JUNYING WANG

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EDUCATION

University of Southern California, Los Angeles, CA **08/2020 - Present**
PhD Candidate in Computer Science, advised by Prof. Ulrich Neumann and Prof. Yue Wang

University of Southern California, Los Angeles, CA **01/2018 - 05/2020**
Master of Engineering in Computer Science, Advisor: Prof. Hao Li

Ocean University of China, Qingdao, China **06/2013 - 07/2017**
Bachelor of Engineering in Computer Science

RESEARCH AREAS & SKILLS

Research Areas: Digital Human, Generative AI, 3D Recontruction, Neural Rendering, Humanoid
Programming: Python, C/C++, Java
Software & Tools: PyTorch, OpenGL, Blender, Maya, Unity

WORK EXPERIENCE

Meta Inc. Research Scientist Intern **05/2025 - 12/2025**
- Mentor: Dr. Yuanlu Xu
• Work on the research project - Generalizable Human 3D Gaussian Splatting Editing and Enhancement.
• Exploring multi-layer Gaussian avatar editing and enhancement using 3D generative models.
• Contribute one submission to CVPR 2026 (under review).

Meta Inc. Research Scientist Intern **06/2024 - 12/2024**
- Mentor: Dr. Tony Tung
• Work on the research project - Dynamic Gaussian Hair.
• Develop a data-driven dynamic hair solver for modeling and rendering dynamic hair using 3D Gaussian representations.
• Contribute one submission to NeurIPS 2025 (published).

Adobe Inc. Research Scientist Intern **09/2023 - 01/2024**
- Mentor: Dr. Jae Shin Yoon
• Work on the research project - Repurposing Diffusion Models for Generalizable and Consistent Monocular Human Relighting.
• Propose a novel method that can control the light from an image or video of humans with arbitrary body parts.
• Contribute one submission to CVPR 2025 (published).

Adobe Inc. Research Scientist Intern **05/2022 - 12/2022**
- Mentor: Dr. Jae Shin Yoon
• Work on the research project - Complete 3D Human Reconstruction from a Single Incomplete Image.
• Build a novel model to reconstruct a complete human geometry and texture from a partial body image.
• Contribute one submission to CVPR 2023 (published).

PUBLISHED PUBLICATIONS

• **DGH: Dynamic Gaussian Hair** **2025**
***Junying Wang**, Yuanlu Xu, Edith Tretschk, Ziyan Wang, Anastasia Ianina, Aljaž Božič, Ulrich Neumann, Tony Tung*
Conference on Neural Information Processing Systems (NeurIPS), 2025

• **Comprehensive Relighting: Generalizable and Consistent Monocular Human Relighting and Harmonization** **2025**
***Junying Wang**, Jingyuan Liu, Xin Sun, Krishna Kumar Singh, Zhixin Shu, He Zhang, Jimei Yang, Nanxuan Zhao, Tuanfeng Yang Wang, Simon Su Chen, Ulrich Neumann, Jae Shin Yoon*
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025

• **Boosting Generalizability towards Zero-Shot Cross-Dataset Single-Image Indoor Depth by Meta-Initialization** **2024**
*Cho-Ying Wu, Yiqi Zhong, **Junying Wang**, Ulrich Neumann*
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024

• **Complete 3D Human Reconstruction from a Single Incomplete Image** **2023**
***Junying Wang**, Jae Shin Yoon, Tuanfeng Wang, Krishna Kumar Singh, Ulrich Neumann*
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023

• **Meta-Optimization for Higher Model Generalizability in Single-Image Depth Prediction** **2023**
*Cho-Ying Wu, Yiqi Zhong, **Junying Wang**, Ulrich Neumann*
IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2023

PATENT

• **Complete 3D Object Reconstruction from an Incomplete Image** **filed 03/06/2025**
*Jae Shin Yoon, Tuanfeng Wang, Krishna Kumar Singh, **Junying Wang**, Jingwan Lu*
U.S. Patent Application No. 18/242,380

SELECTED PROJECTS

Humanoid Everywhere: A Scalable Environment and Data Generator for Humanoid Manipulation **12/2025 – Present**
- A research project on scalable generation of simulation-ready 3D environments and assets for humanoid manipulation training.
- Aiming to generate large-scale digital assets from text prompts as a generative prior for real-world deployment.
• Phase I: Text-to-3D asset generation producing physically stable scenes and objects for post-training.
• Phase II: Integration of generated assets into a simulator for training humanoid grasping and motion planning policies.

VideoLincs: From Video to Real-ID Gallery and Person Re-Identification **12/2025 – Present**
- A research project on building real-identity galleries from in-the-wild videos and achieving high-accuracy person re-identification.
- Aiming to leverage generative models for data augmentation to improve robustness across pose and view variations.
• Multi-view and pose-guided synthetic data generation using diffusion models to enrich the identity gallery.
• Training improved matching models using both query and gallery features on the augmented dataset.

Free-View Volumetric Human Body Capturing From Sparse Views **05/2021 - 11/2021**
- A research project presents a novel end-to-end free-view human performance capturing approach from sparse views.
- The first non-parametric human body capturing system using volumetric rendering with only 2D image supervision.
• Built a novel end-to-end trainable sparse-view volumetric human body capturing system for high-quality, free-view rendering.
• Proposed a novel contrastive learning approach to ensure the local smoothness and continuity of human body surface.

Contrastive Learning for Image Disentanglement **01/2020 -06/2020**
- A research project of training a general model for image disentanglement by using contrastive learning.
- Via user studies, the proposed model can do feasible image disentanglement on different datasets.
• Proposed an intuitive approach of unsupervised end-to-end learning for image disentanglement.
• Proved that using contrastive learning on image features can enhance the accuracy and fidelity of the generated images.

Img2Motion: Learning to Drive 3D Avatar Using Videos **05/2019 -11/2019**
- A research project of building a neural network motion retargeting system.
- Via user studies, the designed system can successfully animate any 3D avatar using the motions extracted from 2D videos.
• Proposed a neural network motion retargeting system that utilizes videos to drive 3D subjects with varying skeleton structures.
• Built a large-scale dataset with varieties of human poses by animating existing rigged human models.

K-D Tree for Faster Path Tracer **10/2019 - 11/2019**
- A personal project of using k-d tree to do faster path tracing.
- Compared to traditional path tracer, this render can cut in half of the running time.
• Completed reproducing a more complex light environment through the use of Monte Carlo integration.
• Used bounding boxes to represent objects; used k-d tree to store bounding boxes to achieve running time improvements.

PROFESSIONAL SERVICES

Teaching Experience
• Grader, USC CSCI-621 Digital Geometry Processing (Instructor: Prof. Hao Li) **01/2019 – 05/2019**
• Teaching Assistant, USC CSCI-570 Analysis of Algorithms (Instructor: Prof. Victor Adamchik) **01/2021 – 05/2021**
• Teaching Assistant, USC CSCI-576 Multimedia Systems Design (Instructor: Prof. Parag Havaldar) **01/2022 – 12/2025**

Conference Reviewer
• International Conference on Robotics and Automation (ICRA) **2026**
• Computer Vision and Pattern Recognition (CVPR) **2024 - 2026**
• International Conference on Computer Vision (ICCV) **2025**
• ACM International Conference on Multimedia (MM) **2025**
• Conference on Artificial Intelligence (AAAI) **2025-2026**
• International Conference on 3D Vision (3DV) **2025-2026**

Mentorship & Outreach
• USC Graduate Student Mentorship Program (Mentor) **2025-2026**
• USC Women in Engineering Mentorship Program (Mentor) **2025-2026**

Honors & Awards
• Outstanding Undergraduate Scholarship, Ocean University of China (OUC) **2014-2016**
• USC Graduate Student Government (GSG) Professional Development Fund **2023, 2025**