

Yang Miao

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Educational Background

INSAIT, PhD researcher in Computer Vision and Robotics, 2024–now

ETH Zurich, Master in Robotics, Systems and Control, 2021–2024

GPA: 5.83/6

Harbin Institute of Tech., B.Eng. in Electrical Engineering 2016–2020

GPA: 96.9/100 (Top 1/289)

UC Berkeley, Visiting student 2019

GPA: 4.0/4.0

Selected Research Experiences and Projects

INSAIT, Institute for Computer Science, Artificial Intelligence and Technology 2024–now

Main Supervisors: Prof. Luc Van Gool, Prof. Danda Paudel, Dr. Jan-Nico Zaeck

- *Articulate3D: Holistic Understanding of 3D Scenes as Universal Scene Description*, **ICCV 2025** [Link](#)

Keywords: 3D Articulation Benchmark, USD, Scannet++.

Description: We proposed Articulate3D, an expertly curated dataset in the Universal Scene Description (USD) format, featuring high-quality manual annotations with segmentation and articulation on indoor scenes. We also proposed USDNet, a learning-based model together with a novel baseline capable of predicting part segmentation along with motion attributes, including motion type, articulated and interactable parts, and motion parameters.

ETH Zurich, Computer Vision and Geometry Lab 2022–2024

Main Supervisors: Prof. Marc Pollefeys, Dr. Dániel Baráth, Dr. Iro Armeni, Dr. Francis Engelmann

- *SceneGraphLoc: Cross-Modal Coarse Visual Localization on 3D Scene Graphs*, **ECCV 2024** [Link](#)

Keywords: Cross-modal localization, 3D scene graph, Multi-modal embedding, Contrastive Learning.

Description: We proposed a novel challenge of cross-modal localization of a query image within 3D scene graphs. We leveraged multiple modalities for object embedding in the scene graph and applied contrastive learning for shared embedding space for query images and 3D scene graph objects. Our Method outperformed existing cross-modal localization methods by a large margin, and achieved competitive result with existing image-based methods but with significantly less memory usage and computation.

- *Panoptic SLAM with Semantic and Geometric Consistency (Master Thesis)*, **IROS 2024 Oral** [Link](#)

Keywords: 3D panoptic mapping, Semantic-aided localization, C++, ROS, Python.

Description: We developed algorithms for incremental 3D panoptic mapping with RGB-D frames. The method outperformed existing 2D-3D semantic-instance mapping methods with estimated trajectory. We also improved localization performance of ORB-SLAM3 and Voxgraph with panoptic information.

Publication List

- AM Halacheva*, **Y. Miao***, JN. Zaeck, X. Wang, Luc Van Gool, *Articulate3D: Holistic Understanding of 3D Scenes as Universal Scene Description*, **ICCV 2025** (* for equal contribution)
- **Y. Miao**, F. Engelmann, O. Vysotska, F. Tombari, M. Pollefeys, D. Baráth, *SceneGraphLoc: Cross-Modal Coarse Visual Localization on 3D Scene Graphs*, **ECCV 2024**
- **Y. Miao**, I. Armeni, M. Pollefeys, D. Baráth, *Volumetric Semantically Consistent 3D Panoptic Mapping*, **IROS 2024 (Oral Pre)**
- **Y. Miao**, C. Li, Z. Li, Y. Yang, X. Yu, *A Novel Algorithm of Ship Structure Modeling and Target Identification Based on Point Cloud for Automation in Bulk Cargo Terminals*, **Measurement and Control 2021**

Other Responsibility

- Co-organizer of [OpenSun3D workshop](#)
- Reivewer of IROS, IJCV, CVPRW, ICCVW