

JIAPENG TANG

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EDUCATION

Technical University of Munich Ph.D. of Informatics	<i>Nov. 2021 - Mar. 2026</i>
South China University of Technology Master of Signal and Information Processing	<i>Sep. 2018 - Jun. 2021</i>
South China University of Technology Bachelor of Engineering, Information Engineering	<i>Sep. 2014 - Jun. 2018</i> GPA: 3.85/4 Ranking: 6/61

RESEARCH INTERESTS

Generative Models: Controllable Video Diffusion Models, Multi-view Image Diffusion, Relighting Diffusion, 3D Shape/Scene Generation, and 4D Motion Generation.

Head Avatar Reconstruction: Animatable NeRF/Gaussian Splatting, Neural Parametric Models, and Head Tracking.

RECENT PROJECTS

- Controllable Head Video Diffusion Models.
- Generative Object Relighting via Multi-view Diffusion Models.
- Gaussian Avatars Reconstruction via Multi-view Head Diffusion.
- 3D/4D Shape and Scene Generation.

EXPERIENCE

Meta Reality Lab Research Scientist Intern	<i>Jul. 2025 - Nov. 2025</i> Burlingame, US
Google Research Research Scientist Intern	<i>Jul. 2024 - Oct. 2024</i> San Francisco, US
DAMO Academy, Alibaba Group Research Intern	<i>Jun. 2020 - Jun. 2021</i> Shenzhen, China
The Chinese University of Hong Kong, Shenzhen Visiting Student	<i>July. 2018 - Sep. 2018</i> Shenzhen, China

PUBLICATIONS

* Joint first author, # Corresponding author, Oral (2), Spotlight (2)

Generative World Models: Video/Multi-view Generation, 3D Object/Head/Scene Generation

- **FactorPortrait: Controllable Portrait Animation via Disentangled Expression, Pose, and Viewpoint. In Submission.**
Jiapeng Tang, Kai Li, Chengxiang Yin, Liuhan Ge, Fei Jiang, Jiu Xu, Matthias Nießner, Christian Hane, Timur Bagautdinov, Egor Zakharov, Peihong Guo.
 TL;DR. Introduced FactorPortrait, a video diffusion method for controllable portrait animation that enables lifelike synthesis from disentangled control signals of facial expressions, head movement, and camera viewpoints.
- **Video Diffusion Shader using 3D Face Tracking. In Submission.**
Jiapeng Tang*, Wenbo Ji*, Davide Davoli, Zhe Chen, Liam Schoneveld, Matthias Nießner.
 TL;DR. Introduced a Video Diffusion Shader to generate vivid and expressive facial animations from a single reference image using 3DMM tracking.
- **ROGR: Relightable 3D Objects using Generative Relighting. NeurIPS 2025 Spotlight.**
Jiapeng Tang*, Matthew Levine*, Dor Verbin, Stephan J. Garbin, Matthias Nießner, Ricardo Martin Brualla, Pratul P. Srinivasan, Philipp Henzler.
 TL;DR. Proposed a novel approach that reconstructs a relightable 3D model of an object captured from multiple views, driven by a generative relighting model that simulates the effects of placing the object under novel environment illuminations.
- **GAF: Gaussian Avatars Reconstruction from Monocular Videos via Multi-view Head Diffusion. CVPR 2025.**
Jiapeng Tang, Davide Davoli, Tobias Kirschstein, Liam Schoneveld, Matthias Nießner.
 TL;DR. Proposed a novel approach for reconstructing animatable Gaussian avatars from monocular videos captured by commodity devices like smartphones, driven by multi-view head diffusion models.
- **DiffuScene: Denoising Diffusion Probabilistic Model for Generative Indoor Scene Synthesis. CVPR 2024.**
Jiapeng Tang, Yinyu Nie, Lev Markhasin, Angela Dai, Justus Thies, Matthias Nießner.
 TL;DR. Present 3D indoor scene diffusion models, enabling many downstream applications, including scene completion, scene arrangement, and text-conditioned scene synthesis.
- **Motion2VecSets: 4D Latent Vector Set Diffusion for Non-rigid Shape Reconstruction and Tracking. CVPR 2024**, supervise master thesis project.
 Wei Cao*, Chang Luo*, Biao Zhang, Matthias Nießner, **Jiapeng Tang**#.
 TL;DR: Proposed the first 4D latent diffusion models for dynamic surface generation.
- **3DShape2VecSet: A 3D Shape Representation for Neural Fields and Generative Diffusion Models. SIGGRAPH/ToG 2023.**
 Biao Zhang, **Jiapeng Tang**, Matthias Niessner, Peter Wonka.
 TL;DR: Introduced a novel shape representation ‘VecSet’ for neural fields designed for generative diffusion models.
- **DPHMs: Diffusion Parametric Head Models for Depth-based Tracking. CVPR 2024.**
Jiapeng Tang, Angela Dai, Yinyu Nie, Lev Markhasin, Justus Thies, Matthias Nießner.
 TL;DR: Introduced a diffusion parametric head model for robust head reconstruction and expression tracking from monocular depth sequences.
- **RGBD2: Generative Scene Synthesis via Incremental View Inpainting using RGBD Diffusion Models. CVPR 2023.**
 Jiabao Lei, **Jiapeng Tang**, Kui Jia.
 TL;DR: A scene generative model that generates novel RGBD views along a camera trajectory.
- **Neural Shape Deformation Priors. NeurIPS 2022 Spotlight.**
Jiapeng Tang, Lev Markhasin, Bi Wang, Justus Thies, Matthias Nießner.
 TL;DR: Learn transformer-based deformation priors for shape manipulation.

Head Avatar Reconstruction and Animation

- **SHeaP: Self-Supervised Head Geometry Predictor Learned via 2D Gaussians.** ICCV 2025.
Liam Schoneveld, Zhe Chen, Davide Davoli, **Jiapeng Tang**, Saimon Terazawa, Ko Nishino Matthias Nießner M. Nießner.
TL;DR: Utilize head gaussians as a shader model for face tracking.
- **Monocular and Generalizable Gaussian Talking Head Animation.** CVPR 2025.
Shengjie Gong, Haojie Li, **Jiapeng Tang**, Dongming Hu, Shuangping Huang, Hao Chen, Tianshu Chen, Zhuoman Liu.
TL;DR: Feed-forward gaussian head reconstruction from single images.
- **GGHead: Fast and Generalizable 3D Gaussian Heads.** SIGGRAPH ASIA 2024.
Tobias Kirschstein, Simon Giebenhain, **Jiapeng Tang**, Markos Georgopoulos, Matthias Nießner.
TL;DR: GAN-based gaussian head generation.
- **KMTalk: Speech-Driven 3D Facial Animation with Key Motion Embedding.** ECCV 2024.
Zhihao Xu, Shengjie Gong, **Jiapeng Tang**, Lingyu Liang, Yining Huang, Haojie Li, Shuangping Huang.
TL;DR: Introduced key motion embeddings to decrease cross-modal uncertainty of speech-driven 3D facial animation.

3D Object/Scene Reconstruction from Single Images or Scans.

- **PVSeRF: Joint Pixel-, Voxel-and Surface-Aligned Radiance Field for Single-Image Novel View Synthesis.** ACM MM 2022.
Xianggang Yu, **Jiapeng Tang**, Yipeng Qin, Chenghong Li, Linchao Bao, Xiaoguang Han, Shuguang Cui.
TL;DR: Introduced voxel and surface-aligned features to alleviate depth ambiguities of single-view NeRF reconstruction.
- **SA-ConvONet: Sign-Agnostic Optimization of Convolutional Occupancy Networks.** ICCV 2021 Oral, 3.4%.
Jiapeng Tang, Jiabao Lei, Dan Xu, Feiying Ma, Kui Jia, Lei Zhang.
TL;DR: Proposed sign-agnostic optimization for implicit surface reconstruction from point clouds without normals.
- **SkeletonNet: A Topology-Preserving Solution for Learning Mesh Reconstruction of Object Surfaces from RGB Images.** TPAMI 2021.
Jiapeng Tang*, Xiaoguang Han*, Mingkui Tan, Xin Tong and Kui Jia.
TL;DR: Proposed skeleton-guided implicit surface reconstruction from single-view images, preserving long and thin structures of implicit surfaces.
- **Learning Parallel Dense Correspondence from Spatio-Temporal Descriptors for Efficient and Robust 4D Reconstruction.** CVPR 2021.
Jiapeng Tang, Dan Xu, Kui Jia, Lei Zhang.
TL;DR: Introduced a spatial-temporal point cloud encoder and a efficient learning strategy for 4D reconstruciton.
- **Deep Mesh Reconstruction from Single RGB Images via Topology Modification Networks.** ICCV 2019.
Junyi Pan, Xiaoguang Han, Weikai Chen, **Jiapeng Tang** and K. Jia.
TL;DR: Proposed topology modification network to reconstruction mesh with genus nonzero.
- **A Skeleton-bridged Deep Learning Approach for Generating Meshes of Complex Topologies.**

gies from Single RGB Images. CVPR 2019, Oral, Best paper final lists, 0.8%.

Jiapeng Tang*, Xiaoguang Han*, Junyi Pan, Kui Jia and Xin Tong.

TL;DR: A skeleton-bridged, stage-wise learning approach to reconstruct surface meshes with complex topologies. A novel design of parallel streams respectively for synthesis of curve- and surface-like skeleton points. Take the respective advantages of different shape representations including point cloud, volume, and mesh.

AWARDS

Second-class South China University of Technology Scholarship	2015-2017
Merit Student of South China University of Technology	2016-2017
First-class South China University of Technology Postgraduate Scholarship	2018-2019
South China University of Technology Postgraduate Scholarship	2019-2021

SKILLS AND INTERESTS

Language: Native in Chinese (Mandarin), Fluent in English

Programming Language: Python, C++/Cuda, Matlab, LaTeX

Deep Learning Platform: PyTorch, TensorFlow

Sports: Basketball, Badminton, Table tennis, Hiking, and Travelling

OTHERS

For more information, please visit my website at: <https://tangjiapeng.github.io>.