

Yao Wei

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SUMMARY

I am a Postdoctoral Research Associate at EECS, QMUL. Previously, I was a visiting scholar at the University of Bath. I received my PhD from ITC, University of Twente. During my PhD, I have interned at AWS AI and IIT PAVIS labs. Prior to this, I obtained my master's degree from Wuhan University.

EDUCATION

University of Twente <i>Ph.D. in Computer Science</i>	Enschede, Netherlands 9/2021-8/2025
Wuhan University <i>M.S. in Photogrammetry and Remote Sensing</i>	Wuhan, China 9/2018-6/2021
China University of Petroleum <i>B.S. in Geographic Information Science</i>	Qingdao, China 9/2014-6/2018

RESEARCH EXPERIENCE

Queen Mary University of London <i>Postdoctoral Research Associate</i> Principal Investigator: Dr. Changjae Oh	London, UK 1/2026-present
• Open-vocabulary object detection - Investigate grounded pre-training and generative localization in a zero-shot manner.	
University of Bath <i>Visiting Scholar</i> Supervisor: Prof. Michael Yang	Bath, UK 9/2025-12/2025
• Spatial intelligence - Explore graph-structured reasoning for interactive scene synthesis.	
Amazon AWS AI <i>Applied Scientist Intern</i> Manager: Dr. Qin Goldstein	Santa Clara, USA 12/2024-4/2025
• Vision-language modeling - Develop VLM using prompt engineering for referring video object segmentation.	
Istituto Italiano di Tecnologia <i>Visiting Scientist</i> Principal Investigator: Dr. Alessio Del Bue	Genoa, Italy 6/2024-11/2024
• Human-aware indoor scene synthesis - Improve generative pipelines for functional 3D scene synthesis through distilling human-scene interaction priors. (cf. Publication [1])	
University of Twente <i>Ph.D. Student</i> Supervisor: Prof. George Vosselman	Enschede, Netherlands 9/2021-9/2025
• 3D scene understanding	

- Propose methods for scene-level 3D multi-object synthesis. (cf. Publication [2])
- Propose methods for object-level 3D shape synthesis. (cf. Publication [3] [4])
- **Generative models**
 - Develop a conditional diffusion-based pipeline for generating 3D point clouds of buildings from single general-view images. (cf. Publication [3])
 - Develop a Normalizing Flow-based GAN for point cloud reconstruction that can generate an arbitrary number of points while maintaining detailed 3D structure. (cf. Publication [4])
- **Multi-modal learning**
 - Compositional 3D scene generation from textual descriptions or scene graphs. (cf. Publication [1] [2])
 - 3D point cloud generation from single-view image. (cf. Publication [3] [4])

Wuhan University

Master Student

Supervisor: Prof. Shunping Ji

Wuhan, China

9/2018-6/2021

- **Road extraction from remote sensing images using deep learning techniques**
 - Present a weakly supervised learning approach for road surface extraction from remote sensing images under the weak supervision of centerline-like scribble annotations. (cf. Publication [5])
 - Present a multi-stage framework for simultaneous road surface segmentation and centerline tracing, advancing the automation and road extraction accuracy, especially in terms of road connectivity and completeness. (cf. Publication [6] [7])
 - Present a GNN-based framework for regularized road surface extraction. (cf. Publication [8])

PUBLICATIONS

- [1] **Yao Wei**, Matteo Toso, Pietro Morerio, Changjae Oh, Michael Ying Yang, Alessio Del Bue. **AccioScene: Compositional 3D Scene Generation via Graph Diffusion and Interaction-driven Critics**. *British Machine Vision Conference*, 2026
- [2] **Yao Wei**, Martin Renqiang Min, George Vosselman, Li Erran Li, Michael Ying Yang. **Planner3D: LLM-enhanced graph prior meets 3D indoor scene explicit regularization**. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2025.
- [3] **Yao Wei**, George Vosselman, Michael Ying Yang. **BuilDiff: 3D building shape generation using single-image conditional point cloud diffusion models**. *IEEE/CVF International Conference on Computer Vision Workshops*, 2023.
- [4] **Yao Wei**, George Vosselman, Michael Ying Yang. **Flow-based GAN for 3D point cloud generation from a single image**. *British Machine Vision Conference*, 2022.
- [5] **Yao Wei**, Shunping Ji. **Scribble-based weakly supervised deep learning for road surface extraction from remote sensing images**. *IEEE Transactions on Geoscience and Remote Sensing*, 2021, 60: 1-12.
- [6] **Yao Wei**, Kai Zhang, Shunping Ji. **Simultaneous road surface and centerline extraction from large-scale remote sensing images using CNN-based segmentation and tracing**. *IEEE Transactions on Geoscience and Remote Sensing*, 2020, 58(12): 8919-8931.
- [7] **Yao Wei**, Kai Zhang, Shunping Ji. **Road network extraction from satellite images using CNN based segmentation and tracing**. *IEEE International Geoscience and Remote Sensing Symposium*, 2019.
- [8] Jingjing Yan, Shunping Ji, **Yao Wei**. **A combination of convolutional and graph neural networks for regularized road surface extraction**. *IEEE Transactions on Geoscience and Remote Sensing*, 2022, 60: 1-13.