# YILING QIAO

ylqiao.net ⋄ yilingq@umd.edu ⋄ 240-484-3414

## EDUCATION

**University of Maryland, College Park** — Aug 2019 - present
Ph.D. student in Computer Science — Advisor: Ming C. Lin
M.S. in Computer Science — Jan 2023
Meta Research PhD Fellowship (21 winners / 3,200+ applicants) — Apr 2023
**University of Chinese Academy of Sciences** — Sep 2015 - Jul 2019
B.E. in Computer Science and Technology — Advisor: Xilin Chen
B.S. in Mathematics and Applied Mathematics
**University of California, Los Angeles** — Jul 2018 - Sep 2018
Research Assistant, Cross-disciplinary Scholars in Science and Technology (CSST)
**Carnegie Mellon University** — Jan 2018 - May 2018
Visiting student, School of Computer Science

## EXPERIENCE

**Research Intern** — May 2022 - Aug 2022
*Simulation Technology, NVIDIA* — *Mentor: Miles Macklin, Animesh Garg*

· Perform 3D reconstruction for hand-object-interaction using neural fields and differentiable simulation

**Research Intern** — May 2021 - Aug 2021
*Facebook Reality Labs* — *Mentor: Breannan Smith, Takaaki Shiratori*

· Learn physics properties from real-world captures using differentiable rendering and simulation. The learned physics is further used in VR/AR and metaverse applications.

**Research Intern** — May 2020 - May 2021
*Intelligent Systems Lab, Intel* — *Mentor: Vladlen Koltun*

· Develop differentiable dynamics for various physics systems. Improve the speed and memory efficiency by orders of magnitude compared to other methods. Enhance reinforcement learning algorithms using the developed simulators.
· Develop Open3D-ML, an open-source project with state-of-the-art 3D machine learning algorithms.

## PUBLICATIONS

17. **Yi-Ling Qiao\***, Alexander Gao\*, Yiran Xu, Yue Feng, Jia-Bin Huang, Ming C. Lin. Dynamic Mesh-Aware Radiance Fields. *International Conference on Computer Vision (ICCV 2023)*.

16. Xuan Li, **Yi-Ling Qiao**, Peter Yichen Chen, Krishna Murthy Jatavallabhula, Ming Lin, Chenfanfu Jiang, Chuang Gan. PAC-NeRF: Physics Augmented Continuum Neural Radiance Fields for Geometry-Agnostic System Identification. *International Conference on Learning Representations (ICLR 2023)*.

15. Jiaqi Leng\*, Yuxiang Peng\*, **Yi-Ling Qiao\***, Ming C. Lin, Xiaodi Wu. Differentiable Analog Quantum Computing for Optimization and Control. *Conference on Neural Information Processing Systems (NeurIPS 2022)*. Link

14. **Yi-Ling Qiao\***, Alexander Gao\*, Ming C. Lin. NeuPhysics: Editable Neural Geometry and Physics from Monocular Videos. *Conference on Neural Information Processing Systems (NeurIPS 2022)*. Link

13. Sanghyun Son, **Yi-Ling Qiao**, Jason Sewall, Ming C. Lin. Differentiable Hybrid Traffic Simulation. *ACM Transactions on Graphics (SIGGRAPH Asia 2022, Journal Track)*. Link

12. **Yi-Ling Qiao\***, Junbang Liang\*, Vladlen Koltun, Ming C. Lin. Differentiable Simulation of Soft Multi-body Systems. *Conference on Neural Information Processing Systems (NeurIPS 2021)*. Link

11. **Yi-Ling Qiao\***, Junbang Liang\*, Vladlen Koltun, Ming C. Lin. Efficient Differentiable Simulation of Articulated Bodies. *International Conference on Machine Learning (ICML 2021)*. Link

10. Jing Liang, **Yi-Ling Qiao**, Tianrui Guan, Dinesh Manocha. OF-VO: Efficient Navigation among Pedestrians Using Commodity Sensors. *IEEE Robotics and Automation Letters (RAL/ICRA 2021)*. Link

9. Matthew Ziemann, Alisha Sharma, Kaiyan Shi, **Yi-Ling Qiao**. Towards Modeling Physically-Consistent, Chaotic Spatiotemporal Dynamics with Echo State Networks. *CEUR Workshop Proceedings*. Link

8. Tetsuya Takahashi, Junbang Liang, **Yi-Ling Qiao**, Ming C. Lin. Differentiable Fluids with Solid Coupling for Learning and Control. *AAAI Conference on Artificial Intelligence (AAAI 2021)*. Link

7. **Yi-Ling Qiao**, Junbang Liang, Vladlen Koltun, Ming C. Lin. Scalable differentiable physics for learning and control. *International Conference on Machine Learning (ICML 2020)*. Link

6. **Yi-Ling Qiao**, Yu-Kun Lai, Hongbo Fu, Lin Gao. Synthesizing Mesh Deformation Sequences with Bidirectional LSTM. *IEEE Transactions on Visualization and Computer Graphics*. Link

5. **Yi-Ling Qiao**, *Lin Gao, Shu-Zhi Liu, Ligang Liu, Yu-Kun Lai, Xilin Chen.* Learning-based Intrinsic Reflectional Symmetry Detection. *IEEE Transactions on Visualization and Computer Graphics.* Link

4. **Yi-Ling Qiao**, *Lin Gao, Jie Yang, Yu-Kun Lai, Xilin Chen.* Learning on 3D Meshes with Laplacian Encoding and Pooling. *IEEE Transactions on Visualization and Computer Graphics.* Link

3. **Yi-Ling Qiao**, *Chang Shi, Chenjian Wang, Hao Li, Matthew Haberland, Andrew M. Stuart, Andrea Bertozzi.* Uncertainty quantification for semi-supervised multilabel classification in image processing and ego-motion analysis from body worn cameras. *Electronic Imaging 2019.* Link

2. *Lin Gao, Jie Yang,* **Yi-Ling Qiao**, *Yu-Kun Lai, Paul L. Rosin, Weiwe Xu, Shihong Xia.* Automatic Unpaired Shape Deformation Transfer. *ACM Transactions on Graphics (SIGGRAPH Asia 2018).* Link

1. **Yi-Ling Qiao**, *Lin Gao, Yukun Lai, Fang-Lue Zhang, Ming-Ze Yuan, Shihong Xia.* SF-Net: Learning Scene Flow from RGB-D Images with CNNs. *The British Machine Vision Conference (BMVC 2018).* Link

## MISC

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|---|---|
| **Research** | Physically-based Simulation, Artificial Intelligence, Quantum Computing, Metaverse |
| **Computer Languages** | C/C++, Python, CUDA, Verilog/FPGA |

**Academic Service**

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|---|---|
| review, International Conference on Machine Learning (ICML) | 2021, 2022, 2023 |
| review, Conference on Neural Information Processing Systems (NeurIPS) | 2021, 2022, 2023 |
| review, International Conference on Learning Representations (ICLR) | 2022, 2023 |
| review, Association for the Advancement of Artificial Intelligence (AAAI) Conference | 2023 |
| review, Conference on Computer Vision and Pattern Recognition (CVPR) | 2023 |
| review, IEEE International Conference on Virtual Reality and Visualization (ICVRV) | 2023 |
| review, The International Joint Conference on Artificial Intelligence (IJCAI) | 2023 |
| review, SIGGRAPH | 2023 |
| review, SIGGRAPH Asia | 2023 |
| review, International Conference on Computer Vision (ICCV) | 2023 |
| review, Conference on Robot Learning (CoRL) | 2023 |
| review, IEEE Transactions on Visualization and Computer Graphics | 2022 |
| review, Visual Computing for Industry, Biomedicine, and Art | 2022 |
| co-organizer, "Learning Paradigms for Scalable Robotic Skill Acquisition", CoRL workshop | 2023 |
| co-chair, "Perception in VR & AR" session, SIGGRAPH Asia | 2022 |