Weijie Lyu

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RESEARCH INTERESTS

Computer Vision

- Current Focus: 3D/4D Reconstruction, Face Reconstruction and Generation
- Previous Experience: Continual Learning, Autonomous Driving, Image Generation, Robotics, etc.

EDUCATION

University of California, Merced, Merced, CA — Aug. 2023 — Present
Doctor of Philosophy, Electrical Engineering and Computer Science

- Ph.D. Advisor: Prof. Ming-Hsuan Yang

University of Illinois, Urbana-Champaign, Urbana-Champaign, IL — Aug. 2021 — May 2023
Master of Science, Computer Science

- M.S. Advisor: Prof. Derek Hoiem
- Thesis: *MACON: Memory-Augmented Continual Learning for Open-world Classification*

ShanghaiTech University, Shanghai, China — Sept. 2017 — July 2021
Bachelor of Engineering, Computer Science and Technology

- Senior Thesis Advisor: Prof. Zhihao Jiang
- Thesis: *Intelligent Driving Verification Platform Based on Virtual Traffic Conditions*
- Award: Outstanding Graduate of Shanghai; Outstanding Graduate of ShanghaiTech University

University of California, Berkeley, Berkeley, CA — Aug. 2019 — May 2020
Visiting Student, Electrical Engineering and Computer Science

- Undergraduate Research Advisor: Prof. Sonia Bishop

WORK EXPERIENCE

Adobe Research, San Jose, CA — May 2024 — Present
Research Scientist/Engineer Intern

- Research focuses on 3D and 4D face reconstruction.
- Co-developed *FaceLift*, a framework for high-fidelity 3D head reconstruction, accepted by ICCV 2025.

PUBLICATIONS AND PREPRINTS

FaceLift: Learning Generalizable Single Image 3D Face Reconstruction from Synthetic Heads
Weijie Lyu*, Yi Zhou, Ming-Hsuan Yang, Zhixin Shu*

- ICCV 2025
- *Project Page:* `https://weijielyu.github.io/FaceLift`

InstaInpaint: Instant 3D-Scene Inpainting with Masked Large Reconstruction Model
Junqi You, Chieh Hubert Lin, ***Weijie Lyu****, Zhengbo Zhang, Ming-Hsuan Yang*

- arXiv 2025
- *Project Page:* `https://dhmbb2.github.io/InstaInpaint_page`

HoliGS: Holistic Gaussian Splatting for Embodied View Synthesis
Xiaoyuan Wang, Yizhou Zhao, Botao Ye, Xiaojun Shan, ***Weijie Lyu****, Lu Qi, Kelvin C.K. Chan, Yinxiao Li, Ming-Hsuan Yang*

- arXiv 2025

Gaga: Group Any Gaussians via 3D-aware Memory Bank
Weijie Lyu*, Xueting Li, Abhijit Kundu, Yi-Hsuan Tsai, Ming-Hsuan Yang*

- arXiv 2024
- *Project Page:* `https://weijielyu.github.io/Gaga`

PTT: Point-Trajectory Transformer for Efficient Temporal 3D Object Detection
Kuan-Chih Huang, ***Weijie Lyu****, Ming-Hsuan Yang, Yi-Hsuan Tsai*

- CVPR 2024
- *Project Page:* `https://github.com/kuanchihhuang/PTT`

Continual Learning in Open-vocabulary Classification with Complementary Memory Systems
Zhen Zhu,* ***Weijie Lyu****, Yao Xiao, Derek Hoiem*

- TMLR 2024
- *Project Page:* `https://github.com/jessemelpolio/TreeProbe`

Consistent Multimodal Generation via A Unified GAN Framework
Zhen Zhu, Yijun Li, ***Weijie Lyu****, Krishna Kumar Singh, Zhixin Shu, Sören Pirk, Derek Hoiem*

- WACV 2024
- *Project Page:* `https://github.com/jessemelpolio/TreeProbe`

SafeBench: A Benchmarking Platform for Safety Evaluation of Autonomous Vehicles
Chejian Xu, Wenhao Ding*,* ***Weijie Lyu****, Zuxin Liu, Shuai Wang, Yihan He, Hanjiang Hu, Ding Zhao, Bo Li*

- NeurIPS 2022
- *Project Page:* `https://safebench.github.io`

CircuitBot: Learning to survive with robotic circuit drawing
Xianglong Tan, ***Weijie Lyu****, Andre Rosendo*

- PLOS ONE 2022

ACADEMIC SERVICES

Conference Reviewer CVPR, ICCV, ICLR, NeurIPS, Eurographics, ACCV, etc.
Journal Reviewer PAMI, TMLR, etc

PROJECTS

Face to Emoji UIUC, Spring 2022
Project Page: `https://github.com/weijielyu/face2emoji`

- CS 455 course project advised by Prof. Yuxiong Wang
- Develop a face-to-emoji converter based on emotion classification and face orientation detection to achieve precise alignment

Lane Boundaries Detection in Extreme Scenario UIUC, Fall 2021
Project Page: `https://github.com/weijielyu/CS588_Final_Project`

- CS 588 course project advised by Prof. David Forsyth
- Develop a lane-following algorithm that surpasses deep learning-based methods on sharply curved lanes by effectively using Canny edge-detection, Hough line detection, DBSCAN, etc.

Developmental Prosopagnosia and Autism-trait (DPA) Project UC Berkeley, Spring 2020

- Undergraduate researcher advised by Prof. Sonia Bishop

- Detect and visualize eye tracker data, distinguishing fixations, blinks, and saccades while examining facial features to identify behavioral distinctions between individuals with and without DPA

Robot Art: Using Robot Arm to Draw Pictures UC Berkeley, Fall 2019

Project Page: `https://sites.google.com/berkeley.edu/ee106a-roboart`

- EECS C106A course project advised by Prof. S. Shankar Sastry
- Design a PID control system that allows a robot to draw a portrait / write Chinese characters with Robot Operating System (ROS)