Butian Xiong

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saliteta.github.io | github.com/saliteta

Education

University of Southern California, M.S. Computer Science - Related Courses: Computer Graphics, Game Engine Design, Advance Computer Vision ... Jan 2025 - Present

The Chinese University of Hong Kong, Shenzhen, B.S. Computer Engineering Sept 2020 - May 2024

- First Class Honor Graduation, Ranking at 6/103 in Computer Engineering.
- Dean's list 2020-2021, 2021-2022, 2022-2023, 2023-2024 School of Science and Engineering
- Undergraduate Research Award in CUHK-SZ, 2023, 2024

Korea Advance Institution of Science and Technology, Exchange Student March 2023 - August 2024

Selected Publications

Accepted

1. **Butian Xiong**, Rong Liu, Kenneth Xu, Meida Chen, Andrew Feng. "Splat Feature Solver." **ICLR 2026**, (arXiv:2508.12216)
2. Meida Chen, Luis Leal, Yue Hu, Rong Liu, **Butian Xiong**, Andrew Feng, Jiuyi Xu, Yangming Shi. "IDU: Incremental Dynamic Update of Existing 3D Virtual Environments with New Imagery Data." ***I/ITSEC***, 2025. (arXiv:2508.17579)
3. Liguang Zhou, **Butian Xiong**, Tin Lun Lam, Yangsheng Xu. "Class Relevance Learning for Out-of-Distribution Detection." ***ICASSP***, 2025. (DOI) (arXiv:2401.01021)
4. Yuetong Chen, Yihan Fang, Yunya Wang, Jiayue Dai, Kenneth Xu, **Butian Xiong**. "MastSAM: Solving Multi-view Inconsistency Segmentation by Sequence Matched 3D Coordinates." ***IJCNN***, 2025. **(Corresponding Author)**

Preprint

1. **Butian Xiong**, Liu, Rong and Zhou, Tiantian and Chen, Meida and Fan, Zhiwen and Feng, Andrew. 'NanoGS: Training-Free Gaussian Splat Simplification" *arXiv preprint arXiv:2603.16103*, 2026.
2. **Butian Xiong**, Nanjun Zheng, Junhua Liu, Zhen Li. "GauU-Scene V2: Assessing the Reliability of Image-Based Metrics with Expansive Lidar Image Dataset Using 3DGS and NeRF." *arXiv preprint arXiv:2404.04880*, 2024.

Full List: https://saliteta.github.io/

Working Experience

Research Intern, FutureWEI – San Jose, United States May 2026 – Present

- Research the Heterogeneous Kernel, and multi view dependency.

Research Intern, USC ICT – Los Angeles, United States Jan 2025 – May 2026

- NanoGS published, a consistent frame work for Splats Compaction. In ECCV review
- Splat Feature Solver published, a feature, kernel, agnostic solver for lifting 2D features to 3D. Accepted in ICLR.
- Multi-View Inconsistency Handling. One paper get accepted by IJCNN as Communication Author
- ZTE Founding Acquisition for large scale reconstruction and fast rendering system. Co-Advised by Prof. Zhen Li from CUHK-SZ

Research Scientist And Engineer, FNII – Shenzhen, China June 2024 – Dec 2024

- Assembly-Net: Multimodal(Images, Text, Camera Pose, Point Cloud) Dataset Acquisition protocol designer
- Leader of 3D Multimodal Understanding Research Team, responsible for scene reconstruction, task-specific part segmentation, language embedding extraction, allocation, and query
- 3D Semantics Embedding: Euclidean Optimal Language Feature Shading on Gaussian Splatting
- Scene Reconstruction: Omnigibson Traversable Map Voronoi Graph Optimized Exploration

- Multiview Consistancy Semantic Extraction: Spatial Correlation Clustering and Hierachical Clustering
- Task specific part segmentation: Assembly Net Dataset Aquistion

Research Internship, DeepBit Lab CUHK-SZ, –Shenzhen, China Sept. 2023 - June 2024

- Semantic Aware Geometric Reconstruction for Large Scale Scene Reconstruction
- Drone Based Large Scale Point Cloud and Image Dataset Collection.

Research Internship,Geometric AI Lab, KAIST, –Daejeon, South Korea Mar. 2023 - Aug. 2023

- Human key point pose denoising using diffusion and transformer block
- Implemented and designed human tracking drone using PoseNet, and ROS, RGB-D camera with real-sense.

Research Internship, RAIL Lab CUHK-SZ, –Shenzhen, China June 2022 - Feb. 2023

- Out of Distribution Detection Using Prototyping Logits Filtering
- Scene Semantic Understanding usng Fused Network

Research Internship, SRIBD, –Shenzhen, China April 2022 - Sept. 2023

- Generated Human Expression Online Displacing using Blender
- Online Key Point Human Expression Key Point Extraction using Media-Pipe

Service Experience

- **Reviewer**: International Conference on Acoustic, Speech, and Signal Processing in 2024 and 2025
- **Reviewer**: International Conference on Neural Network 2025.
- **Reviewer**: International Joint Conference on Neural Networks in 2025
- **Reviewer**: IEEE Transactions on Circuits and Systems for Video Technology in 2024, 2025
- **Auki Labs' Technical Consultant**: In-door reconstruction and semantic segmentation in 2024
- **Infused AI's Technical Consultant**:Semantic embedding shading and task specific 3D segmentation in 2024

Teaching Experience

Teaching Assistant, Introduction of Artificial Intelligence – CUHK-SZ Jan 2024 - May. 2024

- Lectured tutorial sessions for every weeks, taught over 60 students. Held 1 hours office period per week.
- Co-worked with other PhD students responsible for project design and rating.

Teaching Assistant, Introduction of Multimedia System – CUHK-SZ Jan 2024 - May. 2024

- Lectured 2 tutorial sessions twice a week, taught over 120 students. Held 2 hours office period every week.
- Co-worked with other PhD students responsible for home work design.

Teaching Assistant, Database System – CUHK-SZ Sep. 2022 - Jan, 2023

- Lectured 3 tutorial sessions for four weeks, taught over 60 students. Held 2 hours office period per week.
- Designed related course content on how to construct a front end and how to connect the front-back end.

Selected Project

Feature Splat Solver Code | Project Page

- We provide a grounded theory and implementation for lifting 2D features to 3D splats representation.

GauUscene Dataset Dataset Link|Project Page

- We introduce a novel large-scale scene reconstruction benchmark using the newly developed 3D representation approach, Gaussian Splatting, on our expansive U-Scene dataset.

Semantic Aware Gaussian Splats Code Page| Project Page

- we propose a novel method, named SA-GS, for fine-grained 3D geometry reconstruction using semantic-aware 3D Gaussian Splats

Multi view Consistent Semantic Extraction Code Page | Slides Page

- We provide a semantic consistent reconstruction method by utilizing hierarchical latent information extraction and cluster

Additional Projects

- Socket Programing: Built an encryption protocol for data transform (C)
- Microprocessor Game Design: Cortex-M3 based STM32 chip game implementation from scratch. (STM32 in C)
- Computer Architecture: Pipe lining CPU implementation using Verilog. (ARM in Verilog
- Natural Language Processing and Web Design: Online Sentiment Analysis using Pytorch, Flask and SQL
- Human Computer Interaction Prototype: https://www.youtube.com/watch?v=wJKCajKaZYA

Skills

Languages: Mandarin (Native), English (Fluent), Japanese (Intermediate), Korean, (Intermediate)

Programming Skills: Python, **Pytorch**, **Cuda**, **C++**, Flask, JavaScript, Java, HTML, SQL, Svelte, C, Verilog

Operating System and Platforms: Linux User, Windows Fluent User. Microsoft 365, Adobe Premier, Adobe Acrobat, Keil v4, Fluent User, Blender 3D Designer

Hobbies: Violin, Chinese University of Hong Kong (Shenzhen) Orchestra; Kendo, KAIST Kendo club.