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

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

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

Research	Physically-based Simulation, Artificial Intelligence, Quantum Computing, Metaverse
Computer Languages	C/C++, Python, Matlab, Verilog, FPGA, CUDA
Professional Service	reviewer, ICML, NeurIPS, ICLR, AAAI, CVPR, TVCG