

Hongrui Cai

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Email: hrcai AT mail.ustc.edu.cn **GitHub:** github.com/RainbowRui **Homepage:** rainbowrui.github.io

Research Interests Computer Vision & Graphics: 3D reconstruction, structure-from-motion, geometry learning, image and video generation.

Education **University of Science and Technology of China** Hefei, China
Ph.D. in 3D Vision Sep. 2021 – Present
Mentors: Prof. Juyong Zhang.

University of Science and Technology of China Hefei, China
M.S. in Data Science Sep. 2019 – Jul. 2021
Mentors: Prof. Juyong Zhang. GPA: 3.85/4.3

South China University of Technology Guangzhou, China
B.S. in Mathematics and Applied Mathematics Sep. 2015 – Jun. 2019
Ranking: 1/46. GPA: 92.15/100

Papers Wanquan Feng, **Hongrui Cai**, Junhui Hou, Bailin Deng, Juyong Zhang. Differentiable Deformation Graph based Neural Non-rigid Registration. *Under Review*, 2022.

Hongrui Cai, Wanquan Feng, Xuetao Feng, Yan Wang, Juyong Zhang. Neural Surface Reconstruction of Dynamic Scenes with Monocular RGB-D Camera. *NeurIPS*, 2022 (**Spotlight**).

Xin Huang, Dong Liang, **Hongrui Cai**, Juyong Zhang, Jinyuan Jia. Caric Painter: Sketch Guided Interactive Caricature Generation. *ACM MM*, 2022.

Wanquan Feng, Jin Li, **Hongrui Cai**, Xiaonan Luo, Juyong Zhang. Neural Points: Point Cloud Representation with Neural Fields for Arbitrary Upsampling. *CVPR*, 2022.

Hongrui Cai, Yudong Guo, Zhuang Peng, Juyong Zhang. Landmark Detection and 3D Face Reconstruction for Caricature using a Nonlinear Parametric Model. *Graphical Models (GMOD)*, 2021.

Wanquan Feng, Juyong Zhang, **Hongrui Cai**, Haoifei Xu, Junhui Hou, Hujun Bao. Recurrent Multi-view Alignment Network for Unsupervised Surface Registration. *CVPR*, 2021.

Yudong Guo, Juyong Zhang, Yihua Chen, **Hongrui Cai**, Zhangjin Huang, Bailin Deng. Real-time Face View Correction for Front-facing Cameras. *Computational Visual Media (CVM)*, 2021.

Projects

Monocular RGB-D based Wound Surface Modeling

Horizontal research project May. 2022 – Jun. 2022

Based on monocular RGB-D video sequences, proposing a highly automatic algorithm to reconstruct high-fidelity wound surface and then measure the area and depth of the wound.

Audio driven Talking Head Synthesis

Horizontal research project Aug. 2020 – Nov. 2020

Developing a deep learning based head reconstruction baseline (via RGB, RGB-D or video input) which utilizes a differentiable rendering technology.

Real-time Face View Correction for Front-facing Cameras

Horizontal research project Sep. 2019 – Oct. 2020

Proposing a fully automatic face view correction system based on a single RGB(-D) camera to solve video problems of “upward nose” and “big face” caused by the disparity between camera location and face orientation.

Selected Honors

First-class Academic Scholarships for Postgraduates, by USTC	2019 - 2022
Excellent Undergraduate Thesis Award, by SCUT	2019
Excellent Undergraduate Student, by SCUT	2019

Academic Talks

Oral presentation in CVM 2021	Apr. 2021
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