

Mingyuan Zhou

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EDUCATION

University of Delaware, Newark, Delaware

Doctor of Philosophy in Computer Science, Jun. 2014 – Feb. 2019

Stevens Institute of Technology, Hoboken, New Jersey

Master of Engineering in Computer and Information Engineering, Sep. 2012 – May. 2014

Beijing Information Science and Technology University, Beijing, China

Bachelor of Engineering in Intelligence Science and Technology, Sep. 2007 – July. 2011

SKILLS

Software Language: C++, Python, MATLAB, SQL; **Hardware Language:** VHDL; **Languages:** Fluent in English and Chinese

WORK EXPERIENCE

DGene (www.us1.dgene.com)

Research Scientist

03/2019-Present

- Developed a volumetric capture stage, performed research on dynamic 3D reconstruction and rendering.
- Established a human face capture system to recover high-quality 3D face geometry.
- Built an object scanning system, conducted research on 3D object reconstruction and rendering.
- Developed 3D applications based on these systems.

Graphics & Vision Research Intern

02/2017-05/2017

- Built a small-scale dynamic volumetric capture system.
 - Developed a 3D audio recording and rendering system.
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RESEARCH EXPERIENCE

Research Assistant, University of Delaware, Graphics and Imaging lab

06/2014-02/2019

Coded Light Field Imaging

- Created three coded plenoptic sampling schemes: the rotational cross-slit light field sampling, the wavelength-coded light field sampling, and the polarimetric light field sampling. Analyzed the plenoptic function for each sampling scheme.
- Developed different light field acquisition systems, corresponding 3D reconstruction algorithms, and rendering methods.
- Results were published in IEEE International Conference on Computer Vision (ICCV) 2021, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2020, and IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2016.

3D Face Reconstruction and Registration

- Developed two multi-spectral systems for 3D face reconstruction and registration.
- Presented a new color photometric stereo method that recovers high-quality, detailed 3D face geometry in a single shot.
- Proposed a new collaborative multi-spectral infrared sensing method to achieve face detection and 3D registration under low-light and unconstrained conditions.
- Results were published in IEEE International Conference on Computational Photography (ICCP) 2020, Applied Optics 2018, and IEEE Applied Imagery Pattern Recognition (AIPR) 2015.

Content-Aware Image Pre-Compensation

- Presented a new tone mapping approach for image pre-compensation that effectively trades off between contrast and ringing.
- Developed solutions for projector defocus compensation and visual acuity improvement.
- Results were published in IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2018.

3D Reconstruction from XSlit Imaging

- Developed a 3D reconstruction method based on a single rotational XSlit camera and a structure from motion framework on XSlit cameras.
- Explored the capability of XSlit-based SfM to recover both camera motions and scene geometry at an absolute scale.
- Results were published in IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2019 and IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2016.

Real-time 3D Display

- Built a 1D real-time capturing camera array.
- Developed a lenticular 3D displaying system that is synchronized with the camera array for real-time 3D displaying.

Research Assistant, Stevens Institute of Technology (CS/ECE Department)

12/2012-12/2013

Object Recognition Leveraging the 3D Model of the Grasping Hand

- Implemented a parametric 3D hand model.
- Improved object recognition by adding the information of the corresponding grasping hand.

Real-time 3D Mapping

- Developed a robot system with the Kinect for accurate 3D mapping of an indoor scene.
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PUBLICATIONS

- Yuqi Ding, Yu Ji, **Mingyuan Zhou**, Sing Bing Kang and Jinwei Ye. "Polarimetric Helmholtz Stereopsis." In Proceedings of the IEEE International Conference on Computer Vision (ICCV) 2021.
- **Mingyuan Zhou**, Yuqi Ding, Yu Ji, Shiqiong Susan Young, Jingyi Yu, and Jinwei Ye. "Shape and Reflectance Reconstruction Using Concentric Multi-Spectral Light Field." IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2020.
- Chen, Zhang, Yu Ji, **Mingyuan Zhou**, Sing Bing Kang, and Jingyi Yu. "3D Face Reconstruction using Color Photometric Stereo with Uncalibrated Near Point Lights." In IEEE International Conference on Computational Photography (ICCP) 2020.
- Yang, Wei, Yingliang Zhang, Jinwei Ye, Yu Ji, Zhong Li, **Mingyuan Zhou**, and Jingyi Yu. "Structure from Motion on XSlit Cameras." IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2019.
- **Mingyuan Zhou**, Haiting Lin, S. Susan Young, and Jingyi Yu. "Hybrid sensing face detection and registration for low-light and unconstrained conditions." Applied Optics 2018.
- Ye, Jinwei, Yu Ji, **Mingyuan Zhou**, Sing Bing Kang, and Jingyi Yu. "Content Aware Image Pre-Compensation." IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2018.
- Li, Nianyi, Haiting Lin, Bilin Sun, **Mingyuan Zhou**, and Jingyi Yu. "Rotational Crossed-Slit Light Field." In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2016.
- **Mingyuan Zhou**, Haiting Lin, Jingyi Yu, and S. Susan Young. "Hybrid sensing face detection and recognition." In IEEE Applied Imagery Pattern Recognition (AIPR) 2015.

HONOR AND AWARDS

2010, 3rd Place, Middle Size League, RoboCup China Open.

2009-2010, 1st Prize, Middle Size League, RoboCup China Open.
