Weihao Xia

Research Assistant,
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Research Interest and Prospect

I am interested in deep learning, generative model, and explainable artificial intelligence. The ultimate vision of my research is to manifest the physical world through imagination. I am currently working on generating 2D images, videos or 3D shapes from multi-modal information (*e.g.*, sketches or textual descriptions) by discovering the interpretable directions in the latent space of a pretrained model.

Education

M.Eng. in Control Engineering   **Sept., 2016 - Jul., 2019**
School of Information Science and Technology, **Tsinghua University**

B.Eng. in Automation   **Sept., 2012 - Jul., 2016**
School of Information Science and Technology, **Sun Yat-Sen University**

Academic Experience

Research Assistant, Tsinghua University   **Dec., 2020 - Now**
Advisor: *Prof. Dr. Yujiu Yang*
Project: **Controllable and Interactive Image Generation and Manipulation**

Research Assistant, Tsinghua University   **Jun., 2019 - Oct., 2019**
Advisor: *Prof. Dr. Yujiu Yang*
Project: **Research on Image Translation, Restoration and Enhancement**

Teaching Assistant, Tsinghua University   **Oct. 2017 - Feb., 2018**
Course: **Selected Topics on Intelligent Information Processing**, Fall 2017

Work Experience

Full-time Algorithm Engineer, MediaLab, HUAWEI   **Oct., 2019 - Dec., 2020**
3D Team, AR&VR Engineering Dept.
Project: **Smartphone AR Occlusion**

Engineer Intern, MediaLab, HUAWEI   **Jun., 2018 - Sep., 2018**
Advisor: *Dr. Wensen Feng*
Project: **Fast and Accurate Image Segmentation**

R&D Intern, SenseTime Group Limited   **Oct. 2017 - Mar., 2018**
Advisor: *Dr. Wenxiu Sun*
Project: **Image Enhancement using Misaligned Training Data**

Publication

Journal

<u>Weihao Xia</u>, Yujiu Yang*, and Jing-Hao Xue. **Unsupervised Multi-Domain Multimodal Image-to-Image Translation with Explicit Domain-Constrained Disentanglement.** Elsevier Neural Networks (NN, JCR Q1, IF= 5.789), vol. 131, pp. 50-63, Nov., 2020.

<u>Weihao Xia</u>, Yujiu Yang*, Jing-Hao Xue, and Jing Xiao. **Domain Fingerprints for No-reference Image Quality Assessment.** IEEE Transactions on Circuits and Systems for Video Technology (TCSVT, JCR Q1, IF=4.046), 2020.

Conference

<u>Weihao Xia</u>, Yujiu Yang*, Jing-Hao Xue, and Wensen Feng. **InterpGaze: Controllable Continuous Gaze Redirection.** ACM Multimedia (ACM-MM, acceptance rate 27.8%), 2020. [Code & Data] [Video]

Submission

<u>Weihao Xia</u>, Yujiu Yang, Jing-Hao Xue, and Baoyuan Wu. **TediGAN: Text-Guided Diverse Face Image Generation and Manipulation.** Nov., 2020. [Code] [Multi-Modal-CelebA-HQ Dataset] [Video]

Jiahao Wang, <u>Weihao Xia</u>, Tianjin Zhang, Tuanhui Li, and Yujiu Yang. **GAN Streamlining: Progressive Searching for Versatile One-Shot GAN Compression.** Nov., 2020.

Mingdeng Cao, <u>Weihao Xia</u>, and Yujiu Yang. **Deep Hierarchical Sharpness Aggregation for Video Deblurring.** Nov., 2020.

<u>Weihao Xia</u>, Yulun Zhang, Yujiu Yang*, Jing-Hao Xue, Bolei Zhou*, and Ming-Hsuan Yang*. **GAN Inversion: A Survey.** Sep., 2020.

Preprint

<u>Weihao Xia</u>, Zhanglin Cheng, Yujiu Yang, and Jing-Hao Xue. **Cooperative Image Segmentation and Restoration in Adverse Environmental Conditions.** Aug., 2019.

<u>Weihao Xia</u>, Yujiu Yang, and Jing-Hao Xue. **Cali-Sketch: Stroke Calibration and Completion for High-Quality Face Image Generation from Poorly-Drawn Sketches.** Mar., 2019.

Skill

Language: Chinese Mandarin (native), English (fluent)

Programming: Python (PyTorch, TensorFlow), C/C++, Matlab, with extensive practical experiences.

Academic Service

Reviewer: IEEE Transactions on Multimedia, Neurocomputing, and S+SSPR 2020: IAPR Joint International Workshops on Statistical techniques in Pattern Recognition (SPR 2020) and Structural and Syntactic Pattern Recognition (SSPR 2020)