

Junyi Wu

+1-312-965-1630 | wujunyi1206@outlook.com

Homepage |  Google Scholar |  LinkedIn

Chicago, Illinois - 60607, United States

RESEARCH INTERESTS

- **3D Vision:** Dynamic Scene Reconstruction and Understanding.
- **Visual Generation:** Diffusion Model Quantization.
- **Explainable AI:** Transformer Explainability.

EXPERIENCE

- **United Imaging Intelligence** May 2025 - Present
Boston, United States
Research Intern, Supervisor: [Benjamin Planche](#), [Van Nguyen Nguyen](#), [Ziyan Wu](#)
 - Developed a unified framework for 4D scene reconstruction and understanding.
 - Achieved fine-grained object tracking and open-vocabulary semantic segmentation across time and views in 4D.
 - Integrated instance segmentation (via SAM) and vision-language semantics (via CLIP) with 4D Gaussian.
 - Explored 3D reconstruction methods like NeRF, Gaussian Splatting, and VGGT for multi-view consistency.
 - Build wheels for a novel and efficient multi-modal rasterization pipeline based on C/C++ and CUDA.
- **SenseTime** Feb. 2022 - Aug. 2022
Shenzhen, China
Research Intern, Supervisor: [Ze Pan](#), [Wenxiu Sun](#)
 - Developed advanced video frame interpolation models for high-frame-rate film production.
 - Designed multi-scale optical flow estimation modules to handle large and non-linear motion.
 - Conducted experiments on public and proprietary datasets, optimized network architectures for improved interpolation quality.

EDUCATION

- **University of Illinois Chicago** Jan. 2023 - Present
Chicago, United States
Ph.D. Student in Computer Science, Advisor: [Prof. Yan Yan](#)
- **University of Central Florida** Jan. 2024 - Jul. 2024
Orlando, United States
Visiting Student in Computer Science, Advisor: [Prof. Mubarak Shah](#)
- **Sun Yat-sen University** Sep. 2018 - Jun. 2022
Zhuhai, China
B.Sc. in Information and Computing Science, GPA: 4.5/5, Rank: 1/128

PUBLICATIONS

C=CONFERENCE, U=UNDER REVIEW

Junyi Wu has co-authored 14 papers in top-tier computer vision and machine learning venues (CVPR, NeurIPS, ICCV, ECCV, ACMMM, etc.) and published 5 first-authored papers. Below is a publication list. * indicates equal contribution. Full list of publications at [Google Scholar](#).

- [U.1] **Junyi Wu**, Benjamin Planche, Van Nguyen Nguyen, Zhongpai Gao, Meng Zheng, Anwesa Choudhuri, Terrence Chen, Yan Yan, Ziyan Wu **Anchoring Semantics in Time: Instance-Consistent 4D Gaussian Splatting for Dynamic Scene Understanding**.
- [C.1] **Junyi Wu**, Jiachen Tao, Haoxuan Wang, Gaowen Liu, Ramana Rao Kompella, Yan Yan **Orientation-anchored Hyper-Gaussian for 4D Reconstruction from Casual Videos**. NeurIPS'25.
- [C.2] Feiran Wang*, Jiachen Tao*, **Junyi Wu***, Haoxuan Wang, Bin Duan, Kai Wang, Zongxin Yang, Yan Yan **X-Field: A Physically Grounded Representation for 3D X-ray Reconstruction**. NeurIPS'25 (Spotlight).
- [U.2] Haoxuan Wang, Jiachen Tao, **Junyi Wu**, Gaowen Liu, Ramana Rao Kompella, Yan Yan **Motion Marionette: Rethinking Motion Transfer via Prior Guidance**.
- [U.3] Jiachen Tao, **Junyi Wu**, Haoxuan Wang, Zongxin Yang, Dawen Cai, Yan Yan **TraceFlow: Dynamic 3D Reconstruction of Specular Scenes Driven by Ray Tracing**.
- [U.4] Feiran Wang, **Junyi Wu**, Dawen Cai, Yuan Hong, Yan Yan **CogniMap3D: Cognitive 3D Mapping and Rapid Retrieval**.
- [C.3] **Junyi Wu***, Haoxuan Wang*, Yuzhang Shang, Mubarak Shah, Yan Yan **PTQ4DiT: Post-training Quantization for Diffusion Transformers**. NeurIPS'24.

- [C.4] **Junyi Wu**, Bin Duan, Weitai Kang, Hao Tang, Yan Yan **Token Transformation Matters: Towards Faithful Post-hoc Explanation for Vision Transformer** . CVPR'24.
- [C.5] **Junyi Wu**, Weitai Kang, Hao Tang, Yuan Hong, Yan Yan **On the Faithfulness of Vision Transformer Explanations** . CVPR'24.
- [C.6] Haoxuan Wang, Yuzhang Shang, Zhihang Yuan, **Junyi Wu**, Junchi Yan, Yan Yan **QuEST: Low-bit Diffusion Model Quantization via Efficient Selective Finetuning**. ICCV'25.
- [C.7] Weitai Kang, Luowei Zhou, **Junyi Wu**, Changchang Sun, Yan Yan **AttBalance: Visual Grounding with Attention-Driven Constraint Balancing**. ACMMM'25.
- [C.8] Zhenghao Zhao, Haoxuan Wang, **Junyi Wu**, Yuzhang Shang, Gaowen Liu, Yan Yan **Efficient Multimodal Dataset Distillation via Generative Models**. NeurIPS'25.
- [C.9] Haoxuan Wang, Zhenghao Zhao, **Junyi Wu**, Yuzhang Shang, Gaowen Liu, Yan Yan **CaO2: Rectifying Inconsistencies in Diffusion-Based Dataset Distillation**. ICCV'25.
- [C.10] Zhenghao Zhao, Yuzhang Shang, **Junyi Wu**, Yan Yan **Dataset Quantization with Active Learning based Adaptive Sampling**. ECCV'24.

HONORS AND AWARDS

- **Outstanding Graduate** 2022
Sun Yat-sen University
- **National Scholarship** 2020 - 2021
Sun Yat-sen University
- **First Prize Student Scholarship** 2019 - 2022
Sun Yat-sen University
- **Erudition Scholarship of School of Mathematics** 2019
Sun Yat-sen University

SKILLS

- **Programming:** Python (PyTorch), C/C++, CUDA
- **Language:** English, Mandarin, Cantonese, Teochew

SERVICES

Conference Reviewer: CVPR'24/25, ICCV'25, ECCV'24, NeurIPS'24/25, ICLR'24/25, ICML'24, ACMMM'25.

Journal Reviewer: TPAMI, CVIU, TCSVT.

Guest Instructor: Energy-Efficient Deep Learning (CS 594), Deep Learning (CS 577), Advanced Machine Learning (CS 512), Machine Learning (CS 412).

Workshop Program Committee: Advanced Perception for Autonomous Healthcare (APAH@ICCV2025).