

Xuan Gao

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🎓 EDUCATION



University of Science and Technology of China

Hefei, China

B.S. in Information and Computational Science, School of Mathematics

Sep.2017–Jun.2021



University of Science and Technology of China

Hefei, China

Ph.D. in Information and Computational Science, School of Mathematics Advisor: Prof. Juyong Zhang

Sep.2021–Present

📁 WORK EXPERIENCE



Image Derivative Inc.

Hangzhou, China

Research Intern

Mentor: Yudong Guo & Boyi Jiang

Nov.2021–Jan.2023



Google XR

San Jose, the USA

Student Researcher

Mentor: Ziqian Bai, Feitong Tan & Yinda Zhang

Aug.2025–Present

📄 PUBLICATIONS

- **Reconstructing Personalized Semantic Facial NeRF Models From Monocular Video**

Xuan Gao, Chenglai Zhong, Jun Xiang, Yang Hong, Yudong Guo, Juyong Zhang

SIGGRAPH Asia 2022 (Journal Track)

[paper] [project page]

- **Portrait Video Editing Empowered by Multimodal Generative Priors**

Xuan Gao, Haiyao Xiao, Chenglai Zhong, Shimin Hu, Yudong Guo, Juyong Zhang

SIGGRAPH Asia 2024

[paper] [project page]

- **Constructing Diffusion Avatar with Learnable Embeddings**

Xuan Gao, Jingtao Zhou, Dongyu Liu, Yuqi Zhou, Juyong Zhang

Conditionally accepted by SIGGRAPH Asia 2025

[paper] [project page]

- **Multi-Modal Digital Human Modeling, Synthesis, and Driving: A Survey**
Xuan Gao, Dongyu Liu, Juyong Zhang
Journal of Image and Graphics (in Chinese)
[paper]
- **FlashAvatar: High-fidelity Head Avatar with Efficient Gaussian Embedding**
Jun Xiang, Xuan Gao, Yudong Guo, Juyong Zhang
IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2024
[paper] [project page]
- **IntrinsicNGP: Intrinsic Coordinate based Hash Encoding for Human NeRF**
Bo Peng, Jun Hu, Jingtao Zhou, Xuan Gao, Juyong Zhang
IEEE Transactions on Visualization and Computer Graphics, 2023
[paper] [project page]
- **SwapFrom4D: Realistic Video Head Swapping with 4D Neural Gaussian Field**
Jingtao Zhou, Xuan Gao, Dongyu Liu, Junhui Hou, Yudong Guo, Juyong Zhang
under review
- **CosAvatar: Consistent and Animatable Portrait Video Tuning with Text Prompt**
Haiyao Xiao, Chenglai Zhong, Xuan Gao, Yudong Guo, Juyong Guo
[paper] [project page]
- **Compact Neural Field Representation via Multi-scale Tensor Decomposition**
Jun Hu, Xuan Gao, Yudong Guo, Juyong Zhang
International Conference on Image Processing, Computer Vision and Machine Learning 2024
[paper(coming soon)]
- **Facial Landmark Disentangled Network with Variational Autoencoder**
Sen Liang, Zhize Zhou, Yudong Guo, Xuan Gao, Juyong Zhang, Hujun Bao
Applied Mathematics-A Journal of Chinese Universities
[paper]

PROJECTS

- **Efficient NeRF Portrait Modeling and Rendering**
We developed a NeRF based parametric portrait representation, based on NeRFBlendshape and neural rendering, which could be reconstructed in 20 minutes and could render at 100 fps.
- **Speech Driven Talking Portrait Synthesis**
We developed a NeRF based talking portrait system. We leveraged Audio BERT and expert models to improve lip-synchronization quality.
- **Voice Cloning with Unconstrained Talking Video**
We developed a pipeline to process unconstrained talking video for voice cloning, including detecting voice activity, recognizing and phonemizing the speech content and then adapting multi-speaker TTS model for the new speaker.

SELECTED HONORS

- The PhD Special Program under the Young Talent Support Project of the China Association for Science and Technology (中国科协青年人才托举工程博士生专项计划) 2024
- National Scholarship (top 2%) 2022
- Yang Yuanqing Education Fund Scholarship 2023, 2024
- First-class Academic Scholarships for Postgraduates 2021–2024

TALKS

- CSIAM GDC 2021, Changsha, China Oct 9-Oct 11, 2021
Talk title: “Facial Landmark Disentangled Network with Variational Autoencoder”
- SIGGRAPH Asia 2022, Daegu, South Korea Dec 6-Dec 9, 2022
Talk title: “Reconstructing Personalized Semantic Facial NeRF Models From Monocular Video”
(Because of the pandemic, only the talk videos were played during the conference, with no physical attendance.)
- CSIAM GDC 2023, Shanghai, China Aug 18-Aug 20, 2023
Talk title: “Reconstructing Personalized Semantic Facial NeRF Models From Monocular Video”
- CVPR 2024, Seattle, USA Jun 17-Jun 21, 2024
Poster: “High-fidelity Head Avatar with Efficient Gaussian Embedding”
- SIGGRAPH Asia 2024, Tokyo, Japan Dec 3-Dec 6, 2024
Talk title: “Portrait Video Editing Empowered by Multimodal Generative Priors”

SKILLS

- **Programming Language:** Python C C++ CUDA MATLAB
- **Framework:** Diffusers PyTorch OpenMesh
- **Math:**
 - Real/Complex Analysis, Functional Analysis
 - Differential Geometry, Spline Approximation
 - Optimization
 - Numerical Algebra/Analysis/PDE

ACADEMIC SERVICES

- I’m the reviewer of ICCV, SIGGRAPH, TVCG, TMM, CVMJ, Pacific Graphics and 3DV.