

Tao Hu

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RESEARCH MANAGER IN NATIONAL UNIVERSITY OF SINGAPORE (NUS)

EDUCATION

Chinese University of Hong Kong, Hong Kong SAR, China
Doctor of Philosophy, Computer Science and Engineering
[Prof. Jiaya Jia.](#) 30/7/2023
University of Chinese Academy of Sciences, Beijing, China
Master of Engineer, Computer Science 30/6/2019
University of Electronic Science and Technology of China, Chengdu, China
Bachelor of Engineer, Automation Engineering 30/6/2016

RESEARCH INTERESTS

Computer Graphics (3D Rendering and Reconstruction), Computer Vision (Alignment and Recognition), Neural Radiance Fields

PUBLICATIONS

- **Tao Hu**, Wenhang Ge, Yuyang Zhao, Gim Hee Lee. "X-Ray: A Sequential 3D Representation for Generation." [arXiv preprint arXiv:2404.14329](#). [Homepage](#)
 - Wenhang Ge, **Tao Hu**, Haoyu Zhao, Shu Liu, Ying-Cong Chen. "Ref-NeuS: Ambiguity-Reduced Neural Implicit Surface Learning for Multi-View Reconstruction with Reflection." [ICCV-2023](#) [Homepage](#) ([Best Paper Final List](#)).
 - **Tao Hu**, Xiaogang Xu, Ruihang Chu, Jiaya Jia. "TriVol: Point Cloud Rendering via Triple Volumes." [CVPR-2023](#).
 - **Tao Hu**, Xiaogang Xu, Shu Liu, Jiaya Jia. "Point2Pix: Photo-Realistic Point Cloud Rendering via Neural Radiance Fields." [CVPR-2023](#).
 - Zhou Kun, Wenbo Li, Yi Wang, **Tao Hu**, Nianjuan Jiang, Xiaoguang Han, Jiangbo Lu. "NeRFLix: High-Quality Neural View Synthesis by Learning a Degradation-Driven Inter-viewpoint MiXer". [CVPR-2023](#).
 - **Tao Hu**, Shu Liu, Yilun Chen, Tianchen Shen, Jiaya Jia, "EfficientNeRF: Efficient Neural Radiance Fields." [CVPR-2022](#).
 - **Tao Hu**, Liwei Wang, Xiaogang Xu, Shu Liu, Jiaya Jia, "Self-Supervised 3D Mesh Reconstruction from Single Images." [CVPR-2021](#).
 - **Tao Hu**, Honggang Qi, Qingming Huang, Yu Lu, "See better before looking closer: Weakly supervised data augmentation network for fine-grained visual classification." [arXiv preprint arXiv:1901.09891](#)
 - **Tao Hu**, Honggang Qi, Cong Huang, Qingming Huang, Yan Lu, Jizheng Xu, "Weakly Supervised Local Attention Network for Fine-Grained Visual Classification." [arXiv preprint arXiv:1808.02152](#)
 - **Tao Hu**, Honggang Qi, Jizheng Xu, Qingming Huang, "Facial Landmarks Detection by Self-Iterative Regression Based Landmarks-Attention Network." [AAAI-2018](#)
 - S Lyu, MC Chang, D Du, L Wen, H Qi, Y Li, Y Wei, L Ke, **Tao Hu**, "UA-DETRAC 2017: Report of avss2017 & iwt4s challenge on advanced traffic monitoring" [AVSS-2017: 1-7](#)
 - Michael Felsberg, Matej Kristan, ..., **Tao Hu**, ..., "The Thermal Infrared Visual Object Tracking VOT-TIR2016 Challenge Results", [ECCV Workshops \(2\) 2016: 824-849](#)
 - Matej Kristan, Ales Leonardis, ..., **Tao Hu**, ..., "The Visual Object Tracking VOT2016 Challenge Results.", [ECCV Workshops \(2\) 2016: 777-823](#)
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EXPERIENCE

Research Manager in National University of Singapore

Post-Doctor Researcher

Aug. '27,2023 - present

- Develop 3D Representation: X-Ray
- Develop X-Ray generative model to synthesize 3D objects and scenes
- [HomePage](#)

RealityEdge

Founder

June. '1,2022 - present

- An online platform for Interaction-to-Generation
- Friendly User interface and Interaction
- Replace Anything in the World - [HomePage](#)

Digital Twin and 3D Reconstruction in SmartMore Technology Co.Ltd

As the Team Leader

Mar. '1,2021 - May. '1,2023

- Significantly improve the efficiency of NeRF: (Training \times 10, Testing \times 3000).
- High-Quality 3D Reconstruct in 10 minutes.
- Interactive 3D Reconstruction in 5 minutes.

Fine-grained Image Classification in Tencent

Research Intern

August. '1,2019 - 2020

- Proposed **Weakly Supervised Learning Attention Network** to solve the fine-grained visual classification problem.

Research Intern in Microsoft Research Asia (MSRA)

Mentor : Prof. Jizheng Xu

Jan. '4,2018 - 11,2018

- Devised solving strategies to reduce reference time on existing Object Detection Methods
- Up to 30% improvement in object localization task in CUB-200-2011 dataset
- [Office Website](#)

Animal Face Recognition in InnovationAI Technology Co.Ltd

As Team Leader

Mar. '1,2017 - 2019

- Significantly improved the performance of animal face recognition
- Won the **Runner-up** prize in the JDD pig face recognition Challenge
- Designing Animal Face Recognition Algorithm for Agriculture and Insurance
- Released apps and services for Pig, Cow and Donkey face recognition
- [Official Website](#)

UA-DETRAC Visual Tracking Dataset

Supervisor : Prof. Siwei Lyu & Dr. Longyin Wen

Aug '1,2016 - May '1,2017

- Multiple Object Tracking in Monitoring Scenario
- Building a automatic evaluation system for UA-DETRAC Dataset
- [Office Website](#)

COMPUTER SKILLS

Languages: Python, C/C++, CUDA, JavaScript

Research Tools: Tensorflow, Pytorch
