

# Qianyi Wu

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## Education

### Monash University

Ph.D. candidate in the Faculty of Information Technology. Supervisor: Prof. Jianfei Cai

Melbourne, Australia

Jul 2021 - Current

- **Research Interest:** 3D Representation, Reconstruction and Generation.

### University of Science and Technology of China

Master of science degree. Supervisor: Prof. Juyong Zhang

Hefei, China

Sept 2016 - Jun 2019

- **Research Topic:** 3D Face Modeling and Representation. Thesis title: 3D Face Representations and Its Applications.

### University of Science and Technology of China

Bachelor of science degree

Hefei, China

Sept 2012 - Jun 2016

- **Special Class for the Gifted Youth**, major in Computational Mathematics.

## Employment Experience

### Meta Platform Inc.

Research Scientist Intern in Meta Reality Labs

Redmond, USA

Oct 2024 - Mar 2025

- Working on dynamic 4D scene representation and reconstruction.

### SenseTime Inc.

Research Scientist

Beijing, China

Jul 2019 - Jul 2021

- Lead a team (5 FTEs, 5 interns) working on *speech to digital human animation*. We develop the algorithm pipeline from scratch for the product. Our team won the Outstanding Team award and this technique has been shipped into many products with more than 10 million income.

### Nanyang Technological University

Research Intern Student

Singapore, Singapore

Aug 2017 - Aug 2018

- Working on 3D caricature reconstruction from a single 2D image. Publish a paper in CVPR'18 as a spotlight presentation.

## Selected Awards

2018	<b>National Scholarship</b> , awarded to top 2% graduates among China Mainland	China
2016-2018	<b>First Class Scholarship</b> , University of Science and Technology of China	China
2020	<b>Outstanding Team Award (Digital Human Team)</b> , in SenseTime Research.	China
2020	<b>Outstanding Individual Award</b> , in Mobile Intelligent Group, SenseTime.	China
2021-2024	<b>Faculty of Information Technology Research Scholarship</b> , Monash University	Australia

## Recent Academic Talks

When Semantic mask meets Neural Radiance Field

- Invited Talk at Zhidongxi. Introduce our papers on making NeRF editable via semantic masks (in Chinese). 2022
- Invited Talk at Media Intelligence of ByteDance Ads core 2022

Convert Speech to Digital Human Animation

- Invited Talk at Huawei Cloud. Present our papers about audio-driven co-speech gesture generation. 2022

Towards Object-Level Scene Reconstruction

- Invited Talk at USTC Mozi Forum. Introduce our works on object-compositional surface reconstruction. 2023

## Skills

**Programming** Python, C/C++, Matlab, LATEX, ...

**Language** Mandarin Chinese, English

## Academic Services

**Journal Reviewer** TPAMI, TOG, IJCV, TMM, Computer Graphics

**Conference Reviewer** CVPR, ICCV, ECCV, NeurIPS, ICLR, SIGGRAPH, ICML, ACMMM, GMP, ISMAR

# Publication List

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Research topics: I am interested in creating virtual content for an immersive experience to benefit human daily life. Therefore, my research starts with human-centric representation and reconstruction, including several applications in digital human animation. Recently, my research focused on general 3D scene/object-level reconstruction and generation. I have published 20+ papers on top-tier venues like CVPR/ECCV/ICCV/NeurIPS/SIGGRAPH with about 1200 citations and a h-index of 15.

## Scene-Level Representation, Reconstruction and Generation

- **ECCV 2022** ObjectSDF: Object-Compositional Neural Implicit Surfaces. *Qianyi Wu, Xian Liu, Yuedong Chen, Kejie Li, Chuanxia Zheng, Jianfei Cai, Jianmin Zheng.*
- **ICCV 2023** ObjectSDF++: Improved Object-Compositional Neural Implicit Surfaces. *Qianyi Wu, Kaisiyuan Wang, Kejie Li, Jianmin Zheng, Jianfei Cai.*
- **CVPR 2024** Taming Stable Diffusion for Text to 360 Panorama Image Generation (Highlight). *Cheng Zhang, Qianyi Wu, Camilo Cruz Gambardella, Xiaoshui Huang, Dinh Phung, Wanli Ouyang, Jianfei Cai*
- **CVPR 2024** How Far Can We Compress Instant NGP-Based NeRF? *Yihang Chen, Qianyi Wu, Mehrtash Harandi, Jianfei Cai*
- **ECCV 2024** Surface Reconstruction for 3D Gaussian Splatting via Local Structural Hints. *Qianyi Wu, Jianmin Zheng, Jianfei Cai*
- **ECCV 2024** Learning 3D Geometry and Feature Consistent Gaussian Splatting for Object Removal. *Yuxin WANG, Qianyi Wu, Guofeng Zhang, Dan Xu*
- **ECCV 2024** PCF-Lift: Panoptic Lifting by Probabilistic Contrastive Fusion. *Runsong Zhu, Shi Qiu, Qianyi Wu, Ka-Hei Hui, Pheng-Ann Heng, Chi-Wing Fu*
- **ECCV 2024** HAC: Hash-grid Assisted Context for 3D Gaussian Splatting Compression. *Yihang Chen, Qianyi Wu, Weiyao Lin, Mehrtash Harandi, Jianfei Cai.*
- **ECCV 2024** ClusteringSDF: Self-Organized Neural Implicit Surfaces for 3D Decomposition. *Tianhao Wu, Chuanxia Zheng, Qianyi Wu, Tat-Jen Cham.*
- **NeurIPS 2024** Normal-GS: 3D Gaussian Splatting with Normal-Involved Rendering. *Meng Wei, Qianyi Wu, Jianmin Zheng, Hamid Rezaatofghi, Jianfei Cai.*
- **NeurIPS 2024** TFS-NeRF: Template-Free NeRF for Semantic 3D Reconstruction of Dynamic Scene. *Sandika Biswas, Qianyi Wu, Biplab Banerjee, Hamid Rezaatofghi.*
- **Under Review** Explicit Correspondence Matching for Generalizable Neural Radiance Fields. *Yuedong Chen, Haofei Xu, Qianyi Wu, Chuanxia Zheng, Tat-Jen Cham, Jianfei Cai.*
- **Under Review** Fast Feedforward 3D Gaussian Splatting Compression. *Yihang Chen, Qianyi Wu, Mengyao Li, Weiyao Lin, Mehrtash Harandi, Jianfei Cai.*

## Human-centric Representation and Generation

- **CVPR 2018** Alive caricature from 2d to 3d. (Spotlight) *Qianyi Wu, Juyong Zhang, Yu-Kun Lai, Jianmin Zheng, Jianfei Cai*
- **CVPR 2019** Disentangled representation learning for 3d face shape. *Zi-Hang Jiang, Qianyi Wu, Keyu Chen, Juyong Zhang*
- **NeurIPS 2020** AOT: Appearance Optimal Transport Based Identity Swapping for Forgery Detection. *Hao Zhu\*, Chaoyou Fu\*, Qianyi Wu, Wayne Wu, Chen Qian, Ran He.*
- **CVPR 2022** TransEditor: Transformer-Based Dual-Space GAN for Highly Controllable Facial Editing. *Yanbo Xu\*, Yueqin Yin\*, Liming Jiang, Qianyi Wu, Chengyao Zheng, Chen Change Loy, Bo Dai, Wayne Wu.*
- **ECCV 2022** Sem2NeRF: Converting Single-View Semantic Masks to Neural Radiance Fields. *Yuedong Chen, Qianyi Wu, Chuanxia Zheng, Tat-Jen Cham, Jianfei Cai.*
- **ICMI 2023** Make Your Brief Stroke Real and Stereoscopic: 3D-Aware Simplified Sketch to Portrait Generation (oral). *Yasheng Sun\*, Qianyi Wu\*, Hang Zhou\*, Kaisiyuan Wang, Tianshu Hu, Chen-Chieh Liao, etc.*
- **AAAI 2023** Robust Video Portrait Reenactment via Personalized Representation Quantization. *Kaisiyuan Wang, Changcheng Liang, Hang Zhou, Jiayang Tang, Qianyi Wu, Dongliang He, Zhibin Hong, Jingtuo Liu, Errui Ding, Ziwei Liu, Jingdong Wang.*
- **SIGGRAPH 2023** Efficient Video Portrait Reenactment via Grid-based Codebook. *Kaisiyuan Wang, Hang Zhou, Qianyi Wu, Jiayang Tang, Zhiliang Xu, Borong Liang, Tianshu Hu, Errui Ding, Jingtuo Liu, Ziwei Liu, Jingdong Wang.*

## Audio-Driven Virtual Human Facial& Gesture Animation

- **ECCV 2020** MEAD: A Large-scale Audio-visual Dataset for Emotional Talking Face Generation. *Kaisiyuan Wang\*, Qianyi Wu\*, Linsen Song\*, Zhuoqian Yang, Wayne Wu, Chen Qian, Ran He, Yu Qiao, Chen Change Loy.*
- **CVPR 2022** Learning Hierarchical Cross-Modal Association for Co-Speech Gesture Generation. *Xian Liu, Qianyi Wu, Hang Zhou, Yinghao Xu, Rui Qian, Xinyi Lin, Xiaowei Zhou, Wayne Wu, Bo Dai, Bolei Zhou*
- **ECCV 2022** Semantic-aware implicit neural audio-driven video portrait generation. (oral) *Xian Liu, Yinghao Xu, Qianyi Wu, Hang Zhou, Wayne Wu, Bolei Zhou*
- **SIGGRAPH 2022** EAMM: One-Shot Emotional Talking Face via Audio-Based Emotion-Aware Motion Model. *Xinya Ji, Hang Zhou, Kaisiyuan Wang, Qianyi Wu, Wayne Wu, Feng Xu, Xu Cao*
- **NeurIPS 2022** Audio-Driven Co-Speech Gesture Image Generation. (spotlight) *Xian Liu, Qianyi Wu, Hang Zhou, Yuanqi Du, Wayne Wu, Dahua Lin, Ziwei Liu*
- **SIGGRAPH Asia 2022** Masked Lip-Sync Prediction by Audio-Visual Contextual Exploitation in Transformers. *Yasheng Sun\*, Hang Zhou\*, Kaisiyuan Wang, Qianyi Wu, Zhibin Hong, Jingtuo Liu, Errui Ding, Jingdong Wang, Ziwei Liu, Hideki Koike.*