Xiaohan Zhang

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Research Interests

My current research interests lie at the intersection of computer vision and remote sensing (e.g., visual segmentation, detection, and geo-localization in aerial images). I am also interested in image synthesis and 3D reconstruction. Additionally, I am actively working on applying machine learning to computational biology, including generative AI for drug discovery.

Education

2020 – Present **University of Vermont** – Burlington, Vermont
Ph.D. Candidate, Computer Science, *(Expected: May 2026)*
Dissertation: *Finding Structure in Cross-View Geo-Localization: From Geometric Learning to Multi-Modal Reasoning*
Advisor: Dr. Safwan Wshah

2018 – 2020 **University of California, Santa Cruz** – Santa Cruz, California
M.Sc., Computer Engineering
Advisor: Dr. Roberto Manduchi

2013 – 2017 **Michigan State University** – East Lansing, Michigan
B.Sc., Computer Engineering

Employment History

2020 – Present **Research Assistant**
Supervised by Dr. Safwan Wshah
Artificial Intelligence Laboratory (VaiL), University of Vermont.

2019 – 2020 **Teaching Assistant**
CSE 107 Probability and Statistics for Engineers, University of California, Santa Cruz.

2017 – 2017 **Undergrad Research Assistant**
Supervised by Dr. Xiaoming Liu
Computer Vision Laboratory, Michigan State University

Honors and Awards

2025 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Doctoral Consortium Travel Awards

2025 UAVM'25@ACM Multimedia Outstanding Reviewer (ACM MM 2025, 3rd Workshop on UAVs in Multimedia)

2025 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Outstanding Reviewers

2024 UAVM'24@ACM Multimedia Outstanding Reviewer (ACM MM 2024, 2nd Workshop on UAVs in Multimedia)

2023 Computer Science Graduate Award (The University of Vermont College of Engineering and Mathematical Sciences)

2023 AAAI Student Scholarship (Association for the Advancement of Artificial Intelligence)

2022 Second Prize in UVM Computing Student Research Day (UVM CSRD '22)

Publications

Journal Articles

1. Muhammad Adil, Patrick J. Clemins, Andrew W. Schroth, Panagiotis D. Oikonomou, Donna M. Rizzo, Peter D. F. Isles, **Xiaohan Zhang**, Kareem I. Hannoun, Scott Turnbull, Noah B. Beckage, Asim Zia, and Safwan Wshah. "From Remote Sensing to Multiple Time Horizons Forecasts: Transformers Model for CyanoHAB Intensity in Lake Champlain." IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (2026).
2. **Xiaohan Zhang**, Xingyu Li, Waqas Sultani, Chen Chen, and Safwan Wshah. "GeoDTR+: Toward generic cross-view geolocalization via geometric disentanglement." IEEE Transactions on Pattern Analysis and Machine Intelligence (2024).
3. Daniel Wilson, **Xiaohan Zhang**, Waqas Sultani, and Safwan Wshah. "Image and object geo-localization." International Journal of Computer Vision (2024).
4. Nathaniel Ogilvie, **Xiaohan Zhang**, Cale Kochenour, and Safwan Wshah. "Fine-Grained Permeable Surface Mapping through Parallel U-Net." Sensors (2024).
5. Daniel Wilson, Thayer Alshaabi, Colin Van Oort, **Xiaohan Zhang**, Jonathan Nelson, and Safwan Wshah. "Object tracking and geo-localization from street images." Remote Sensing (2022).

Conference Papers

1. Ahmad Arrabi, **Xiaohan Zhang**, Waqas Sultani, Chen Chen, and Safwan Wshah. "Cross-view meets diffusion: Aerial image synthesis with geometry and text guidance." In IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2025.
2. **Xiaohan Zhang**, Xingyu Li, Waqas Sultani, Yi Zhou, and Safwan Wshah. "Cross-view geo-localization via learning disentangled geometric layout correspondence." In Proceedings of the AAAI conference on artificial intelligence, 2023.
3. **Xiaohan Zhang**, Waqas Sultani, and Safwan Wshah. "Cross-view image sequence geo-localization." In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision, pp. 2914-2923. 2023.
4. **Xiaohan Zhang**, and Safwan Wshah. "LanePainter: lane marks enhancement via generative adversarial network." In the International Conference on Pattern Recognition (ICPR), 2022.

5. Minghao Liu, Jiahao Luo, **Xiaohan Zhang**, Yang Liu, and James Davis. "Low-light image enhancement using chain-consistent adversarial networks." In the International Conference on Pattern Recognition (ICPR), 2022.

Workshops & Preprints

1. **Xiaohan Zhang**, Tavis Shore, Chen Chen, Oscar Mendez, Simon Hadfield, and Safwan Wshah. "VICI: VLM-Instructed Cross-view Image-localisation." In Proceedings of the 3rd International Workshop on UAVs in Multimedia: Capturing the World from a New Perspective, 2025.
2. Daniel Wilson, **Xiaohan Zhang**, Waqas Sultani, and Safwan Wshah. "Visual and object geo-localization: A comprehensive survey." arXiv, (2021).

Academic Service

Workshop / Tutorial / Competition Organizer

Chen Chen, Safwan Wshah, **Xiaohan Zhang**, "Cross-View Geo-Localization: Current Challenges and Future Frontiers", WACV 2025 Tutorial, Website

Chen Chen, Safwan Wshah, **Xiaohan Zhang**, "Beyond Vision: Multimodal Perspectives for Cross-View Geo-Localization", WACV 2026 Tutorial, Website

Conference Service

Conference on Computer Vision and Pattern Recognition, Reviewer, 2024, 2025, 2026

European Conference on Computer Vision, Reviewer,2024, 2026

AAAI Conference on Artificial Intelligence, Program Committee, 2025, 2026

European Conference on Artificial Intelligence, Program Committee, 2025

ACM Multimedia Systems Conference, Reviewer, 2024, 2025

Selected Journal Reviewer

IEEE Transactions on Neural Networks and Learning Systems

ISPRS Journal of Photogrammetry and Remote Sensing

IEEE Transactions on Geoscience and Remote Sensing

IEEE Transactions on Circuits and Systems for Video Technology

IEEE Robotics and Automation Letters

MDPI Remote Sensing

npj Drug Discovery

npj Heritage Science