

Guying Lin

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EDUCATION

Carnegie Mellon University

PhD in Computer Science

PA, USA

Sept. 2024 – Present

- **Advisor:** Prof. Minchen Li

The University of Hong Kong

MPhil in Computer Science

HK, China

Sept. 2022 – Aug. 2024

- **Advisors:** Prof. Wenping Wang and Prof. Taku Komura
- Fully funded by HKU postgraduate scholarship

Zhejiang University

Bachelor of Engineering

Zhejiang, China

Sept. 2018 – July 2022

- CHU KOCHEN Honors College
- **Cumulative GPA:** 3.94/4.00 (top 5%)

PUBLICATIONS

1. **Lin, G.***, Yang, L*, Zhang, C., Pan, H., Ping, Y., Wei, G., ... & Wang, W. (2023). "Patch-Grid: An efficient and feature-preserving neural implicit surface representation". **Status:** Provisionally accepted by *ACM Transactions on Graphics* (TOG) with revisions. (***: equal contribution**)
ArXiv link: <https://arxiv.org/abs/2308.13934>
Synopsis: We develop a unified neural implicit representation that models complex shapes efficiently, preserves sharp features, and effectively models surfaces with open boundaries and thin geometric features.
2. Zhang, C*, **Lin, G.***, Yang, L., Li, X., Komura, T., Schaefer, S., ... & Wang, W. (2023). "Surface extraction from neural unsigned distance fields". *ICCV 2023*. In Proceedings of the *IEEE/CVF International Conference on Computer Vision 2023*. (***: equal contribution**)
ArXiv link: <https://arxiv.org/abs/2309.08878>
Synopsis: We propose a robust and efficient method to extract a high-quality surface from noisy unsigned distance functions (UDFs), encoded by neural UDFs.
3. **Lin, G.***, Yang, L*, Yuan, L., Zhang, C., Wei, G., ... & Wang, W. (2023). "On Optimal Sampling for Learning SDF Using MLPs Equipped with Positional Encoding". **Status:** Under minor revision of *IEEE Transactions on Visualization and Computer Graphics* (TVCG). (***: equal contribution**)
ArXiv Link: <https://arxiv.org/abs/2401.01391>
Synopsis: We study the optimal sampling problem in network training for modeling neural implicit surfaces, especially those with rich geometric details. With our sampling strategy, a straightforward MLP network, augmented with PE, achieves state-of-the-art quality in terms of both surface accuracy and overall SDF quality.
4. Wang, P., Liu, Y., **Lin, G.**, Gu, J., Liu, L., Komura, T., & Wang, W. (2022). "Progressively-connected light field network for efficient view synthesis". *Computers & Graphics*.
ArXiv link: <https://arxiv.org/abs/2207.04465>
Synopsis: We develop a Progressively-connected Light Field network for the novel view synthesis of complex forward-facing scenes which is able to achieve significantly better rendering quality than the vanilla neural light fields and comparable results to NeRF-like rendering methods

5. Yang, L., Liang, Y., Li, X., Zhang, C., **Lin, G.**, Sheffer, A., ... & Wang, W. (2023). “Neural parametric surfaces for shape modeling”. *ArXiv preprint* .

ArXiv link: <https://arxiv.org/abs/2309.09911>

Synopsis: We propose the first piecewise neural surface representation that allows coarse patch layouts of arbitrary n-sided surface patches to model complex surface geometries with high precision, offering greater flexibility over traditional parametric surface.

Lingting Zhu, Zhao Wang, Jiahao Cui, Zhenchao Jin, Guying Lin, Lequan Yu

6. Zhu, L., Wang, Z., Cui, J., Jin, Z., **Lin, G.**, Yu, L. (2024). “Deformable endoscopic tissues reconstruction with gaussian splatting”. *MICCAI EARTH 2024*.

ArXiv link: <https://arxiv.org/abs/2401.11535>

Synopsis: We utilize 3D Gaussian Splatting to enhance deformable endoscopic tissue reconstruction by integrating deformation fields and depth-guided supervision. This approach significantly improves rendering quality from single-viewpoint videos and outperforms previous methods.

RESEARCH EXPERIENCES

Computer Graphics and Visualization Lab at HKU

July 2022 - Aug. 2024

- **Advisor:** Prof. Wenping Wang
- **Research Area:** Neural implicit surface representation
Explore a series of topics in neural implicit representation, aiming at developing versatile, efficient, and feature-preserving representations.

TEACHING EXPERIENCES

Teaching Assistant at HKU

Sept. 2022 - Feb. 2024

- **Courses:** Computer Vision, Java Programming

AWARDS

- {2019-2020, 2020-2021, 2021-2022} Scholarship for Pilotage (CHU KOCHEN Honors College Outstanding Students Awards)
- 2019-2020 WangLaoJi Scholarship
- 2020-2021 ZJU First-grade Scholarship
- 2021-2022 Zhejiang Provincial Government Scholarship
- 2019 Second Class Prize in Mathematics Competition for College Students in Zhejiang Province
- 2022 Honored Graduate of CHU KOCHEN Honors College
- 2022 Honored Graduate of Zhejiang University

PERSONAL

- **Languages:** Mandarin (native), English (fluent; TOEFL: 110)
- **Technical Skills:** Python, C++, Unreal Engine4, Substance 3D Painter, Maya, Unity, Zbrush, React
- **Hobbies:** Sketch, Watercolor Painting, Chinese Calligraphy, Latin Dance, Cooking
- **Extracurricular Activities:** Intern journalist at Qianjiang Evening News, Minister of ZJU Youth Volunteer Association