Guying Lin

(+86)133-5588-8048 | carrie-lin.github.io / guyinglin2000@gmail.com

Education

The University of Hong Kong — China
MPhil of Computer Science — *Sept. 2022 – present*

- **Supervisor:** Prof. **Wenping Wang** and Prof. **Taku Komura**

Zhejiang University — China
Bachelor of Engineering — *Sept. 2018 – July 2022*

- CHU KOCHEN Honors College
- **Cumulative GPA:** 89.91/100 3.94/4.00 (top 5%)

Research Interests

Computer Graphics, Computer Vision, Machine Learning, and Robotics

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 spatial sampling for learning SDF with positional encoding". **Status:** Submitted to *IEEE Transactions on Visualization and Computer Graphics* (TVCG).

   Project page: https://samplepe.github.io/

   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". **Status:** Submitted to the journal *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.

Research Experiences

Computer Graphics and Visualization Lab at HKU July 2022 - Present

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

State Key Laboratory of CAD & CG at ZJU Oct. 2020 - Apr.2021

- **Advisor:** Prof. Yingcai Wu
- **Reseach Area:** Visualization
  Implement a visualization system, that empowers users to better understand both the direct and indirect effects of table tennis competition, while enabling efficient comparisons between them.

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++, UE4/Maya/Unity/Zbrush, React
- **Interests:** Sketch, Watercolor Painting, Chinese Calligraphy, Latin Dance