

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.

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">Ph.D. Student supervised by Prof. Christopher MetzlerDeveloped a novel diffusion-model-based approach using flash cues and latent space separation.	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.Worked with Prof. Jack Tumblin on smooth particle hydrodynamics (SPH) fluid simulation and visualization (URG Advanced Student Grant)	01. 2020 – 09.2021

PUBLICATIONS

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

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

Accurate Eye-Tracking from Deflectometric Information Using Deep Learning

Jiwon Choi, Jiazhong Wang, Tianfu Wang, Florian Willomitzer
International Conference on Optics-Photonics Design and Fabrication (ODF), 2024 (Student Paper Award)

Consistency²: Consistent and Fast 3D Painting with Latent Consistency Models

Tianfu Wang, Anton Obukhov, Konrad Schindler

CVPR Workshop on AI for 3D Generation, 2024

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)

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

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

Accepted to Nature Communications, 2024

Accurate and Fast VR Eye-Tracking using Deflectometric Information

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

Optica Computational Optical Sensing and Imaging, 2023

VR Eye-Tracking using Deflectometry

Jiazhang Wang, Bingjie Xu, **Tianfu Wang**, Wung Jae Lee,

Marc Walton, Nathan Matsuda, Oliver Cossairt, Florian Willomitzer

Optica Computational Optical Sensing and Imaging, 2021

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

Tianfu Wang, Florian Schiffers, 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)