YUANHAO WANG

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Google Scholar ◇ Github ◇ LinkedIn

EDUCATION

Carnegie Mellon University *May 2025 (expected)*
M.S. in Robotics
GPA: 4.0/4.0
Advisor: Prof. Fernando De la Torre

Brown University *May 2023*
Sc.B. in Applied Mathematics – Computer Science
GPA: 4.0/4.0
Graduated with Honors; won Senior Price in Computer Science
Advisor: Prof. James Tompkin
Thesis: Human-like Perceptual Biases in Convolutional Neural Networks

RESEARCH INTERESTS

Generative Models, 3D Computer Vision, Human-Centered AI, Vision for Social Good

PUBLICATIONS AND MANUSCRIPTS

GarmentCrafter: Progressive Novel View Synthesis for Single-View 3D Garment Reconstruction and Editing Paper Link
Yuanhao Wang, Cheng Zhang, Goncalo Frazao, Jinlong Yang, Alexandru-Eugen Ichim, Thabo Beeler, Fernando De la Torre
Submittded to CVPR 2025

FabricDiffusion: High-Fidelity Texture Transfer for 3D Garments Generation from In-The-Wild Clothing Images Project Page
Yuanhao Wang*, Cheng Zhang*, Francisco Vicente, Chenglei Wu, Jinlong Yang, Thabo Beeler, Fernando De la Torre (* equal contributions)
SIGGRAPH Asia 2024

On Human-like Biases in Convolutional Neural Networks for the Perception of Slant from Texture Paper Link
Yuanhao Wang, Qian Zhang, Celine Aubuchon, Jovan Kemp, Fulvio Domini, and James Tompkin
ACM Transactions on Applied Perception 2023 **(TAP 2023)**

RESEARCH EXPERIENCE

GarmentCrafter: 3D Garment Reconstruction and Editing Jun 2024 - Present
Student at CMU, supervised by Prof. Fernando De La Torre Under review at **CVPR 2025**

- Democratized 3D garment assets reconstruction and editing from a single-view clothing image.
- Proposed Progressive Novel View Synthesis (P-NVS) for consistent multi-view RGBD generation.

FabricDiffusion: Texture Transfer for 3D Garments Generation Oct 2023 - June 2024
Student at CMU, supervised by Prof. Fernando De La Torre **SIGGRAPH Asia 2024**

- Proposed a data-driven approach for transferring fabric texture and Physically-Based Rendering (PBR) materials from a single clothing image to arbitrary 3D garments using diffusion models.
- Oral presentation at SIGGRAPH Asia 2024 in Tokyo.

Undergraduate Thesis: Human-like Perceptual Biases in CNNs Jun 2022 - May 2023
Student at Brown University, supervised by Prof. James Tompkin **TAP 2023**

- Discovered similarities between unsupervised deep learning models and human visual systems in depth-estimation responses; replicated human-like perceptual biases in CNN models.
- Accepted to a special issue of the journal Transactions on Applied Perception **(TAP 2023)**; oral presentation at ACM Symposium on Applied Perception **(SAP 2023)** in Los Angeles.

Towards Single-View 3D Reconstruction in the Wild Jan 2021 - May 2022
Student at Brown University, supervised by Prof. James Tompkin and Prof. Kwang In Kim

- Investigated the problem of unsupervised single-view 3D reconstruction with unknown camera poses;
- Explored methods to learn 3D representations directly from data using gaussian blobs as coarse geometric proxies. Slides

INTERNSHIP

China Construction Bank May 2021 - Jul 2021
Machine Learning Intern Suzhou, China

- Engineered a neural network-based solution for fraud detection for over 20 million user accounts;
- Model significantly enhanced both accuracy and callback rates and was deployed in production.

Yinghe Science and Technology Ltd. May 2020 - Jun 2020
Data Scientist Intern Suzhou, China

- Automated web content scraping with BeautifulSoup and Selenium, built a database with MySQL, extracted information from raw text with NLP tools;
- Turned data into actionable insights and presented them to the business team for strategic planning.

SELECTED PROJECTS

Language-guided 3D Object Editing
CSCI 2951I, Computer Vision for Graphics and Interaction, Fall 2022

- Led the project on modifying the appearance and geometry of 3D objects by leveraging CLIP (Contrastive Language–Image Pre-training) features;
- Model achieved competitive results on text-guided mesh stylization. Slides & Report

Dynamic Neural Radiance Field with INGP
CSCI 2952N, Advanced Topics in Deep Learning, Spring 2022

- Proposed to fuse Instant Neural Graphics Primitives (INGP) with the Neural Scene Flow Field (NSFF) backbone to model moving objects; extended multi-resolution hash-encoding to dynamic settings;
- Took charge of running experiments and analyzing results. Github Link

Calligraphy Style Transfer
Brown Visual Computing Onboarding Project, Winter 2021

- Re-implemented CycleGAN for calligraphy style transfer on Chinese characters; proposed a variant of CycleGAN that achieved competitive results on the synthetic dataset of characters. Github Link

Waste Image Classification
CSCI 1470, Deep Learning, Fall 2020

- Modified DenseNet to reach state-of-the-art image classification accuracy on a waste image dataset.

HONORS AND AWARDS

Siggraph Asia 2024 Student Volunteer	*2024*
Brown CS Senior Price	*2023*
Brown CS Honors	*2023*
Brown Undergraduate Teaching & Research Award	*2021*
National Champion in the 4th "Liji" Cup National High School Chinese Debate	*2019*

MISCELLANEOUS EXPERIENCE

Captain of Brown Badminton Team	*Sep 2022 - May 2023*
President of the United World College Chinese Debate Club	*Aug 2018 - May 2019*