

Bingchen Gong

Postdoctoral Researcher in Computer Vision and Graphics

LIX, École Polytechnique, Institut Polytechnique de Paris (GeomeriX team, with Prof. Maks Ovsjanikov)

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Profile

Researcher in **3D and video understanding with deep learning**: Gaussian Splatting, neural fields, surface reconstruction, 3D foundation models, and scene editing and composition. Ten years of research in China, Hong Kong, the USA and France; 18 publications (4 ACM TOG) plus one manuscript under review. Co-mentor of six students and interns (eleven co-authored works); reviewer for CVPR, ICCV, ECCV and ACM TOG; ACM Multimedia 2026 programme committee member.

Positions

- Jun 2024 – present **Postdoctoral Researcher**, LIX, École Polytechnique / IP Paris, Palaiseau (France). GeomeriX team, Prof. Maks Ovsjanikov. 3D Gaussian Splatting, surface reconstruction, foundation models for 3D understanding. Collaboration with Inria GRAPHDECO (G. Drettakis) and Télécom Paris (A. D. Parakkat).
- Jul 2022 – May 2024 **Postdoctoral Fellow**, The Chinese University of Hong Kong, Prof. Qi Dou. Neural radiance field editing and composition, dynamic reconstruction of surgical video, data-driven surgical simulation.
- Oct 2019 – Dec 2020 **Visiting Scholar**, CUHK-Shenzhen (GAP Lab, Prof. Xiaoguang Han). Point cloud completion, domain adaptation for shape reconstruction.
- Jul 2018 – Jan 2019 **Research Intern**, Deepwise Inc., Beijing. Semi-supervised learning for AI-aided medical image diagnosis.
- Sep 2015 – Apr 2016 **Visiting Researcher**, Columbia University, DVMM Lab, Prof. Shih-Fu Chang. Compact deep networks with structured matrices (open-source library Tamp).

Education

- 2016 – 2021 **Ph.D. in Computer Science**, The University of Hong Kong. Advisor: Prof. Yizhou Yu. Thesis: [Local Structure Encoding and Representation in 2D and 3D Synthesis](#) (defended 17 September 2021). Completed the [Certificate in Teaching and Learning in Higher Education \(CTLHE\)](#) during the Ph.D.
- 2012 – 2016 **B.Sc. in Computer Science and Technology**, Zhejiang University, Hangzhou. Chu Kochen Honors College, Pursuit Science Class.

Publications (complete list, reverse chronological; *equal contribution; copies of the three best publications in the separate publication file)

- [1] B. Gong, V. Ehm, E. Pierson, M. Ovsjanikov. **Is It a Good Match?** 2D Keypoint Matching with Feedback of a VLM. Under review, NeurIPS 2026.
- [2] L. Liu, B. Gong, A. D. Parakkat, M. Ovsjanikov. **3DHarnessBench**: Probing Agentic 3D-to-Code Capabilities of Frontier Vision-Language Models. Under review, 3DV 2027; arXiv:2609.06535.
- [3] D. Gomez*, A. Guédon*, N. Maruani, B. Gong, M. Ovsjanikov. **From Blobs to Spokes**: High-Fidelity Surface Reconstruction via Oriented Gaussians. ECCV 2026.
- [4] S. Hadgi, B. Gong, R. Sundararaman, E. Pierson, L. Li, P. Wonka, M. Ovsjanikov. **PatchAlign3D**: Local Feature Alignment for Dense 3D Shape Understanding. CVPR 2026.
- [5] Z. Yang, B. Gong, K. Chen. **LOD-GS**: Level-of-Detail-Sensitive 3D Gaussian Splatting for Detail Conserved Anti-Aliasing. arXiv:2507.00554, 2025.
- [6] A. Guédon*, D. Gomez*, N. Maruani, B. Gong, G. Drettakis, M. Ovsjanikov. **MILo**: Mesh-In-the-Loop Gaussian Splatting for Detailed and Efficient Surface Reconstruction. ACM Trans. Graph. 44(6), SIGGRAPH Asia 2025.
- [7] B. Gong, D. Gomez, A. Hamdi, A. Eldesokey, A. Abdelreheem, P. Wonka, M. Ovsjanikov. **ZeroKey**: Point-Level Reasoning and Zero-Shot 3D Keypoint Detection from Large Language Models. ICCV 2025.
- [8] X. Gao, Z. Yang, B. Gong, X. Han, S. Yang, X. Jin. Towards Realistic Example-based Modeling via 3D Gaussian Stitching. CVPR 2025.
- [9] D. Gomez, B. Gong, M. Ovsjanikov. **FourierRF**: Few-Shot NeRFs via Progressive Fourier Frequency Control. 3DV 2025.
- [10] Y. Wang, C. Wang, B. Gong, T. Xue. Bilateral Guided Radiance Field Processing. ACM Trans. Graph. 43(4), SIGGRAPH 2024.
- [11] S. Yang, Q. Li, D. Shen, B. Gong, Q. Dou, Y. Jin. **Deform3DGS**: Flexible Deformation for Fast Surgical Scene Reconstruction with Gaussian Splatting. MICCAI 2024 (early accept).
- [12] Y. Wang, B. Gong, Y. Long, S. H. Fan, Q. Dou. Efficient EndoNeRF Reconstruction and Its Application for Data-driven Surgical Simulation. Int. J. Computer Assisted Radiology and Surgery 19(5), 2024.
- [13] B. Gong*, Y. Wang*, X. Han, Q. Dou. **SeamlessNeRF**: Stitching Part NeRFs with Gradient Propagation. SIGGRAPH Asia 2023.
- [14] B. Gong*, Y. Wang*, X. Han, Q. Dou. **RecolorNeRF**: Layer Decomposed Radiance Fields for Efficient Color Editing of 3D Scenes. ACM Multimedia 2023.

- [15] H. Ma*, **B. Gong***, Y. Yu. Structure-Aware Meta-Fusion for Image Super-Resolution. *ACM Trans. Multimedia Comput. Commun. Appl.* 18(2), 2022.
- [16] **B. Gong**, Y. Nie, Y. Lin, X. Han, Y. Yu. **ME-PCN**: Point Completion Conditioned on Mask Emptiness. *ICCV* 2021.
- [17] W. Ge*, **B. Gong***, Y. Yu. Image Super-Resolution via Deterministic-Stochastic Synthesis and Local Statistical Rectification. *ACM Trans. Graph.* 37(6), SIGGRAPH Asia 2018.
- [18] **B. Gong**, B. Jou, F. Yu, S.-F. Chang. **Tamp**: A Library for Compact Deep Neural Networks with Structured Matrices. *ACM Multimedia* 2016 (open-source software competition).
- [19] Z. Liao, Y. Yu, **B. Gong**, L. Cheng. audeosynth: Music-Driven Video Montage. *ACM Trans. Graph.* 34(4), SIGGRAPH 2015.

Supervision and mentoring

2026 – present	Tommaso Pappagallo , research intern, LIX (with M. Ovsjanikov): 3D deep learning for airborne LiDAR, point-level segmentation of ground, vegetation and anthropogenic structures on an archaeological survey.
2026	Ling Liu , research intern (with A. D. Parakkat and M. Ovsjanikov): agentic 3D-to-code evaluation of vision-language models [2].
2026	Viktoria Ehm , Ph.D. student, TU Munich (advisor D. Cremers; with M. Ovsjanikov): reinforcement fine-tuning of vision foundation models from VLM feedback. I took over the scientific lead in April 2026 and drove the work to submission [1].
2024 – present	Diego Gomez , Ph.D. student, LIX / École Polytechnique (with M. Ovsjanikov): few-shot NeRFs and Gaussian surface reconstruction; four co-authored papers [3, 6, 7, 9].
2022 – 2023	Yuehao Wang , M.Phil. student, CUHK (with Q. Dou): NeRF editing and composition; four co-authored papers [10, 12, 13, 14]. Now Ph.D. student at UT Austin.
2021 – 2022	Haoyu Ma , Ph.D. student, HKU (with Y. Yu): image super-resolution via meta-learning [15].

Teaching

Autumn 2026	Teaching Assistant , <i>Geometry Processing and Geometric Deep Learning</i> , MVA Master 2 programme (appointed).
2024 – 2026	Guest lectures and seminars : Gaussian Splatting and foundation models (ENPC/LIGM, Jan 2026); 3D shape completion and NeRF editing (CUHK, Jun 2024); NeRF and Gaussian Splatting (HKU, Mar 2024).
2016 – 2021	Teaching Assistant , Department of Computer Science, The University of Hong Kong (eight one-semester courses): Discrete Mathematics (COMP 2121), Computer Game Design and Programming, Advanced Topics in Computer Graphics (COMP 8501), Computer Organization, Artificial Intelligence (COMP 3270), Computer Graphics, Programming Technologies and Tools (COMP 2123), Advanced Topics in Data Engineering (COMP 8101). Tutorials, laboratory sessions, project supervision and grading.

Scientific service

Reviewing	CVPR (2024–2026), ICCV (2025), ECCV (2024, 2026), 3DV (2025, 2026), NeurIPS (2026), ACM Multimedia (2025), ACM Transactions on Graphics (2024–2026), IEEE TVCG (2025), CVIU (2026).
Committees	Programme committee member, ACM Multimedia 2026. Conference talk at SIGGRAPH Asia 2023 (Sydney); poster presentations at ICCV 2021 and ICCV 2025.
Open source	Author of siyuan-mcp (MCP server with OAuth 2.1 / PKCE authentication on Cloudflare Workers), Task-Solver (provider-agnostic agent layer behind 3DHarnessBench) and the viewport-only Blender MCP used in that benchmark: a server-side AST allowlist confining the agent to camera moves and measurements. Maintainer of SeamlessNeRF, ME-PCN, DTSN (C++/CUDA) and Tamp (ACM MM 2016); contributor to MILo.

Awards and distinctions

2015	Young Scholar Award, Microsoft Research Asia. Honorable Mention, COMAP Interdisciplinary Contest in Modeling.
2014	First Prize, Asia Student Supercomputer Challenge (ASC14), high-performance computing team competition.
2013	Top Talented Scholarship of Fundamental Science, Zhejiang University.
2012	Grand Award in Computer Science and Agilent Special Award, Intel International Science and Engineering Fair (ISEF). First Award, China Adolescents Science and Technology Innovation Contest (2011).

Skills and languages

Programming	Python / PyTorch (daily), C/C++ and CUDA (custom rasterisers and kernels), MATLAB, Java, JavaScript; Verilog and assembly. Development at every level of abstraction, from GPU kernels to vision-language agents.
Agents and LLMs	Agentic pipelines and evaluation: tool calling through the Model Context Protocol, frontier-model agent CLIs, VLM-as-judge rewards [1, 2]. Self-hosted inference of open-weight vision-language models (Qwen, Molmo, MiniMax) with vLLM; LoRA fine-tuning of vision and vision-language backbones.
Systems	Linux systems and GPU clusters (SLURM), differentiable rendering stacks (gsplat, nerfstudio, Mitsuba 3), Blender and Unity pipelines, MPEG and web video toolchains. Earlier: heterogeneous CPU/GPU cluster building and HPC tuning, FPGA system projects.
Languages	Mandarin Chinese (native), English (fluent, working language for ten years), Cantonese (conversational), French (learner; committed to teaching in French within two years).