JIAPENG TANG

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EDUCATION

Technical University of Munich *Nov. 2021 - Mar. 2026*
Ph.D. of Informatics

South China University of Technology *Sep. 2018 - Jun. 2021*
Master of Signal and Information Processing

South China University of Technology *Sep. 2014 - Jun. 2018*
Bachelor of Engineering, Information Engineering 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 *Jul. 2025 - Nov. 2025*
Research Scientist Intern Burlingame, US

Google Research *Jul. 2024 - Oct. 2024*
Research Scientist Intern San Francisco, US

DAMO Academy, Alibaba Group *Jun. 2020 - Jun. 2021*
Research Intern Shenzhen, China

The Chinese University of Hong Kong, Shenzhen *July. 2018 - Sep. 2018*
Visiting Student Shenzhen, China

PUBLICATIONS

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

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

- **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, Tianshui 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 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.