Yuanbo Xiangli

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EDUCATION

2019 – 2023	**The Chinese University of Hong Kong** PhD in MMLab, Information Engineering
2017 – 2018	**Oxford University** MSc in Computer Science
2013 – 2017	**University of Nottingham** BSc Honors Computer Science

BIO

I recently received my Ph.D in Multimedia Lab, Information Engineering, CUHK, supervised by Prof. Dahua Lin. My research interest lies in 3D computer vision and generative modeling. I am working on photorealistic and efficient city scenes reconstruction, manipulation and generation based on multi-source data, including satellite imagery, oblique photography, street view panoramas and urban planning information. Find me at: https://kam1107.github.io/.

PUBLICATION

[1] Y. Xiangli*, L. Xu*, X. Pan, N. Zhao, B. Dai, D. Lin, "AssetField: Assets Mining and Reconfiguration in Ground Feature Plane Representation", to appear in *International Conference on Computer Vision 2023*.

[2] Y. Li, L. Jiang, L. Xu, Y. Xiangli, Z. Wang, D. Lin, B. Dai, "MatrixCity: A Large-scale City Dataset for City-scale Neural Rendering and Beyond", to appear in *International Conference on Computer Vision 2023*.

[3] L. Xu*, Y. Xiangli*, S. Peng, X. Pan, N. Zhao, C. Theobalt, B. Dai, D. Lin, "Grid-guided Neural Radiance Fields for Large Urban Scenes", in *Computer Vision and Pattern Recognition Conference (CVPR) 2023.*

[4] W. Li, Y. Lai, L. Xu, Y. Xiangli, J. Yu, C. He, G. Xia, D. Lin, "OmniCity: Omnipotent City Understanding with Multi-level and Multi-view Images", in *Computer Vision and Pattern Recognition Conference (CVPR) 2023.*

[5] Y. Xiangli*, L. Xu*, X. Pan, N. Zhao, A. Rao, C. Theobalt, B. Dai, D. Lin, "BungeeNeRF: Progressive Neural Radiance Field for Extreme Multi-scale Scene Rendering", in *European Conference on Computer Vision 2022.*

[6] L. Xu*, Y. Xiangli*, A. Rao, N. Zhao, B. Dai, Z. Liu, D. Lin, "BlockPlanner: City Block Generation with Vectorized Graph Representation," in *International Conference on Computer Vision 2021*.

[7] Y. Xiangli, Y. Deng, B. Dai, C. C. Loy and D. Lin, "Real or Not Real, that is the Question," in *International Conference on Learning Representations 2020.* **(Spotlight)**

[8] C. X. Lu, Y. Li, Y. Xiangli and Z. Li, "Nowhere to Hide: Cross-modal Identity Leakage between Biometrics and Devices," in *Proceedings of The Web Conference 2020.* **(Oral)**

[9] C. X. Lu, Y. Xiangli, P. Zhao, C. Chen, N. Trigoni and A. Markham, "Autonomous Learning of Speaker Identity and WiFi Geofence from Noisy Sensor Data," in *IEEE Internet of Things Journal*, 2019.

[10] Y. Xiangli, C. X. Lu, P. Zhao, C. Chen, A. Markham, "iSCAN: automatic speaker adaptation via iterative cross-modality association," in *ISWC Adjunct, UniComp 2019*.

[11] Y. Li, H. Deng, Y. Xiangli, Z. Yuan, C. Peng, and S. Lu, "In-device, runtime cellular network information extraction and analysis: demo," In *Proceedings of the 22nd Annual International*

Conference on Mobile Computing and Networking (MobiCom '16). ACM, New York, NY, USA, 503-504, *2016*.

RESEARCH EXPERIENCE

CityNeRF Reconstruct city scenes at drastic multi-scale via Nerual Radiane Field (NeRF)

An attempt to bring NeRF to potentially city-scale scenes, which requires rendering drastically varied observations (level-of-detail and spatial coverage) at multiscales. It is an indispendible step towards efficient and realistic city-scale neural rendering in the future.

GridNeRF Grid-guided Neural Radiance Fields for Large Urban Scenes

GridNeRF targets at modeling vast-spanned urban regions and operates on real-world data sources. The work shows that parametric models have the potential to reconstruct real-world city-scale scenes and output photorealistic rendering with high efficiency, which sets the foundation for immersive virtual city experience.

AssetField Assets Mining and Reconfiguration in Ground Feature Plane Representation

AssetField offers a new way to interact with neural radiance fields and a step towards efficient and realistic large-scale scene modeling. Having an asset library is one of the key enabler to create large-scale environments in a virtual presence. This mechanism is critical as it drastically saves memory footprint for large scene development and offers flexible editing choices for designers ranging from instance-level to scene-level.

BlockPlanner City block layout generation with vectorized graph representation

Using generative models to automatically learn from large amount of public urban planning data enables fast generation of batches of diverse and valid city block templates, which encourage more stakeholders and non-expertise to participate in city design and planning. The vectorized representation is memory efficient and allows easy visualization and editing, e.g. global style transformation and local arrangement editing.

RealnessGAN Realness distribution guided Generative Adversarial Network (GAN)

The proposed realness distribution provides stronger guidance to the generator and encourages it to learn more diverse outputs. The proposed approach enables the simplest GAN structure to be able to synthesis high resolution portrait for the first time, with affordable computational overhead.

SCAN+/iSCAN Automatic inferring voice labels for speaker identification via ambient WiFi data

The proposed framework leverages the abundant side-channel information provided by the ubiquitous IoT environment in mordern life, enabling the construction of an in-domain speaker recognition model with zero human enrollment. It can also be continuously updated through lifelong learning to fit changes in the user group.

PROJECT/INTERN EXPERIENCE

2023.6-2023.9 **Adobe Research**

Research Scientist/Engineer (Intern)

2022-2023 **Shanghai AI Lab**

Research Scientist

LandMark project (https://www.shlab.org.cn/news/5443429): Large-scale real-world urban scene reconstruction, editing and stylization.

2020.3-2021.9 **Compilation and composition of Information Technology Textbook (High School)**

Author
Composed Chapter 14: Generative Modeling; participate in reviewing other chapters.

2019.2-2019.8 **Sensetime**

Research Intern
Worked with Dr. Bo Dai and Prof. Dahua Lin on realistic image synthesis with generative models.

2016 Summer **Computer Science Department, the University of California, Los Angeles**

Research Assistant
Worked with Dr. Yuanjie Li and Prof. Songwu Lu on project `MobileInsight', improving Dynamic Adaptive Streaming over HTTP (DASH) algorithm using physical layer bandwidth for smoother streaming.

2015.9-2016.6 **Computer Science Department, University of Nottingham**

Data Analyst and developer (android app `MentalSpace')
Worked with Prof. Max L. Wilson on electroencephalogram (EEG) data collection, analysis, and visualization.

2015 Summer **Information Engineering Department, the Chinese University of Hong Kong**

Research Assistant
Worked with Prof. Chen Change Loy on image aesthetic assessment.

TEACHING ASSISTANT

2021 Spring	Data Structure (Undergrad)
2019/20 Spring	Multimedia Coding and Processing (Undergrad)
2019/20/21 Fall	Problem Solving by Programming (Undergrad)

SKILLS AND INSERTS

Skills Python/Numpy, PyTorch, C, C++