

Tianfu Wang

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RESEARCH INTEREST

I am interested in developing intelligent systems for computer vision and computational imaging. More specifically, I work on 3D imaging of specular objects, and diffusion models for 3D generation and image processing tasks such as reflection removal, underwater image restoration, and depth estimation. I am looking for summer 2026 research internship positions.

EDUCATION

University of Maryland Ph.D. student, Computer Science, GPA 4.0/4.0	College Park, MD, USA 08. 2024 –
ETH Zurich M.S. in Computer Science, with distinction, GPA 5.75/6.0	Zurich, Switzerland 09. 2021 – 07.2024
Northwestern University B.S. in Computer Science and Mathematics, Magna Cum Laude, GPA 3.94/4.0	Evanston, IL, USA 09. 2017 – 06. 2021

EXPERIENCE

Intelligent Sensing Lab, University of Maryland, College Park Research Assistant <ul style="list-style-type: none">Computer Science Ph.D. Student supervised by Prof. Christopher MetzlerDeveloped novel diffusion-model-based image restoration approaches for flash photography reflection removal and underwater image restoration.	08. 2024 -
Photogrammetry and Remote Sensing, ETH Zurich Research Assistant <ul style="list-style-type: none">Master's thesis supervised by Prof. Konrad SchindlerDeveloped fast and resolution-agnostic diffusion image generation methods, with applications in monocular depth estimation, 3D generation, and domain generalization.	07. 2023 – 07.2024
Computer Vision Lab, ETH Zurich Research Assistant <ul style="list-style-type: none">Worked with Menelaos Kanakis and Anton Obukhov on neural radiance fields and diffusion models, supervised by Prof. Luc Van Gool	04. 2022 – 07.2023
Computational Photography Lab, Northwestern University Research Assistant <ul style="list-style-type: none">Worked with Prof. Oliver Cossairt and Prof. Florian Willomitzer on structured light imaging and eye tracking with deflectometry.	01. 2020 – 09.2021

SELECTED PUBLICATIONS

* Denotes equal contribution

Single-Step Latent Diffusion for Underwater Image Restoration

Tianfu Wang*, Jiayi Wu*, Md Abu Bakr Siddique, Md Jahidul Islam, Cornelia Fermuller, Yiannis Aloimonos, Christopher A. Metzler
IEEE TPAMI & ICCP, 2025

Marigold: Affordable Adaptation of Diffusion-Based Image Generators for Image Analysis

Tianfu Wang*, Bingxin Ke*, Kevin Qu*, Nando Metzger, Shengyu Huang, Bo Li, Anton Obukhov*, Konrad Schindler
IEEE TPAMI, 2025

Flash-Split: 2D Reflection Removal with Flash Cues and Latent Diffusion Separation

Tianfu Wang*, Mingyang Xie*, Haoming Cai, Sachin Shah, Christopher A. Metzler
CVPR, 2025

Accurate Eye Tracking from Dense 3D Surface Reconstructions using Single-Shot Deflectometry

Jiazhang Wang, **Tianfu Wang**, Bingjie Xu, Oliver Cossairt, Florian Willomitzer

Nature Communications, 2025

Repurposing Pre-trained Video Diffusion Models for Event-based Video Interpolation

Jingxi Chen, Brandon Y Feng, Haoming Cai, **Tianfu Wang**, Levi Burner, Dehao Yuan,

Cornelia Fermuller, Christopher A. Metzler, Yiannis Aloimonos

CVPR, 2025

Optimization-Based Eye Tracking using Deflectometric Information

Tianfu Wang, Jiazhang Wang, Oliver Cossairt, Florian Willomitzer

IEEE Transactions on Computational Imaging (TCI), 2024

DGInStyle: Domain Generalizable Semantic Segmentation with Image Diffusion Models and Stylized Semantic Control

Yuru Jia, Lukas Hoyer, Shengyu Huang, **Tianfu Wang**, Luc Van Gool, Konrad Schindler, Anton Obukhov

ECCV, 2024

Breathing New Life into 3D Assets with Generative Repainting

Tianfu Wang, Menelaos Kanakis, Konrad Schindler, Luc Van Gool, Anton Obukhov

British Machine Vision Conference (BMVC), 2023 (**Oral**)

A Mitsuba-based Study on Trade-offs Between Projection and Reflection Based Systems in Structured-Light 3D Imaging

Tianfu Wang, Florian Schiffrers, Florian Willomitzer, Oliver Cossairt

Optica Computational Optical Sensing and Imaging, 2021

TALKS

Breathing New Life into 3D Assets with Generative Repainting

British Machine Vision Conference (BMVC)

Aberdeen, United Kingdom, Nov. 2023

Optimization-Based Eye Tracking using Deflectometric Information

124th Annual Meeting of the German Branch of the European Optics Society (DGaO)

Berlin, Germany, May. 2023

A Mitsuba-based Study on Trade-offs Between

Projection and Reflection Based Systems in Structured-Light 3D Imaging

Optica Imaging and Applied Optics Congress

Washington, DC, United States, July. 2021

SCHOLARSHIPS

University of Maryland Graduate School Dean's Fellowship

\$2500/yr fellowship for 2 years supporting graduate studies.

2024

Northwestern University Summer Undergraduate Research Grant Advanced (SURG Advanced)

\$3500 research grant for Modeling and Analysis of Real Time 3D SPH Fluid Simulation on WebGL

Supervised by Prof. Jack Tumblin, 2020

TECHNICAL SKILLS

Programming: Python, C++, PyTorch, PyTorch3D, Blender

Language: Mandarin(Native); English(Proficient)