Yunhao Liu

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Education

Technical University of Munich Munich, Germany
- Exchange student majoring in *Informatics* *2023 - 2024*

Dalian University of Technology Dalian, China
- Undergraduate majoring in *Computer Science and Technology* *2020 - 2025*
- **GPA: 3.91** (**91.1**/100)

Publications

Effective Adapter for Face Recognition in the Wild *Arxiv Preprint*

***Yunhao Liu**, Lu Qi, Yu-Ju Tsai, Xiangtai Li, Kelvin C.K. Chan, Ming-Hsuan Yang* *2024*
- We propose a novel framework for face recognition in the wild. It simultaneously processes low-quality and high-quality images enhanced by the face restoration model, bridging the gap between different image domains.
- The key to our face recognition framework is an adaptor design that the pre-trained model on high-quality images can initialize. It allows the model to adapt low-quality images without training from scratch quickly. In this way, the adaptor design keeps the original performance of low-quality images as the lower bound.
- With the help of Cross-Attention and Self-Attention mechanisms, the extensive experiments show the considerable accuracy and reliability of the recognition process in the wild.

Experience

Guided Research *2023 - 2024*

Visual Computing and AI Group, TUM *Mentor: Dr. Tobias Kirschstein, Dr. Simon Giebenhain*
- Research on 3D Vision, specifically Multi-View Stereo via Inverse Rendering.

Undergraduate Research Intern *2023 - 2024*

Vision and Learning Lab , UC Merced *Mentor: Prof. Ming-Hsuan Yang , Dr. Lu Qi*
- Research on high-level computer vision, specifically Face Recognition.

Guided Research *2023*

GEARS Program, NC State University *Mentor: Prof. Edward F. Gehringer, Dr. Qinjin Jia*
- Research on an NLP application task, specifically using a seq2seq generation model to assess the factuality of system-generated feedback.

Undergraduate Research Intern *2021 - 2023*

IIAU Lab, Dalian University of Technology *Mentor: Prof. Huchuan Lu*
- Research on high-level computer vision, specifically Object Detection.
- ***Project**: Underwater Robotics Vision*
  In order to enhance robot underwater object detection, we employ Two-Stage (detectoRS) and One-Stage (YOLOX) Object Detection Algorithms for optimal accuracy and speed. We also implement advanced training techniques including data mosaic, mixup, and multi-scale training, and develop methods for detecting tiny and overlapping underwater objects.

Undergraduate Research Intern *2021*

ICCD Lab, Dalian University of Technology *Mentor: Prof. Xin Yang*
- Research on a vision application task, specifically vision algorithms for UAV Obstacle Avoidance.
- ***Project**: UAV Automatic Traversing System for Ring Obstacles*

- We develop a UAV Automatic Traversing System for ring obstacles, incorporating a custom-built F450(330) drone with a Nvidia NX onboard computer. We design and implement an obstacle-passing algorithm using YOLOV5 and OpenCV, and execute UAV flight path planning on Unreal Engine 4 (UE4), finally achieving automatic traversing of ring obstacles through the integration of these algorithms with the physical drone.

Honors and Awards

Third Prize 2021 China Intelligent UAV Racing Championship (rk.**7**) *2021*
Third Prize 2021 China Underwater Robot Professional Contest - Optics Track (rk.**9**) *2021*
Technology Innovation && Learning Excellence Scholarship, DUT (Top **5%**) *2021, 2022, 2023*

Selected Courses

Applying Machine Learning to Engineering and Science (MIT) [Certificate]
Master Seminar 3D Vision (TUM) **3D Scanning & Spatial Learning (TUM)**

Skills

- Programming Languages: Python, C/C++, MATLAB, Verilog
- Tools: Git, Shell, PyTorch