

Jinwei Ye

Assistant Professor
Department of Computer Science
George Mason University

Phone: (302) 562-9234
Email: jinweiye@gmu.edu
Homepage: <http://ivlab.cse.lsu.edu>

Research Interests

- Computational Photography
- Computer Vision
- Virtual/Augmented Reality
- Computer Graphics
- Machine Learning

Education

- Ph.D., Computer Science, 2014
University of Delaware, Newark, DE
Advisor: Jingyi Yu
- B.Eng., Electronics and Information Engineering, 2009
Huazhong University of Science and Technology, Wuhan, China

Work Experience

- *Assistant Professor*, George Mason University, Fairfax, VA 2022 - Now
- *Adjunct Assistant Professor*, Louisiana State University, Baton Rouge, LA 2022 - Now
- *Assistant Professor*, Louisiana State University, Baton Rouge, LA 2017 - 2021
- *Senior Scientist*, Innovation Center of Canon U.S.A., San Jose, CA 2015 - 2017
- *Postdoctoral Researcher*, US Army Research Laboratory, Adelphi, MD 2014 - 2015

Awarded Grants

- “RI: Small: Computational Imaging for Underwater Exploration”, National Science Foundation, PI: **Jinwei Ye**, Co-PI: Corina Barbalata, \$499,495, 2021-2024.
- “I-Corps: Universal 3D Scanning Through Polarization Field”, National Science Foundation, PI: **Jinwei Ye**, Co-PI: Nianyi Li, \$50,000, 2021-2022.
- “CRII: RI: General Surface Reconstruction via Polarized Computational Imaging”, National Science Foundation, PI: **Jinwei Ye**, \$191,000 (including \$16,000 REU supplement), 2020-2022.
- “NRI: FND: Collaborative Mobile Manufacturing in Uncertain Scenarios”, National Science Foundation, PI: Corina Barbalata, Co-PIs: Marcio de Queiroz, Hunter Gilbert, **Jinwei Ye**, Genevieve Palardy, \$746,943, 2020-2023.
- “Towards Realistic Immersive 3D Modeling and Rendering”, DGene Digital Media Inc., PI: **Jinwei Ye**, \$45,000, 2020-2021.

- “Development of Universal 3D Scanner Using Polarization Field”, LSU Leveraging Innovation for Technology Transfer (LIFT²) Grant, PI: **Jinwei Ye**, \$49,500, 2019-2020.
- “Computational Imaging Approach for 3D Volumetric Fluid Reconstruction”, Louisiana Board of Regents, PI: **Jinwei Ye**, \$161,250, 2018-2020.

Honors and Awards

- Outstanding Reviewer, CVPR 2017
- Patent Award, Innovation Center of Canon U.S.A., 2015, 2016
- Doctoral Consortium Travel Award, CVPR 2014
- Frank A. Pehrson Graduate Student Achievement Award, University of Delaware, 2014
- Quantum Leap Innovations Graduate Student Excellence Award, University of Delaware, 2013
- Professional Development Award, University of Delaware, 2012, 2013
- Honorable Graduation, Huazhong University of Science and Technology, 2009
- Excellent Undergraduate Student Award, Huazhong University of Science and Technology, 2006-2008

Publications¹

Journals

- [J5] Mingyuan Zhou, Yuqi Ding, Yu Ji, S. 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 (PAMI)*, vol 42, issue 7, pp 1594 - 1605, Jul 2020.
- [J4] Yingliang Zhang, Wei Yang, **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 (PAMI)*, Early Access, Dec 2019.
- [J3] **Jinwei Ye**, Yu Ji, Mingyuan Zhou, Sing Bing Kang, and Jingyi Yu. “Content Aware Image Pre-Compensation”. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, vol 41, issue 7, pp1545 - 1558, Jul 2019.
- [J2] Nianyi Li, **Jinwei Ye**, Yu Ji, Haibin Ling, and Jingyi Yu. “Saliency Detection on Light Fields”. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, vol 39, issue 8, pp 1605 - 1616, Aug 2017.
- [J1] **Jinwei Ye** and Jingyi Yu. “Ray Geometry in Non-pinhole Cameras: A Survey”. *Visual Computer*, pp 93 - 112, March 2013.

Conferences

- [C18] Yuqi Ding, Yu Ji, Mingyuan Zhou, Sing Bing Kang, and **Jinwei Ye**. “Polarimetric Helmholtz Stereopsis”. To appear in *International Conference on Computer Vision (ICCV) 2021*. **Oral Presentation**
- [C17] Simron Thapa, Nianyi Li, and **Jinwei Ye**. “Learning to Remove Refractive Distortions from Underwater Images”. To appear in *International Conference on Computer Vision (ICCV) 2021*.

¹In computer vision, one of the leading journals is the IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI, IF = 17.861) and leading conferences are IEEE Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV) and European Conference on Computer Vision (ECCV). Papers in these conferences are rigorously reviewed, with acceptance rates around 20%, and below 5% for oral presentations. In computational photography, the leading conference is IEEE International Conference on Computational Photography (ICCP), with the acceptance rates around 20%. **All accepted papers (including the oral presentations) in these conferences are published in the conference proceedings.**

- [C16] Nianyi Li, Simron Thapa, Cameron Whyte, Albert Reed, Suren Jayasuriya, and **Jinwei Ye**. “Dynamic Fluid Surface Reconstruction Using Deep Neural Network”. To appear in *International Conference on Computer Vision (ICCV)* 2021.
- [C15] Simron Thapa, Nianyi Li, and **Jinwei Ye**. “Dynamic Fluid Surface Reconstruction Using Deep Neural Network”. *IEEE/CVF International Conference on Computer Vision and Pattern Recognition (CVPR)* 2020. **Oral Presentation** [Acceptance Rate: 5.7%]
- [C14] Zhong Li, Yu Ji, Jingyi Yu, and **Jinwei Ye**. “3D Fluid Flow Reconstruction Using Compact Light Field PIV”. *the European Conference on Computer Vision (ECCV)* 2020. [Acceptance Rate: 26%]
- [C13] Yuqi Ding, Nianyi Li, S. Susan Young, and **Jinwei Ye**. “3D Face Recognition Using Pose-varying RGB-D Images”. *International Symposium of Visual Computing (ISVC)* 2019. **Oral Presentation**
- [C12] Jie Lu, Yu Ji, Jingyi Yu, and **Jinwei Ye**. “Mirror Surface Reconstruction Using Polarization Field”. *IEEE International Conference on Computational Photography (ICCP)* 2019. **Oral Presentation**
- [C11] Shi Jin, Ruiyang Liu, Yu Ji, **Jinwei Ye**, and Jingyi Yu. “Learning to Dodge A Bullet: Conccyclic View Morphing via Deep Learning”. *European Conference on Computer Vision (ECCV)* 2018. [Acceptance Rate: 31.8%]
- [C10] Zhong Li, Yu Ji, Wei Yang, **Jinwei Ye**, and Jingyi Yu. “Robust 3D Human Motion Reconstruction Via Dynamic Template Construction”. *International Conference on 3DVision (3DV)* 2017.
- [C9] Siu-Kei Tin*, **Jinwei Ye***, Mahdi Nezamabadi, and Can Chen. “3D Reconstruction of Mirror-type Objects using Efficient Ray Coding”. *IEEE International Conference on Computational Photography (ICCP)* 2016. **Oral Presentation**
- [C8] **Jinwei Ye**, Yu Ji, Wei Yang, and Jingyi Yu. “Depth-of-Field Analysis and Coded Aperture Imaging on XSlit Cameras”. *European Conference on Computer Vision (ECCV)* 2014. **Oral Presentation** [Acceptance Rate: 2.6%]
- [C7] Wei Yang, Yu Ji, **Jinwei Ye**, S. Susan Young, and Jingyi Yu. “Coplanar Common Points in Non-Centric Cameras”. *European Conference on Computer Vision (ECCV)* 2014. [Acceptance Rate: 29%]
- [C6] Yu Ji, **Jinwei Ye**, Sing Bing Kang, and Jingyi Yu. “Image Pre-compensation: Balancing Contrast and Ringing”. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)* 2014. [Acceptance Rate: 29.88%]
- [C5] Nianyi Li, **Jinwei Ye**, Yu Ji, Haibin Ling, and Jingyi Yu. “Saliency Detection on Light Fields”. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)* 2014. [Acceptance Rate: 29.88%]
- [C4] **Jinwei Ye**, Yu Ji, and Jingyi Yu. “A Rotational Stereo Model Based on XSlit Imaging”. *the IEEE International Conference on Computer Vision (ICCV)* 2013. **Oral Presentation** [Acceptance Rate: 2.52%]
- [C3] **Jinwei Ye**, Yu Ji, and Jingyi Yu. “Manhattan Scene Understanding Via XSlit Imaging”. In Proceedings of *the IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)* 2013. [Acceptance Rate: 25.2%]
- [C2] Yu Ji, **Jinwei Ye**, and Jingyi Yu. “Reconstructing Gas Flows Using Light Paths Approximation”. In Proceedings of *the IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)* 2013. **Oral Presentation** [Acceptance Rate: 3.2%]
- [C1] **Jinwei Ye**, Yu Ji, Feng Li, and Jingyi Yu. “Angular Domain Reconstruction of Dynamic 3D Fluid Surfaces”. In Proceedings of *the IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)* 2012. [Acceptance Rate: 24%]

* indicates equal contribution.

Technical Reports

- [T1] Qifan Zhang, **Jinwei Ye**, Philip Osteen, and S. Susan Young. “Co-calibration and Registration of Color and Event Cameras”. ARL-TR-9108, US Army Research Laboratory, Nov 2020.

US Patents

- [P8] “XSlit Camera”, Jingyi Yu, **Jinwei Ye** and Yu Ji, Patent Number: 10546395, Date of Patent: January 28, 2020. (*Granted*)
- [P7] “Measuring Shape of Specular Objects by Local Projection of Coded Patterns”, Siu-Kei Tin and **Jinwei Ye**, Patent Number: 10168146, Date of Patent: January 1, 2019. (*Granted*)
- [P6] “System and Method for Face Recognition with Three-Dimensional Sensing Modality”, S. Susan Young and **Jinwei Ye**, Patent Number: 9959455, Date of Patent: May 1, 2018. (*Granted*)
- [P5] “Depth Value Measurement”, Siu-Kei Tin and **Jinwei Ye**, Patent Number: 9958259, Date of Patent: May 1, 2018. (*Granted*)
- [P4] “System and Method for Reconstructing 3-D Shape of Objects from Reflection Images”, **Jinwei Ye** and Jie Lu, Publication Number: 20200366881, Filed on May 14, 2020.
- [P3] “Devices, Systems, and Methods for Measuring and Reconstructing the Shape of Specular Objects by Multiview Capture”, **Jinwei Ye**, Siu-Kei Tin, Mahdi Nezamabadi and Can Chen, Publication Number: 20170178390, Filed on 2016.
- [P2] “Devices, Systems and Methods for Single-Shot High-Resolution Multispectral Image Acquisition”, **Jinwei Ye**, Publication Number: 20160241797, Filed on December 8, 2015.
- [P1] “Measuring Surface Geometry using Illumination Direction Coding”, Siu-Kei Tin and **Jinwei Ye**, Publication Number: 20170131091, Filed on November 10, 2015.

Talks

- “Seeing the Unseen: Invisible Object 3D Reconstruction with Computational Imaging Approaches” (*invited talk*), OSA Congress on Imaging and Applied Optics, July 2021.
- “Seeing the Unseen: Invisible Object 3D Reconstruction with Computational Imaging Approaches”, George Mason University, April 2021.
- “Mirror Surface Reconstruction Using Polarization Field”, ShanghaiTech University, July 2019.
- “Mirror Surface Reconstruction Using Polarization Field”, International Conference on Computational Photography (ICCP), May 2019.
- “Multi-perspective Computational Imaging”, Stevens Institute of Technology, May 2017.
- “Multi-perspective Computational Imaging”, Rochester Institute of Technology, March 2017.
- “Multi-perspective Computational Imaging”, Louisiana State University, February 2017.
- “3D Reconstruction of Mirror-type Objects using Efficient Ray Coding”, International Conference on Computational Photography (ICCP), May 2016.
- “High Resolution Multi-spectral Image Reconstruction on Light Field via Sparse Representation”, OSA Congress on Imaging and Applied Optics, June 2015.

- “Depth Reconstruction from the Defocus Effect of an XSlit Camera”, OSA Congress on Imaging and Applied Optics, June 2015.
- “3D Reconstruction of Transparent Objects”, Canon U.S.A., Inc., August 2014.
- “Multi-perspective Imaging and Its Applications”, Shanghai JiaoTong University, April 2014.

Teaching Experience

- George Mason University 2022 - Now
 - CS 583 - Analysis of Algorithms, Spring 2022
- Louisiana State University 2017 - 2021
 - CSC 4356 - Interactive Computer Graphics, Fall 2017, 2018, 2019, 2020, 2021
 - CSC 4263 - Video Game Design, Spring 2018, 2019, 2020
 - CSC 7700 - Special Topics on 3D Computer Vision, Spring 2019

Mentoring

- Postdoc
 - Nianyi Li, August 2019 - July 2021 (Next stop: Assistant Professor at Clemson University)
- PhD Students
 - Simron Thapa, Fall 2018 - Fall 2021 (Next stop: Senior Data Scientist at 3M)
ACM-W Scholarship 2021
3M RISE Scholar 2020
GHC (Grace Hopper Celebration) Scholar 2020
 - Yuqi Ding, Fall 2018 - Now, Topic: Polarization imaging
 - Yubei Tu, Fall 2021 - Now, Topic: 3D computer vision
- Master Students
 - Blessing Ajibero, Fall 2020 - Summer 2021, Topic: *Air turbulence simulation*
 - Sirazum Tisha, Fall 2017 - Fall 2019, Topic: *Body shape measurement with depth and thermal sensors*
GHC Scholar 2019
- Undergraduate Students
 - Blake Bollinger, Fall 2020 - Now, Topic: *Gaze-assisted augmented reality*
 - Martin Ivanchev, Fall 2020 - Now, Topic: *Gaze-assisted augmented reality*
LSU Cain Scholar 2020
 - George Villaume, Fall 2020 - Now, Topic: *Gaze-assisted augmented reality*
S. S. Iyengar Family Scholarship Recipient in Fall 2020 (for recognizing excellent undergraduate research)
 - Ryan Henry, Spring 2019, Topic: *AI in Video games*
 - Allen Williams, Spring 2018, Topic: *Fluid simulation*
- Visiting Students
 - Zhang Chen (ShanghaiTech), Summer 2018 - Fall 2018, Topic: *3D face acquisition*
 - Shi Jin (ShanghaiTech), Fall 2017 - Spring 2018, Topic: *Photo-realistic view synthesis*
 - Ruiyang Liu (ShanghaiTech), Fall 2017 - Spring 2018, Topic: *Photo-realistic view synthesis*
 - Jie Lu (ShanghaiTech), Fall 2017 - Spring 2018, Topic: *Mirror object 3D reconstruction*

Professional Service

- Grant Reviewer
 - NSF CISE IIS RI Small panel 2020
 - Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant reviewer 2022
- Senior Program Committee
 - Local Arrangement Chair of CVPR 2022
 - Area Chair of International Conference on Computer Vision and Pattern Recognition (CVPR) 2021, 2022
 - Area Chair of International Conference on Pattern Recognition (ICPR) 2021
 - Poster Chair of ACM Spatial User Interaction 2019
- Conference Reviewer
 - SIGGRAPH Asia 2021
 - International Conference on Computer Vision and Pattern Recognition (CVPR) 2016 - Now
 - European Conference on Computer Vision (ECCV) 2016 - Now
 - International Conference on Computer Vision (ICCV) 2017 - Now
 - AAAI Conference on Artificial Intelligence 2019 - Now
 - Conference on Neural Information Processing Systems (NeurIPS) 2020
 - British Machine Vision Conference (BMVC) 2019 - Now
 - Pacific Graphics (PG) 2014, 2015, 2016, 2017
- Journal Reviewer
 - ACM Transactions of Graphics
 - IEEE Transactions on Pattern Analysis and Machine Intelligence
 - IEEE Transactions on Computational Imaging
 - IEEE Transactions on Image Processing
 - IEEE Journal of Selected Topics in Signal Processing
 - IEEE Transactions on Circuits and Systems for Video Technology
 - IEEE Transactions on Geoscience and Remote Sensing
 - IEEE Transactions on Instrumentation & Measurement
 - Springer Journal of Machine Vision and Applications
 - Springer Journal of Visual Computer
 - Elsevier Journal of Computer Vision and Image Understanding
 - Elsevier Journal Pattern Recognition
 - Nature Scientific Reports

University Service

- Tenure-Track Recruitment Committee (GMU), Spring 2022
- Faculty Search Committee (LSU), Fall 2020 - Spring 2021
- Master Admission Committee (LSU), Fall 2020 - Spring 2021
- Undergraduate Initiative Committee (LSU), Fall 2018 - Spring 2021
- PhD Admission Committee (LSU), Fall 2017 - Spring 2019