Yixuan Ren

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Research Summary

Specializing in the intersection of Computer Vision and Generative AI, with focuses on large-scale foundation models for image/video synthesis and editing. Expertise spans from GANs and diffusion models to flow matching and autoregressive approaches, as well as generative visual tokenizers such as VAEs and VQGANs. Long-term goal aiming at building unified generative systems across modalities for immersive and interactive creative intelligence.

Education

University of Maryland, College Park Jan 2026 (expected)
Ph.D. in Computer Science, advised by Prof. Abhinav Shrivastava

University of Maryland, College Park
M.Sc. in Computer Science

Tsinghua University Jul 2016
B.Eng. in Microelectronics / Electronic Engineering

Experience

Research Scientist Intern, **Meta GenAI/MSL** 2025
- Mentored by Mannat Singh, Saketh Rambhatla, Andrew Brown, Arun Mallya
- Worked on instructional image editing via direct flow matching

Research Scientist Intern, **Adobe Research** 2023
- Mentored by Yang Zhou, Jimei Yang, Jing Shi, Difan Liu, Feng Liu
- Worked on one-shot video motion customization of text-to-video diffusion

Research Scientist Intern, **Adobe Research** 2022
- Mentored by Jing Shi, Zhifei Zhang, Yifei Fan, Zhe Lin
- Worked on diffusion-based content-aware image color editing

Research Intern, **ByteDance** 2021
- Mentored by Xiao Yang, Bingchen Liu, Yizhe Zhu
- Worked on fast StyleGAN inversion for OOD images

Publications & Preprints

[*]Equal contribution *[†]Project lead*

Direct Evolution of Instructional Image Editing
Yixuan Ren, Mannat Singh[†], Saketh Rambhatla, Andrew Brown, Arun Mallya, Abhinav Shrivastava
Under Review 2025

NeRV-Diffusion: Diffuse Implicit Neural Representation for Video Synthesis
Yixuan Ren, Hanyu Wang, Hao Chen, Bo He, Abhinav Shrivastava
Under Review 2025 [Project Page] [arXiv]

Characterizing Motion Encoding in Video Diffusion Timesteps
Vatsal Baherwani[*], Yixuan Ren[*], Abhinav Shrivastava
Under Review 2025 [Project Page] [PDF]

LARP: Tokenizing Videos with a Learned Autoregressive Generative Prior
Hanyu Wang, Saksham Suri, Yixuan Ren, Hao Chen, Abhinav Shrivastava
ICLR 2025 *Oral* [Project Page] [arXiv]

Customize-A-Video: One-Shot Motion Customization of Text-to-Video Diffusion Models
Yixuan Ren, Yang Zhou[†], Jimei Yang, Jing Shi, Difan Liu, Feng Liu, Mingi Kwon, Abhinav Shrivastava
ECCV 2024 [Project Page] [arXiv]

Content-Aware Image Color Editing with Auxiliary Color Restoration Tasks
Yixuan Ren, Jing Shi[†], Zhifei Zhang[†], Yifei Fan, Zhe Lin, Bo He, Abhinav Shrivastava
WACV 2024 [PDF]

Towards Scalable Neural Representation for Diverse Videos
Bo He, Xitong Yang, Hanyu Wang, Zuxuan Wu, Hao Chen, Shuaiyi Huang, Yixuan Ren, Ser-Nam Lim, Abhinav Shrivastava
CVPR 2023 [Project Page] [arXiv]

NeRV: Neural Representations for Videos
Hao Chen, Bo He, Hanyu Wang, Yixuan Ren, Ser-Nam Lim, Abhinav Shrivastava
NeurIPS 2021 [Project Page] [arXiv]

StEP: Style-based Encoder Pretraining for Multimodal Image Synthesis
Moustafa Meshry, Yixuan Ren, Ricardo Martin-Brualla, Larry S. Davis, Abhinav Shrivastava
CVPR 2021 [Project Page] [arXiv]

Academic Service

Reviewers: ICCV 2021-, CVPR[‡] 2022-, ECCV[‡] 2022-, NeurIPS 2023-, ICLR 2024-, ICML 2024-, AAAI 2024-

[‡] *Outstanding Reviewers: ECCV'24, CVPR'25*

Skills

Languages: Python, C/C++, Cython, CUDA C/C++
Libaries: PyTorch, TensorFlow, Transformers, Diffusers, Accelerate, PEFT, WebDataset
Infra & Tools: Slurm, Docker/Apptainer, AWS, Bazel, Git LFS, WandB