

JINGBO ZHANG

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INTRODUCTION

I am a senior Ph.D. student at the City University of Hong Kong, advised by [Dr. Liao Jing](#). My research interests mainly lie in 3D reconstruction and generation, 2D/3D inpainting, textual optimization, and neural rendering. Recently we are fortunate to witness the remarkable success of neural radiance fields in reconstructing high-quality complex 3D scenes. With various powerful generative models, like GANs and diffusion models, we now have chances to produce realistic contents. I believe that we could generate a realistic 3D world as easy as falling off a log. Currently, I am doing my research on neural implicit representations, including 3D reconstruction, material decomposition, and multi-modality generation.

EDUCATION

Sep.2020-Now	Department of Computer Science and Technology, City University of Hong Kong (CityU), Hong Kong Supervised by Prof. Jing Liao Ph.D. Candidate in Computer Science and Technology
Sep.2018-Mar.2020	School of Automation Science and Electrical Engineering, Beihang University (BUAA), Beijing, China Ph.D. Candidate in Pattern Recognition and Intelligent System (Quitted after the 1 st year)
Sep.2013-Jul.2018	School of Aeronautic Science and Engineering, Beihang University, Beijing, China B.A.in Engineering Mechanics
Sep.2015-Jul.2018	School of Economics and Management, Beihang University (Dual Degree) B.A.in Business Administration

PUBLICATIONS

- Xiaoyu Li, Qi Zhang, Di Kang, Weihao Cheng, Yiming Gao, **Jingbo Zhang**, et al. Advances in 3D Generation: A Survey[J]. arXiv preprint arXiv:2401.17807, 2024. (Under Review)
- **Jingbo Zhang**, Xiaoyu Li, Qi Zhang, et al. HumanRef: Single Image to 3D Human Generation via Reference-Guided Diffusion[C]. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2024.
- **Jingbo Zhang**, Xiaoyu Li, Ziyu Wan, Can Wang, Jing Liao. Text2nerf: Text-driven 3d scene generation with neural radiance fields[J]. IEEE Transactions on Visualization and Computer Graphics, 2024.
- Hongliang Zhong, **Jingbo Zhang**, Jing Liao. VQ-NeRF: Neural Reflectance Decomposition and Editing with Vector Quantization[J]. IEEE Transactions on Visualization and Computer Graphics, 2023.
- Ruixiang Jiang, Can Wang, **Jingbo Zhang**, et al. AvatarCraft: Transforming text into neural human avatars with parameterized shape and pose control[C]. Proceedings of the IEEE/CVF International Conference on Computer Vision. 2023: 14371-14382.
- **Jingbo Zhang**, Xiaoyu Li, Ziyu Wan, Jing Liao. FDNeRF: Few-shot dynamic neural radiance fields for face reconstruction and expression editing[C]. SIGGRAPH Asia 2022 Conference Papers. 2022: 1-9.
- **Jingbo Zhang**, Ziyu Wan, Jing Liao. Adaptive joint optimization for 3D reconstruction with differentiable rendering[J]. IEEE Transactions on Visualization and Computer Graphics, 2022.
- Ziyu Wan, **Jingbo Zhang**, Dongdong Chen, Jing Liao. High-fidelity pluralistic image completion with transformers[C]. Proceedings of the IEEE/CVF International Conference on Computer Vision. 2021: 4692-4701.
- Yang Li, **Jingbo Zhang**, Weigang Cui, Heng Yuan, and Hualiang Wei. A multiple beta wavelet-based locally regularized ultra-orthogonal forward regression algorithm for time-varying system identification with applications to EEG[J]. IEEE Transactions on Instrumentation and Measurement, 2019. ISSN 0018-9456 (The first author is my supervisor at BUAA)
- Yang Li, **Jingbo Zhang**, Weigang Cui, Song Xu, and Qinglei Hu. A Fast Identification Method for Time-Varying Nonlinear Systems Based on Beta Wavelet Basis Function Expansion. CHN patent CN107967395A[P]
- Yang Li, Daxin Hao, **Jingbo Zhang**. An accurate time-varying Granger causality identification method

based on multiwavelet basis function expansion. CHN patent CN108509933A.

RESEARCH EXPERIENCE

- May.2020-Now **3D Reconstruction and textual optimization, 3D scene generation and editing, image inpainting**
- ◆ Reconstruct 3D models using multi-view RGB-D images, and jointly optimize their texture, geometry, and camera pose.
 - ◆ Use few-shot dynamic frames to reconstruct an implicit 3D face model and perform novel view rendering and facial expression editing.
 - ◆ Train a NeRF model of 3D mixed materials based on multi-view RGB, and perform BRDF material decomposition, editing and relighting on the model.
 - ◆ Generate 3D scenes using prior of diffusion models.
 - ◆ Generate 3D clothed human from a single image based on pretrained diffusion models.
- Sep.2019-Apr.2020 **Object detection and image classification using RCNN series algorithms based on MS COCO, ImageNet and Pascal VOC datasets**
- ◆ Compare the modeling ideas of RCNN, Fast-RCNN, Faster-RCNN, and Mask-RCNN, and conducted preliminary tests of the above models based on the MS-COCO 2014 and PASCAL-VOC 2007 databases.
 - ◆ Teste the object detection accuracy of Faster-RCNN and Mask-RCNN with ResNet C4 and FPN (Feature Pyramid Network) and performed the object detection simulation using trained Faster-RCNN and Mask-RCNN models.
 - ◆ Complete some image classification tasks at Computer Vision Center of Tencent AI Lab.
- Feb.2019-Jul.2019 **Spiking Neural Networks for function connectivity analysis of hippocampal neural spikes**
- ◆ Teste an ameliorated multiwavelet-based regularized forward orthogonal regression algorithm to improve the identification performance of a time-varying nonlinear generalized Laguerre-Volterra model, which is investigated for the nonstationary connectivity in spiking neural systems.
 - ◆ Complete the simulation experiment and draft paper of the algorithm.
- Nov.2017-Jan.2019 **Signal processing and system identification for modeling scalp EEG data**
- ◆ Propose a novel parametric modeling algorithm to identify time-varying nonlinear systems, where a new class of multiple beta wavelet basis function is introduced to approximate time-varying coefficients of the nonstationary system.
 - ◆ Publishe an SCI paper and filed a patent.

SCHOLARSHIPS & HONORS

- 2023 Research Tuition Scholarship, CityU
- 2022 Outstanding Academic Performance Award, CityU
- 2020-2024 Ph.D. Scholarship, CityU
- 2018 Outstanding Graduate Thesis Award
- 2017 National Encouragement Scholarship (Awarded to Top 5% students)
- 2017 Outstanding Academic Performance Scholarship
- 2016, 2017 Scholarship for Excellent Social Work
- 2016, 2017 Excellent Student-Cadre at BUAA
- 2017 Model Student of Academic Records at BUAA (Awarded to Top 3% students)
- 2017 Honorable Mention in the Zhou Peiyuan Mechanics Competition for College Students
- 2017 Honorable Mention in Interdisciplinary Contest in Modeling

EXTRA-CURRICULAR ACTIVITIES

- May.2023-Now **Internship of Visual Computing Center of Tencent AI Lab**
Research in 3D clothed human generation.
- May.2020-Aug.2020 **Research Assistant CityU Shenzhen Research Institute**
Research in 3D object reconstruction and texture optimization.
- Nov.2019-Apr.2020 **Internship of Computer Vision Center of Tencent AI Lab**

- ♦ Test image classification algorithm based on Deep Neural Network.
 - ♦ Complete some image classification tasks.
- Sep.2018 **Volunteer service for the 2018 Beijing Marathon**
- ♦ Prepare pre-match items for participating athletes.
 - ♦ Provide guidance services for athletes.
- Sep.2015-Jun.2018 **Monitor**
- ♦ Host most class meetings and organized the departmental evenings.
 - ♦ Responsible for coordinating the work among the class committees.
- Sep.2015-Jul.2017 **President of Fenghua Club at BUAA**
- ♦ Organize some public welfare book-sending activities and social practice activities.
 - ♦ Host a series of appreciation activities for Chinese classical literature.
- Jul.2014-Aug.2014 **Supporting the education in poverty-stricken areas**
- ♦ Teach mathematics without any compensation for primary school students in Yunnan mountainous area.