Mingyang Xie

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in mingyangx

Research Interests

I am broadly interested in computer vision and machine learning, with a focus on generative AI and computational photography. I am actively looking for research internships starting Spring 2026.

Education

2021–2026 **University of Maryland**, *College Park, MD, USA*
Ph.D. in Computer Science. GPA: *3.81/4.0*.
Advisor: Christopher Metzler

2017–2021 **Washington University in St. Louis**, *St. Louis, MO, USA*
B.S. in Computer Science. GPA: *3.99/4.0*.
Summa Cum Laude (Graduated with highest honors).
Advisors: Ulugbek Kamilov, Brendt Wohlberg

Selected Publications & Preprints

* denotes equal contribution.

CVPR 2025 **Flash-Split: 2D Reflection Removal with Flash Cues and Latent Diffusion Separation**
T. Fu*, M. Xie*, H. Cai, C. Metzler.
Conference on Computer Vision and Pattern Recognition, 2025. [Project Page] [Paper Link]

ACL Findings **Can Hallucination Correction Improve Video-Language Alignment?**
L. Zhao, M. Xie, P. Cascante, H. Daumé, K. Lee.
ACL Findings, 2025. [Paper Link]

ECCV 2024 **Flash-Splat: 3D Reflection Removal with Flash Cues and Gaussian Splats**
M. Xie*, H. Cai*, S. Shah, Y. Xu, B. Feng, J. Huang, C. Metzler.
European Conference on Computer Vision, 2024. [Project Page]

CVPR 2024 **WaveMo: Learning Wavefront Modulations to See Through Scattering**
M. Xie*, H. Guo*, B. Feng, L. Jin, A. Veeraraghavan, C. Metzler.
Conference on Computer Vision and Pattern Recognition, 2024. [Project Page] [Paper Link]

Preprint **Snapshot High-Dynamic-Range Imaging with a Polarization Camera**
M. Xie*, M. Chan*, C. Metzler. Arxiv. [Paper Link]

Science Advances **NeuWS: Neural Wavefront Shaping for Guidestar-Free Imaging Through Static and Dynamic Scattering Media**
B. Feng*, H. Guo*, M. Xie, V. Boominathan, M. Sharma, A. Veeraraghavan, C. Metzler.
Science Advances, 2023. [Science.org Frontpage Cover] [Paper Link]

IEEE JSAIT **TurbuGAN: An Adversarial Learning Approach to Spatially-varying Multiframe Blind Deconvolution with Applications to Imaging Through Turbulence.**
B. Feng*, M. Xie*, C. Metzler.
IEEE Journal on Selected Areas in Information Theory, 2022. [Paper Link]

WACV 2022 **PROVES: Establishing Image Provenance using Semantic Signatures**
M. Xie, M. Kulshrestha, S. Wang, J. Yang, A. Chakrabarti, N. Zhang, Y. Vorobeychik.
Winter Conference on Applications of Computer Vision, 2022. [Paper Link]

ICCVW 2021 **Joint Reconstruction and Calibration Using Regularization by Denoising with Application to Computed Tomography**
M. Xie*, J. Liu*, Y. Sun, B. Wohlberg, U. S. Kamilov.
International Conference on Computer Vision Workshops (ICCVW), 2021. [Paper Link]

Work Experiences

Summer 2025 **Controllable Autoregressive Video Generation**
Research Internship at Meta Reality Lab. Advised by Lei Luo.
- Developing controllable autoregressive video generation approaches.

Summer 2024 **Languaged-guided Video Color Tonemapping**
Research Internship at *Dolby Laboratories*. Advised by Vijay Kamarshi.
- Developed a diffusion-model-based approach for language-guided video color tone-mapping.

Selected Research Experiences

Spring 2025 **Vision-Language Alignment for Under-represented Image Domains**
University of Maryland. Advised by Christopher Metzler and Paola Cascante-Bonilla.
- Improved vision-language models' robustness across under-represented image domains.

Fall 2024 **2D Reflection Removal using Latent Diffusion Model**
University of Maryland. Advised by Christopher Metzler.
- Developed a novel diffusion-model-based approach using flash cues and latent space separation.
- Achieved significantly better performance than previous state-of-the-art methods.

Spring 2024 **3D Reflection Removal using Gaussian Splatting**
University of Maryland. Advised by Christopher Metzler.
- Developed a novel approach for separating transmitted and reflected 3D scenes by using Gaussian Splatting and unpaired flash and no-flash multi-view images.

2023 **Learning Wavefront Modulations for Imaging Through Scattering**
University of Maryland. Advised by Christopher Metzler & Ashok Veeraraghavan.
- Developed the 1st guidestar-free approach for wide-field-of-view & high-resolution imaging through non-sparse dynamic scattering media via neural representation.

2022 **Generative Adversarial Learning for Spatially Varying Blind Deconvolution**
University of Maryland. Advised by Christopher Metzler.
- Developed a self-supervised image restoration GAN based on distribution matching.

Awards

March 2024 Qualcomm Innovation Fellowship Finalist
August 2023 International Conference on Computational Photography 2023 Best Poster Award
June 2022 Runner-Up Award for CVPR 2022 5th UG2+ Atmospheric Turbulence Mitigation

Technical Skills

Languages Python, Matlab
Other Tools Arduino, 3D Printing, Laser Cutting, AutoCAD, Fusion 360