Fengting Yang

CONTACT INFORMATION

311 Airport Blvd., Meta Reality Lab
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EDUCATION

The Pennsylvania State University
Ph.D. in Information Sciences and Technology 08/2017 - 05/2022
- Research Interests: *3D Computer Vision* and *Deep Learning*
- Dissertation: *Geometry Inspired Deep Neural Networks for 3D Reconstruction*
- Advisor: Dr. Sharon Huang and Dr. Zihan Zhou GPA: 3.88/4.00

Tianjin University
M.E. in Instrument Science and Technology 09/2014 - 01/2017
- Advisor: Dr. Bin Wu GPA: 89.19/100

B.E. in Measuring and Controlling Technology and Instruments 09/2010 - 06/2014
- GPA: 3.75/4.00

SELECTED PROJECTS

Integrating Geometric Prior into Deep 3D Vision Tasks 08/2017 - Present
Advisor: Dr. Sharon Huang and Dr. Zihan Zhou

- Introduced plane prior-induced training loss for simultaneous plane segmentation and parameter estimation in the *single-view 3D reconstruction*.
- Proposed a CNN-based *superpixel segmentation* method and applied it for *stereo matching* application.
- Designed a novel *depth-from-focus* network to estimate depth from focal stacks.
- Developed an deep learning pipeline for 3D plane detection and reconstruction from posed monocular video
- Proposed an indoor prior inspired *multi-view stereo* method

Non-Orthogonal 3D Measurement Instruments 09/2014 - 06/2017
Advisor: Dr. Bin Wu

- Designed two non-orthogonal instruments for large scale 3D measurement.
- Developed the measurement principle and the hardware/software of the systems.

PROFESSIONAL EXPERIENCE

Meta 06/2022 - present
Applied Research Scientist *Burlingame, CA*

- Eye tracking for XR.

Amazon 05/2021 - 08/2021
Applied Scientist Intern *Remote*

- Projects related to 3D data processing, 3D reconstruction, floor layout estimation, and multi-camera pose estimation.

Amazon 05/2020 - 08/2020
Applied Scientist Intern *Greater Boston Area, MA*

- Wrote software for a novel camera device and collected data with it.
- Explored multiple depth estimation methods for various inputs and cues, and delivered the model ahead of the deadline.

- The final model outperformed the baseline by 32% and exceed the targeted accuracy by 21% in terms of RMSE.
- Advised the team on how to apply the proposed technologies to Amazon's physical shopping products.

ByteDance (TikTok) 05/2019 - 08/2019
Research Intern *Palo Alto, CA*

- Developed a single-view plane recovery model that learned segmentation and parameter estimation for an arbitrary number of planes with only depth supervision.
- The final model improved the plane parameter accuracy by 27% compared to the baseline with the same plane number.

Publications

1. **Fengting Yang**, Xiaolei Huang, and Zihan Zhou. "Deep Depth from Focus with Differential Focus Volume." *CVPR.* 2022.
2. Yiming Xie, Matheus Gadelha, **Fengting Yang**, Xiaowei Zhou, and Huaizu Jiang. "PlanarRecon: Real-time 3D Plane Detection and Reconstruction from Posed Monocular Videos." *CVPR.* 2022.
3. **Fengting Yang**, Qian Sun, Hailin Jin, and Zihan Zhou. "Superpixel Segmentation with Fully Convolutional Networks." *CVPR.* 2020.
4. **Fengting Yang** and Zihan Zhou. "Recovering 3D Planes from a Single Image via Convolutional Neural Networks." *ECCV.* 2018.
5. **Fengting Yang**, Bin Wu, Ting Xue, Mohammed F. Ahmed and Jie Huang. "A Cost-effective Non-orthogonal 3D Measurement System." *Measurement* (2018), 128, pp.264-270.
6. Bin Wu, You Xu, **Fengting Yang**, Chunqiang Qian, and Bei Cai. "3D Coordinate Measuring System Based on Laser Tracking Absolute Length Measurement Multilateral Method." *Infra. and Laser Eng.* 47. 8 (2018): 0806007. (*In Chinese*)
7. Bin Wu, Wen Ding, **Fengting Yang**, and Ting Xue. "The Error Analysis of the Non-Orthogonal Total Station Coordinate Measurement System." *Acta. Metrologica Sinica.*, 38. 6 (2017): 661-666. (*In Chinese*)
8. Bin Wu, **Fengting Yang**, Wen Ding, and Ting Xue. "A Novel Calibration Method for Non-orthogonal Shaft Laser Theodolite Measurement System." *Review of Scientific Instruments* 87. 3 (2016): 035102.
9. Jinjiang Wang, Tianyu Chang, Baozhen Ge, Qingguo Tian, **Fengting Yang**, and Shendong Shi. "The Research on Calibration Methods of Dual-CCD Laser Three-dimensional Human Face Scanning System." *ISPDI 2013*, 2013:890535.

Patents

1. Ting Xue, Bin Wu, and **Fengting Yang**. "An Inverse Kinematic Model for Non-orthogonal Shafting Laser Theodolites." China Invention Patent, ZL 201610949270, Mar. 2019
2. Bin Wu, Ting Xue, and **Fengting Yang**. "A Non-orthogonal Shafting Laser Total Station Based 3D Coordinate Measurement Method." China Invention Patent, ZL 201610915794, May. 2019

Teaching Experience

DS340 - Applied Data Science 08/2020 - 12/2020
Teaching Assistant *Penn State, PA*

Principle of Automatic Control 09/2015 - 02/2016
Teaching Assistant *Tianjin University, China*

PC Member AAAI Conference on Artificial Intelligence (AAAI) 2023

Reviewer **Journals**:

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- Computer Vision and Image Understanding (CVIU)
- IEEE Transactions on Artificial Intelligence (TAI)

Conferences:

- IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2022
- European Conference on Computer Vision (ECCV) 2022
- AAAI Conference on Artificial Intelligence (AAAI) 2023
- International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2022
- International Conference on 3D Vision (3DV) 2022

Skills **Python, MATLAB, PyTorch, TensorFlow**