

YILING QIAO

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EDUCATION

University of Maryland, College Park

Ph.D. student in Computer Science

M.S. in Computer Science

Meta Research PhD Fellowship (21 winners / 3,200+ applicants)

Larry S. Davis Dissertation Award

University of Chinese Academy of Sciences

B.E. in Computer Science and Technology

B.S. in Mathematics and Applied Mathematics

University of California, Los Angeles

Research Assistant, Cross-disciplinary Scholars in Science and Technology (CSST)

Carnegie Mellon University

Visiting student, School of Computer Science

Aug. 2019 - Aug. 2024

Advisor: [Ming C. Lin](#)

Jan. 2023

Apr. 2023

Oct. 2024

Sept. 2015 - Jul 2019

Advisor: [Xilin Chen](#)

Jul 2018 - Sept. 2018

Jan. 2018 - May 2018

EXPERIENCE

Quantitative Researcher

Jump Trading

Jun 2023 - Aug 2023, Sept. 2024 - Present

- Research machine learning and market dynamics.

Co-Lead

Genesis

Feb. 2023 - Present

- Co-lead a [project](#) towards generative simulation and generalist robotics.

Research Intern

Simulation Technology, NVIDIA

May 2022 - Aug. 2022

Mentor: [Miles Macklin](#), [Animesh Garg](#)

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

Research Intern

Facebook Reality Labs

May 2021 - Aug. 2021

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

Intelligent Systems Lab, Intel

May 2020 - May 2021

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

20. Connor Clayton, Jiaqi Leng, Gengzhi Yang, **Yi-Ling Qiao**, Ming Lin, Xiaodi Wu. Differentiable Quantum Computing for Large-scale Linear Control. *Conference on Neural Information Processing System (NeurIPS 2024)*. [Link](#)

19. Shutong Zhang*, **Yi-Ling Qiao***, Guanglei Zhu*, Eric Heiden, Dylan Turpin, Jingzhou Liu, Ming Lin, Miles Macklin, Animesh Garg. HandyPriors: Physically Consistent Perception of Hand-Object Interactions with Differentiable Priors. *IEEE International Conference on Robotics and Automation (ICRA 2024)*. [Link](#)

18. Sanghyun Son, Laura Yu Zheng, Ryan Sullivan, **Yi-Ling Qiao**, Ming C. Lin. Gradient Informed Proximal Policy Optimization. *Conference on Neural Information Processing Systems (NeurIPS 2023)*. [Link](#)

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)*. [Link](#)

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)*. [Link](#)

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

Research	Graphics, Artificial Intelligence, Robotics, Quantum Computing
Computer Languages	C/C++, Python, CUDA, Rust, Verilog/FPGA

Academic Service

organizer, “Towards Generalist Robots”, CoRL workshop	2023
co-chair, “Perception in VR & AR” session, SIGGRAPH Asia	2022
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, 2024
review, IEEE International Conference on Virtual Reality and Visualization (ICVRV)	2023
review, The International Joint Conference on Artificial Intelligence (IJCAI)	2023
review, Eurographics	2023
review, Pacific Graphics	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, 2023
review, Visual Computing for Industry, Biomedicine, and Art	2022