

YILING QIAO

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EDUCATION

University of Maryland, College Park

Ph.D student in Computer Science

Aug 2019 - present

Advisor: [Ming C. Lin](#)

University of Chinese Academy of Sciences

B.E. Computer Science and Technology

B.S. Mathematics and Applied Mathematics (Double Major)

Sep 2015 - Jul 2019

Advisor: [Xilin Chen](#)

University of California, Los Angeles

Special student, Cross-disciplinary Scholars in Science and Technology (CSST)

Jul 2018 - Sep 2018

Carnegie Mellon University

Visiting student, School of Computer Science

Jan 2018 - May 2018

EXPERIENCE

Research Intern

Facebook Reality Labs

May 2021 - Aug 2021

Mentor: [Breannan Smith](#)

- Apply differentiable programming to the rendering and simulation pipeline and learn physics properties from real-world data. The learned physics is further used in VR/AR applications.

Research Intern

Intelligent Systems Lab, Intel

May 2020 - May 2021

Mentor: [Vladlen Koltun](#)

- Develop differentiable dynamics for various physics systems (including rigid body, articulated body, fluids, and deformable solids). 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 (<https://github.com/intel-isl/Open3D-ML>), an open-source project with state-of-the-art machine learning algorithms in the 3D world.

Research Assistant

Department of Mathematics, UCLA

Mar 2018 - Sep 2018

Mentor: [Andrea L. Bertozzi](#)

- Research on graph-based semisupervised problems with uncertainty quantification, which is then used in video classification.

Research Assistant

Institute of Computing Technology, Chinese Academy of Sciences

Oct 2016 - Jul 2019

Mentor: [Lin Gao](#)

- Develop deep learning algorithms (including CNN and LSTM) for 3D problems, including scene flow estimation, deformation transfer, shape segmentation, motion prediction, and symmetry detection.

PUBLICATIONS

Differentiable Simulation of Soft Multi-body Systems

Conference on Neural Information Processing Systems (NeurIPS 2021)

[Yi-Ling Qiao](#), [Junbang Liang](#), [Vladlen Koltun](#), [Ming C. Lin](#)

Efficient Differentiable Simulation of Articulated Bodies [PDF](#)

International Conference on Machine Learning (ICML 2021)

[Yi-Ling Qiao](#), [Junbang Liang](#), [Vladlen Koltun](#), [Ming C. Lin](#)

OF-VO: Efficient Navigation among Pedestrians Using Commodity Sensors [PDF](#)

IEEE Robotics and Automation Letters (RAL/ICRA 2021)

Jing Liang, **Yi-Ling Qiao**, Tianrui Guan, Dinesh Manocha

Differentiable Fluids with Solid Coupling for Learning and Control [PDF](#)

AAAI Conference on Artificial Intelligence (AAAI 2021)

Tetsuya Takahashi, Junbang Liang, **Yi-Ling Qiao**, Ming C. Lin

Scalable differentiable physics for learning and control [PDF](#)

International Conference on Machine Learning (ICML 2020)

Yi-Ling Qiao, Junbang Liang, Vladlen Koltun, Ming C. Lin

Synthesizing Mesh Deformation Sequences with Bidirectional LSTM [PDF](#)

IEEE Transactions on Visualization and Computer Graphics (TVCG 2020)

Yi-Ling Qiao, Yu-Kun Lai, Hongbo Fu, Lin Gao

Learning on 3D Meshes with Laplacian Encoding and Pooling [PDF](#)

IEEE Transactions on Visualization and Computer Graphics (TVCG 2020)

Yi-Ling Qiao, Lin Gao, Jie Yang, Yu-Kun Lai, Xilin Chen

Uncertainty quantification for semi-supervised multilabel classification in image processing and ego-motion analysis from body worn cameras [PDF](#)

Electronic Imaging 2019

Yi-Ling Qiao, Chang Shi, Chenjian Wang, Hao Li, Matthew Haberland, Andrew M. Stuart, Andrea Bertozzi

Automatic Unpaired Shape Deformation Transfer [PDF](#)

SIGGRAPH ASIA 2018

Lin Gao, Jie Yang, **Yi-Ling Qiao**, Yu-Kun Lai, Paul L. Rosin, Weiwei Xu, Shihong Xia

SF-Net: Learning Scene Flow from RGB-D Images with CNNs [PDF](#)

The British Machine Vision Conference (BMVC 2018)

Yi-Ling Qiao, Lin Gao, Yukun Lai, Fang-Lue Zhang, Ming-Ze Yuan, Shihong Xia

MISC

Research

Computer Languages

Github

Physically-based Simulation, Machine Learning, Graphics

C/C++, Python, Matlab, Verilog, FPGA, CUDA

<https://github.com/YilingQiao>