

# Yuqi Ding

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<b>CONTACT</b>	<ul style="list-style-type: none"><li>- <b>Email:</b> yding18@lsu.edu</li><li>- <b>Phone:</b> (225) 249-2815</li><li>- <b>Address:</b> 2305 Patrick F. Taylor Hall, Louisiana State University, Baton Rouge, LA 70803</li></ul>	
<b>RESEARCH AREA</b>	Computational Photography, Computer Vision, Computer Graphics, Autonomous Driving	
<b>EDUCATION</b>	<b>Louisiana State University</b>	Baton Rouge, LA
	Ph.D. Candidate in Computer Science	8/2018 – Present
	<b>Wuhan University</b>	Wuhan, Hubei
	M.S. in Cartography and Geographic Information System	8/2011 – 6/2013
	<b>Wuhan University</b>	Wuhan, Hubei
	B.S. in Geographic Information System	8/2005 – 6/2009
<b>EXPERIENCE</b>	<b>Research Intern, OPPO US Research Center</b>	<b>5/2021 – 8/2021</b>
	<ul style="list-style-type: none"><li>- <b>InnoStage Development</b><ul style="list-style-type: none"><li>• <i>Designed and built the prototype of stage with the machine vision camera and LED lights</i></li><li>• <i>Developed the capture program with the Arduino board.</i></li><li>• <i>Developed the photometric stereo method to recover the 3D shape.</i></li></ul></li><li>- <b>Novel View Synthesis</b><ul style="list-style-type: none"><li>• <i>Understood the knowledge and technology of the NeRF and deep learning.</i></li><li>• <i>Rendered the various scene by NeRF and traditional multi-view stereo method .</i></li><li>• <i>Develop the novel NeRF framework to deal with complex underwater environment.</i></li></ul></li></ul>	
	<b>Research Assistant, Louisiana State University</b>	<b>8/2018 – Present</b>
	<ul style="list-style-type: none"><li>- <b>Physical-based Vision</b><ul style="list-style-type: none"><li>• <i>Built the prototype of polarization imaging system.</i></li><li>• <i>Developed the automatic acquiring system with PointGrey SDK, Lucid SDK, Thorlabs Kinesis SDK.</i></li><li>• <i>Proposed a novel 3D reconstruction algorithm to recovery the depth and normal map of the surface.</i></li></ul></li><li>- <b>Light Field Imaging</b><ul style="list-style-type: none"><li>• <i>Built the underwater imaging system with light field camera.</i></li><li>• <i>Developed light field camera calibration (micro-lens and camera array).</i></li><li>• <i>Developed the non-linear multi-view 3D reconstruction algorithm.</i></li></ul></li><li>- <b>3D Face Recognition</b><ul style="list-style-type: none"><li>• <i>Processed 3D face registration and face fusion with RGBD data.</i></li><li>• <i>Developed face inpainting method with Autoencoder.</i></li><li>• <i>Developed face recognition with deep learning and SVM classifier.</i></li></ul></li><li>- <b>Lidar and Camera Data Fusion</b><ul style="list-style-type: none"><li>• <i>Calibrated the autonomous driving system (lidar and camera).</i></li></ul></li></ul>	

- Fused the multi-source data for object predication.

- **Augmented Reality (AR)**

- Captured point cloud and RGB data with Unity3D and Meta2 SDK.
- Fused 3D points with 2D color images to generate RGBD data.

**Sr. Algorithm Development Engineer**, OmniVision Technologies Inc.

**6/2016 – 6/2018**

- **Phase Detection Auto Focus (PDAF)**

- Developed PDAF shift calculation algorithm in smart phone.
- Tested the PDAF algorithm under various senses and light conditions.

- **Stereo Vision**

- Experimented state-of-the-art stereo vision methods.
- Adapted NCC algorithm to generate the depth map.
- Adopted coarse-to-fine strategy to improve the speed.

**Research Assistant**, Wuhan University

**7/2013 – 8/2016**

- **3D Reconstruction with Unmanned Aerial Vehicle**

- Manipulated UAV to acquire video data.
- Adopted SFM to build an auto 3D reconstruction workflow.
- Processed point cloud to mesh surface.

- **Smart Parking**

- Collected parking data through Baidu map API.
- Compiled the vehicle license plate algorithm.
- Analyzed and exploited users' data based on LBS and GIS to find the nearest vacant parking lots and send messages to the customers automatically.

- **Multi-Source and Multi-Scale Image Data Mining**

- Participated and developed the big image data mining project.
- Experimented and compared many superpixel algorithms.
- Studied uncertainty reasoning and optimization.
- Proposed a novel image segmentation algorithm.

**PUBLICATIONS** [1] **Polarimetric Helmholtz Stereopsis**

**Yuqi Ding**, Yu Ji, Mingyuan Zhou, Sing Bing Kang and Jinwei Ye  
*IEEE International Conference on Computer Vision, 2021 (Oral)*

[2] **Next-generation Perception System for Automated Defects Detection in Composite Laminates via Polarized Computational Imaging**

**Yuqi Ding**, Jinwei Ye, Corina Barbalata, James Oubre, Chandler Lemoine, Jacob Agostinho and Genevieve Palardy.  
*Composites and Advanced Materials Expo (CAMX), 2021*

[3] **3D LiDAR and Color Camera Data Fusion**

**Yuqi Ding**, Jiaming Liu, Jinwei Ye, Weidong Xiang, Hsiao-Chun Wu and Costas Busch.  
*IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB), 2020.*

**[4] Shape and Reflectance Reconstruction using Concentric Multi-spectral Light Field**

Mingyuan Zhou, **Yuqi Ding**, Yu Ji, S. Susan Young, Jingyi Yu, and Jinwei Ye.

*IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2020.

**[5] Efficient 3D Face Recognition in Uncontrolled Environment**

**Yuqi Ding**, Nianyi Li, S. Susan Young, and Jinwei Ye.

*International Symposium on Visual Computing (ISVC)*, 2019. **(Oral)**

**PRESENTATION [1] 3D Fluid Flow Reconstruction Using A Compact Light Field Camera**

**Yuqi Ding**, Zhong Li, Yu Ji, Jingyi Yu and Jinwei Ye.

*Computational Optical Sensing and Imaging, Optical Society of America (OSA)* 2021.

**[2] Multi-Spectral Reflectance and Shape Reconstruction Using A Concentric Light Field**

**Yuqi Ding**, Mingyuan Zhou, Yu Ji, S. Susan Young, Jingyi Yu and Jinwei Ye.

*Imaging Systems and Applications, Optical Society of America (OSA)* 2021.

**SKILLS**

**Hardware**

Polarization Camera, Light Field Camera, Event Camera, RGBD Camera, Lidar, Structured Light

**Programming Languages**

C/C++, Matlab, Python, Java

**Deep Learning Framework**

Tensorflow, Keras, Pytorch