# 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 Fashion

## PUBLICATIONS AND MANUSCRIPTS

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

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| 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

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