

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 geometry processing, point cloud processing, 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 **H. Cai**, W. Feng, X. Feng, Y. Wang, J. Zhang, (2022). Neural Surface Reconstruction of Dynamic Scenes with Monocular RGB-D Camera. Under Review.

W. Feng, **H. Cai**, J. Hou, B. Deng, J. Zhang, (2022). Differentiable Deformation Graph based Neural Non-rigid Registration. Under Review.

X. Huang, D. Liang, **H. Cai**, J. Zhang, J. Jia, (2022). CariPainter: Sketch Guided Interactive Caricature Generation. Proceedings of the 30th ACM international conference on Multimedia (**ACM MM 2022**).

W. Feng, J. Li, **H. Cai**, X. Luo, J. Zhang, (2022). Neural Points: Point Cloud Representation with Neural Fields. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2022)*.

H. Cai, Y. Guo, Z. Peng, J. Zhang, (2021). Landmark Detection and 3D Face Reconstruction for Caricature using a Nonlinear Parametric Model. *Graphical Models (GMOD)*.

W. Feng, J. Zhang, **H. Cai**, H. Xu, J. Hou, H. Bao, (2021). Recurrent Multi-view Alignment Network for Unsupervised Surface Registration. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2021)*.

Y. Guo, J. Zhang, Y. Chen, **H. Cai**, Z. Huang, B. Deng, (2021). Real-Time Face View Correction for Front-Facing Cameras. *Computational Visual Media (CVM)*.

Projects

Audio Driven Talking Head Synthesis

Horizontal project

Aug. 2020 – Nov. 2020

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

Real-Time Face View Correction for Front-Facing Cameras

Horizontal project

Sep. 2019 – Oct. 2020

Proposing a fully automatic face view correction system based on a single RGB camera to solve video calling problems such as “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 - 2021

Excellent Undergraduate Thesis Award, by SCUT 2019

Excellent Undergraduate Student, by SCUT 2019

Academic Talks

Oral presentation in CVM 2021

Apr. 2021