Xuhua Huang

xuhuah@alumni.cmu.edu • https://xuhuaking.github.io

Education

Carnegie Mellon University – School of Computer Science **Pittsburgh, PA**
M.S. in Computer Vision | GPA: 4.0 / 4.0 *Feb 2021 – May 2022*
Advisors: Prof. Kris Kitani & Prof. Deva Ramanan

The Hong Kong University of Science and Technology (HKUST) **Hong Kong**
B.E., Computer Science, Minor in Big Data Technology | Major GPA: 3.9 / 4.3 (Top 5%) *Sep 2015 – Jun 2020*
Honors: First Class Honors, HKSAR Government Scholarship, Dean's List, Scholarship for top 10% UG students

Selected Publications

1. **Lidar Panoptic Segmentation and Tracking without Bells and Whistles** In *IROS, 2023*
2. **Multiface: A Dataset for Neural Face Rendering** In *CVPRW, 2023* (600+ stars in Github)
3. **Ego4d: Around the world in 3,000 hours of egocentric video** In *CVPR, 2022* (Oral, Best Paper Finalist)
4. **A Categorized Reflection Removal Dataset with Diverse Real-world Scenes** In *CVPRW, 2022*
5. **EgoAugment: CMU-KLAB Submission to the EPIC-Kitchens Action Recognition 2021 Challenge** In *CVPRW, 2021*
6. **Fast Video Object Segmentation with Temporal Aggregation Network and Dynamic Template Matching** In *CVPR, 2020*
7. **Polarized Reflection Removal with Perfect Alignment in the Wild** In *CVPR, 2020*

Work Experience

Meta Platforms, Inc. **Burlingame, CA**
Applied Research Scientist in Meta Reality Labs *Aug 2022 – Present*

- Participate in the research and development of Meta's next generation Virtual Reality (VR) products and contributed to the improvement of our industry-leading realistic representation algorithm (i.e. Codec Avatar)
- Established a scalable evaluation pipeline for the core VR face Codec Avatar models, which played an essential role in algorithm improvement and VR headset design

Meta Platforms, Inc. **Pittsburgh, PA (Remote)**
Software Engineer Intern in Meta Reality Labs *May 2021 – Aug 2021*

- Participated in the development of Meta's next generation Augmented Reality (AR) smart glasses and established a scalable evaluation pipeline for the core 3D facial reconstruction model
- Investigated the effects of diverse noisy input signals (e.g., RGBD images) on the output performance through 300+ experiments. Contributed a 95-page comprehensive analysis report, which played an essential role in algorithm improvement

SenseTime Group Limited **Hong Kong**
Research Intern in Mobile Intelligence Group *Feb 2020 – Feb 2021*

- Developed a real-time adaptive image enhancement method based on Deep Curve Estimation, significantly enhancing the quality of mobile-taken night-scene HDR photos to industry-leading level
- Upgraded a Fully Convolutional Network to tackle image auto-cropping problems with composition-aware and saliency-aware aesthetic score map, achieving 80%+ accuracy and 1.1ms/image speed

Palo Alto Networks **Mountain View, CA**
Intern in Data Analytics & Cloud Team *Sep 2018 – Jun 2019*

- Analyzed network behavior anomalies and captured useful features from network traffic for AI modeling
- Optimized a large-scale distributed streaming data pipeline deployed on Amazon Web Service, with Kafka and Spark

Tencent **Shenzhen, China**
R&D Intern in Machine Learning Group (advised by Prof. Yu-Wing Tai) *May 2018 – Aug 2018*

- Designed and implemented a refined object detection model achieving 90%+ accuracy on industrial-level datasets through advanced analysis of various state-of-the-art pipelines and their variants
- Developed a productive framework for Neural Network Optimization through magnitude-based filter pruning in PyTorch, which successfully reduced 40% parameters of our detection models without sacrificing accuracy

Research Experience

Argo AI **Pittsburgh, PA**

Research Collaborator (advised by Prof. Deva Ramanan) *Sep 2021 – May 2022*

- Proposed a novel 3D/4D panoptic lidar segmentation approach for Autonomous Driving, that unifies per-point semantic segmentation with modal object recognition in a single network
- Established a new state-of-the-art on 3D/4D lidar panoptic segmentation benchmarks (first-authored paper is under submission)

HKUST Robotics Institute **Hong Kong**

Research Assistant *Dec 2016 – Sep 2017*

- Designed a creative feature recognition method aiming to distinguish different track conditions within 1.5ms, through which our intelligent robots can react at least 20cm ahead with speed increased by 5% and stability enhanced by 10%

Skills

Programming Languages Python | C++ | Java | JavaScript | MATLAB | SQL / NoSQL | C

Tools PyTorch | TensorFlow | Caffe | OpenCV | PhotoShop