammetry
Average Score: 92.2 /100, GPA: 3.7 /4.0

Wuhan University, China *September 2013 - June 2017*
B.E. in Information Engineering
Advised by Prof. Kun Qin
Bachelor Thesis: *Building Detection and Change Analysis from Time-Series Remote Sensing Images*
Undergraduate Courses: Digital Image Processing, Pattern Recognition, Computer Graphics, Data Structure, Object-Oriented Programming & Design, Advanced Mathematics, Linear Algebra, Probability Theory and Statistics, Computational Method
Average Score: 85.2 /100, GPA: 3.5 /4.0

RESEARCH EXPERIENCE

University of Amsterdam September 2020 - Present
Researcher, funded by University of Amsterdam *Amsterdam, The Netherlands*

- Developed a Bi-directional Wavelet Guidance (BWG) Mechanism for domain generalized foggy-scene semantic segmentation; **the first pipeline** to generalize to arbitrary unseen foggy domains from a single clear source domain.
- Developed a Content-enhanced Mask Attention mechanism and a Content-enhanced Mask Transformer (CMFormer) for domain generalized urban-scene semantic segmentation.
- Developed a multi-weather uncertainty learning pipeline based on physical weather formulation; proposed **the first dataset** for multi-weather probability estimation (MePe).
- Developed an intrinsic-extrinsic interactive learning pipeline for robust scene segmentation under all-day scenarios; proposed **the first dataset** for all-day semantic segmentation.
- Developed a rotation-invariant scene representation learning method based on deep multiple instance learning; The proposed method is robust to the domains of natural images, medical images and remote sensing images.

Youtu Lab, Tencent Holdings Ltd. April 2020 - September 2020
Research Intern, funded by Jarvis Research Center *Shenzhen, China*

- Developed a domain generalized medical image segmentation method by querying from decoupled features; **the first pipeline** to leverage Vision Transformer for domain generalized medical image segmentation.
- Developed an automatic retinal disease diagnosis pipeline by deep multiple instance learning.
- Co-developed a medical image segmentation method from multiple annotations by multi-rater agreement modeling.

Wuhan University December 2019 - September 2020
Research Assistant, funded by General Administration of Civil Aviation of China (No.U2033216) *Wuhan, China*

- Developed a discriminative aerial scene representation learning method by modeling context-aware class peak response.
- Developed a multi-grain deep multiple instance learning framework, dubbed as AGOS, which maintains the same semantic scheme for each grain.

Wuhan University October 2016 - October 2019
Research Assistant, funded by Key Research & Development Program of China (No. 2016YFB0502600) *Wuhan, China*

- Developed a multiple instance CNN named MIDC-Net and a trainable MIL pooling operator based on deep multiple instance learning and attention mechanism.
- Developed an attention pooling operator and a ConvNet named APDC-Net for aerial image scene classification.
- Developed a computational-efficient feature extractor differential filter profile (DFP) and extended it into multi-channels.
- Published an annotated dataset named WHUBED for aerial image building segmentation.

Wuhan University June 2017 - June 2019
Research Assistant, funded by State Grid of China (No. JYYKJXM(2017)011) *Wuhan, China*

- Developed a harbor detection framework for aerial images based on multiple visual descriptors and feature encoding.
- Developed a feature encoding approach based on bag of visual words and probabilistic latent semantic analysis.
- Implemented geometric correction and illumination correction for aerial images.

Wuhan University May 2015 - May 2016
Project Leader, funded by Wuhan University (No.S2015714) *Wuhan, China*

- Developed the scale-invariant feature transformation (SIFT) image matching algorithm for 3D object reconstruction.
- Co-developed of an Android application reconstructing objects from multiple images taken by phone camera.

HONORS AND AWARDS

Outstanding Reviewer for CVPR 2023	top 3.3%, 232/7403
CVPR 2021 Best Paper Candidate	top 0.46%, 32/7015
MICCAI 2021 Travel Awards	
MICCAI 2021 Young Scientist Awards Candidate	
National Excellent Graduate Students	2019
Wuhan University Scholarship for Excellent Graduate Students	2017, 2018, 2019
Wuhan University Merit Graduate Students	2018
Wuhan University Excellent Bachelor Academic Dissertation	rank 1/246
Wuhan University Excellent Undergraduate Scholarship	2015, 2016

PROFESSIONAL ACTIVITIES

Reviewer for T-PAMI, IJCV, T-IP	2021 - Present
Reviewer for CVPR, ICCV, ECCV	2022 - Present
Reviewer for NeurIPS, ICML, ICLR	2023 - Present
Reviewer for AAAI, IJCAI, EMNLP	2023 - Present
Reviewer for MICCAI	2021 - Present
IEEE Student Member	2019 - Present
AAAI Student Member	2023 - Present

SKILLS

Languages	TOEFL:106 (Listening: 28, Reading: 29, Speaking: 23, Writing: 26)
Program Skills	Proficient in Python (6yrs) and Matlab (10yrs), familiar with C/C++ (9.5yrs)
Deep Learning Framework	PyTorch (3.5yrs), TensorFlow (6yrs), Keras (5.5yrs)