Beijia Lu

CONTACT

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EDUCATION

University of Illinois Urbana-Champaign, Urbana, IL — 09/2026 - Present
Ph.D. in Computer Science
- Advisor: Prof. Shenlong Wang

Carnegie Mellon University, Pittsburgh, PA — 08/2024 - 12/2025
M.S. in Computer Vision
- Advisor: Prof. Jun-Yan Zhu

City University Of Hong Kong, Hong Kong — 08/2020 - 05/2024
B.S. in Computing Mathematics

PUBLICATIONS

Input-Aware Sparse Attention for Real-Time Co-Speech Video Generation.
Beijia Lu, Ziyi Chen, Jing Xiao, Jun-Yan Zhu.
SIGGRAPH Asia, 2025. [Website]

AniFeats: Animate 3D Feature Meshes for Character Video Generation.
Beijia Lu, Zekai Gu, Zhiyang Dou, Haotian Yuan, Chenyang Si, Yukang Cao, Yuming Jiang, Yuan Liu, Wenping Wang, Ziwei Liu.
IEEE TVCG, 2025. [Paper]

TinyHistory: Lightweight Video History Embeddings via Two-Stage Context Learning.
Lvmin Zhang, Shengqu Cai, Muyang Li, Chong Zeng, **Beijia Lu**, Anyi Rao, Song Han, Gordon Wetzstein, Maneesh Agrawala.
ECCV, 2026. [Paper]

PAT3D: Physics-Augmented Text-to-3D Scene Generation.
Guying Lin, Kemeng Huang, Michael Liu, Ruihan Gao, Hanke Chen, Lyuhao Chen, **Beijia Lu**, Taku Komura, Yuan Liu, Jun-Yan Zhu, Minchen Li.
ICLR, 2026. [Website]

ColonNeRF: Hierarchical Neural Radiance Fields for High-Fidelity Long-Sequence Colon Reconstruction.
Yufei Shi*, **Beijia Lu***, Jia-Wei Liu, Ming Li, Mike Zheng Shou.
Neurocomputing. [Website]

Adding 3D Geometry Control to Diffusion Models.
Wufei Ma*, Qihao Liu*, Jiahao Wang*, Xiaoding Yuan, Angtian Wang, Yi Zhang, Zihao Xiao, Guofeng Zhang, **Beijia Lu**, Ruxiao Duan, Yongrui Qi, Adam Kortylewski, Yaoyao Liu, Alan Yuille.
ICLR, 2024 (Spotlight). [Website]

SemTrack: A Large-scale Dataset for Semantic Tracking in the Wild.
Pengfei Wang*, Xiaofei Hui*, Jing Wu*, Zile Yang*, Kian Eng Ong*, Xinge Zhao, **Beijia Lu**, Dezhao Huang, Evan Ling, Weiling Chen, Keng Teck Ma, Minhoe Hur, Jun Liu.
ECCV, 2024. [Website]

Research Experience

University of Illinois Urbana-Champaign, Urbana, IL 09/2026 - Present
Advisor: Prof. Shenlong Wang

- Developing an agentic approach to reconstructing interactive, controllable worlds from real-world videos through observation, decomposition, and recomposition.
- Exploring compositional representations that enable world components and dynamics to be edited, reused, and recombined.

Carnegie Mellon University, Pittsburgh, PA 08/2024 - 12/2025
Advisor: Prof. Jun-Yan Zhu

- Developed Input-Aware Sparse Attention [SIGGRAPH Asia'25] guided by human pose correspondences for real-time co-speech video generation
- Designed an input-aware distillation loss to improve lip synchronization and preserve facial and hand details
- Achieved 25.3 FPS with a $13.1\times$ speedup over the teacher model while preserving visual quality

Shanghai Artificial Intelligence Laboratory, Shanghai, China 03/2024 - 08/2024
Advisors: Prof. Ziwei Liu and Prof. Yuan Liu

- Developed AniFeats [IEEE TVCG], a framework for temporally consistent character video generation using animated 3D feature meshes
- Projected reference-image features onto SMPL-X meshes and rendered feature maps to guide video diffusion
- Improved temporal coherence and appearance preservation through explicit feature correspondences between the reference image and generated frames

Work Experience

HeyGen Technology Inc., Los Angeles, CA
Research Intern 01/2026 - 05/2026

- Contributed to multi-node distributed training of Avatar V
- Developed benchmarks to evaluate generated video quality, including temporal incoherence detection and identification of AI-generated visual artifacts

Service

Reviewer: CVPR, ECCV, ICCV, ICLR, NeurIPS, SIGGRAPH, SIGGRAPH Asia

Skills

Programming: Python, C++, C, OCaml, JavaScript, x86 Assembly

Software: PyTorch, JAX, NumPy, CUDA