Pouyan B. Navard
Columbus, OH

Summary

Gratduating in May 2025 and immediately ready for a full-time position in computer vision related fields starting then, I am a PhD candidate at the Ohio State University at PCVLab under prof. Alper Yilmaz supervision. My research interest lies in computer vision. I am currently doing an internship @ **Path Robotics** as a computer vision researcher working on view synthesis using diffusion models.

Publications

† → Equal contribution

Peer-reviewed Conference Proceedings:

C1. **Pouyan Navard**†, Amin Karimi Monsefi†, Mengxi Zhou, Wei-Lun Chao, Alper Yilmaz & Rajiv Ramnath. *KnobGen: Controlling the Sophistication of Artwork in Sketch-Based Diffusion Models* in *Computer Vision and Pattern Recognition (CVPR) Workshop* (June 2025). arXiv: 2410.01595 [cs.CV].

C2. Shehan Perera†, **Pouyan Navard**† & Alper Yilmaz. *SegFormer3D: An Efficient Transformer for 3D Medical Image Segmentation* in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshop* (June 2024), 4981–4988. arXiv: 2404.10156 [cs.CV].

C3. **Pouyan Navard** & Alper Yilmaz. *A Probabilistic-based Drift Correction Module for Visual Inertial SLAMs* in *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS)* (2024), 297–300. https://isprs-archives.copernicus.org/articles/XLVIII-2-2024/297/2024/.

Resarch Experience

0.1 Computer Vision Research Intern @ Path Robotics Inc., Nov 2024- now

Fine-grained Multi View Synthesis using 3D Diffusion Models (Nov 2024 - now)

- Photorealistic texture mapping on 3D assets by conditioning 3D diffuion probabilistic model with fine-grained signals (lighting, roughness, material)
- Active learning on out-of-distribution samples, continual learning

0.2 Research Assistant @ Photogrammetric Computer Vision Lab, Feb 2021- now

Multi-Modal Model for Echo-cardiograph 3D Data and Clinical Descriptions (Sept 2024 - now)

- Developing a foundational multi-objective training model to diagnose pulmonary embolism through vision and text alignment, contrastive learning, and generative AI, aimed at improving diagnostic accuracy and clinical decision-making

3D Deep Learning Pipeline for Human-Level Ocular Diagnosis via Incremental Learning (June 2023 - Sept 2024)

- Proposed and developed Ultra-Eye, the first 3D convolutional pipeline with diagnostic heads for ocular disease classification, achieving **86%** accuracy across multiple conditions, including vitreous and retinal detachments, setting a new benchmark in 3D ocular diagnosis

Enhanced Hazard-Aware SLAM Pipeline for Feature-Scarce Indoor Environments (June 2021 - Dec 2022)

- Designed a SLAM pipeline with a probabilistic drift-correction module tailored for low-feature indoor environments, reducing drift error by 10x to improve navigation accuracy in automotive applications

Awards & Honors

2022   Robert E. Altenhofen Memorial Scholarship ($2,000)

Services

Coadvising

2024-now   Mentored three junior PhD students at the PCVLab, OSU

Invited Reviewer

2022-now   CVPR, ECCV, ICCV, ICLR, AVSS, ACCV, SIBGRAPI

Invited Lecturer

2024   Lectured Diffusion Probabilistic Models in CIVILEN-7453 course

Education

2021–26*   **Ph.D.**, Computer Vision, The Ohio State University (OSU)
2015-19   **B.Sc.** Photogrammetric Enginerring, University of Isfahan

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*Expected.

Skills

Deep Learning	PyTorch (Distributed Data Parallel), TensorFlow, Keras
Computer Vision	Vision-Language Models, Diffusion Models, 3D Image Segmentation, Transformer Architectures (e.g., SegFormer3D)
Programming	Python, C++, MATLAB
Tools	OpenCV, Scikit-Learn, NVIDIA CUDA
Others	Model Optimization, Data Augmentation, Experiment Tracking (e.g., Weights and Biases)

Training

- Neural Networks and Deep Learning by Coursera, Jan-February 2020
- Improving Deep Neural Networks by Coursera, February-March 2020
- Structuring Machine Learning Projects by Coursera, March-April 2020
- Convolutional Neural Networks, May-July 2020

Last updated: April 12, 2025