<Libing Zeng>

PhD Student Annual Review Progress Report
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Research

I am interested in deep learning and computational photography. My current research is to obtain a personalized generative prior of facial images with explicit control over a set of attributes. Prior to this, I worked on video de-noising, video depth estimation, and facial landmark detection, using deep neural networks and the corresponding paper is accepted by ICCP (International Conference on Computational Photography) and CGF (Computer Graphics Forum 2023), and CVPR 2023. respectively.

- Research 5. For future projects, we will focus on image generation or view synthesis.
- Research 4. We propose an approach to obtain a personalized generative prior of facial images with explicit control over a set of attributes. We are planning to submit it to Siggraph Aisa 2023.
- Research 3. In this paper, by leveraging synthetic data, we propose a novel multi-view consistent learning strategy to improve 3D facial landmark detection accuracy on in-the-wild images. The proposed 3D-aware module can be plugged into any learning-based landmark detection algorithm. The corresponding paper is accepted by CVPR 2023.
- Research 2. Video depth estimation from monocular video. The Paper is accepted by CGF (Computer Graphics Forum 2023).
- Research 1. Video denoising, Done.

Publications

Number of publications: <4> published, **<3>** accepted, **<1>** submitted

1. *Wentao Bao, Lele Chen, Libing Zeng, Zhong Li, Yi Xu, Junsong Yuan, Yu Kong, "Uncertainty-aware State Space Transformer for Egocentric 3D Trajectory Forecasting", In submission to The International Conference on Computer Vision (ICCV), 2023.*
2. *Libing Zeng, Lele Chen, Wentao Bao, Zhong Li, Yi Xu, Junsong Yuan, Nima K. Kalantari, "3D-aware Facial Landmark Detection via Multi-view Consistent Training on Synthetic Data", The IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023.*
3. *Libing Zeng, Nima Kalantari, "Test-Time Optimization for Video Depth Estimation", Computer Graphics Forum (CGF), 2023 .*
4. *Avinash Paliwal, Libing Zeng, Nima Kalantari, "Multi-Stage Raw Video Denoising with Adversarial Loss and Gradient Mask," International Conference on Computational Photography (ICCP), 2021.*

Goals for 2022-2023

- Goal 1 (research). I intend to finish the projects of obtaining a personalized generative prior of facial images with explicit control over a set of attributes.
- Goal 2 (research). I also intend to start one or two new projects and submit the corresponding paper to the top tier conferences, such as Siggraph, Siggraph Asia, CVPR, ECCV, or ICCV. To complete this goal, I need to do the following: diving into the new sub-areas, coming up with new ideas and designing experiments to verify the ideas, generating superior results. These works are important for my research because they will be related to my dissertation, I'm hoping to get positive feedback from them.
- Goal 2 (publications): I intend to get the paper about facial generation published at the top tier conferences, such as Siggraph, Siggraph Asia.

- Goal 3 (professional activities). I intend to attend Siggraph Aisa 2023.