YUANHAO WANG

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Google Scholar ⋄ Github ⋄ LinkedIn

EDUCATION

Carnegie Mellon University (CMU)   *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 Math – 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

3D Computer Vision, Generative Models, Computer Vision

RESEARCH EXPERIENCE

Interactive 3D Garment Editing from Single Image   Jun 2024 - Present
Student at CMU, supervised by Prof. Fernando De La Torre   In progress
· Proposed to modify the geometry and appearance of a 3D garment based on a single 2D image
· Leveraged geometric priors for multi-view consistent generations

FabricDiffusion: Texture Transfer for 3D Garments Generation   Oct 2023 - Jun 2024
Student at CMU, supervised by Prof. Fernando De La Torre   **SIGGRAPH Asia 2024**
· Proposed a novel framework for transferring fabric textures and prints from a single clothing image to 3D garments of arbitrary shapes
· Demonstrated the capability of FabricDiffusion on a variety of texture patterns and material types; outperformed the previous state-of-the-art by a significant margin

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
· Paper was published in a special issue of the journal Transactions on Applied Perception (**TAP 2023**), and was orally presented at ACM Symposium on Applied Perception (**SAP 2023**)

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
· Model achieved competitive reconstruction results with known camera poses

PUBLICATIONS AND MANUSCRIPTS

FabricDiffusion: High-Fidelity Texture Transfer for 3D Garments Generation from In-The-Wild Clothing Images

Yuanhao Wang*, Cheng Zhang*, Francisco Vicente, Chenglei Wu, Jinlong Yang, Thabo Beeler, Fernando De la Torre

SIGGRAPH Asia 2024

On Human-like Biases in Convolutional Neural Networks for the Perception of Slant from Texture

Yuanhao Wang, Qian Zhang, Celine Aubuchon, Jovan Kemp, Fulvio Domini, and James Tompkin

ACM Transactions on Applied Perception 2023 **(TAP 2023)**

INTERNSHIP

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

· Engineered a machine learning-powered fraud detection system for over 20 million user accounts;
· Implemented an algorithm that significantly enhanced both accuracy and callback rates, which was successfully 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);
· designed and implemented models; achieved competitive results in mesh stylization.

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

· Attempted to fuse Instant Neural Graphics Primitives (INGP) with the Neural Scene Flow Field (NSFF) backbone to efficiently model moving objects; proposed ideas to extend the multi-resolution hash-encoding to dynamic settings;
· Took the 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.

ACHIEVEMENTS

Senior Price in Computer Science, Brown University	*May 2023*
National Champion in the 4th "Liji" Cup National High School Chinese Debate	*Jul 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*