Tao Hu

Research Manager in National University of Singapore (NUS)

Emails: taohu@nus.edu.sg | yihouxiang@gmail.com
Webpage: https://tau-yihouxiang.github.io
Phone: +86-15611552788

EDUCATION

Chinese University of Hong Kong, Hong Kong SAR. China
Doctor of Philosophy, Computer Science and Engineering
Prof. Jiaya Jia. *30/6/2023*
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**.

- 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**.

- **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**

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

VOT2016 Visual Object Detection Challenge
Sponsor : VOT   *Jul.'14,2016 - Aug.'12,2016*

- Participated in the Challenge
- Fine-Tuned the model GGT and improve the performane by 4%
- Final ranked 14th and 19th
- Official Website

COMPUTER SKILLS

Languages: Python, C/C++, CUDA, JavaScript, LaTeX
Research Tools: Tensorflow, Pytorch

EXTRA INTERESTS

Hobbies: Competitive Programming, History, Video Games, Guitar