

# Jingyi Yu

## *Curriculum Vitae*

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### **RESEARCH INTEREST**

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Computer Graphics, Computer Vision, Medical Imaging, Optics and Camera Design, Multimedia, Image Processing, Human-Computer Interface

### **EDUCATION**

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**Ph.D., Electrical Engineering and Computer Science, August, 2005**

*General Linear Cameras: Theory and Applications*

Advisor: Prof. Leonard McMillan

Massachusetts Institute of Technology, Cambridge, MA 02139

**M.S., Electrical Engineering and Computer Science, February, 2003**

Massachusetts Institute of Technology, Cambridge, MA 02139

**B.S., Applied Mathematics and Computer Science, June, 2000, with Honor**

California Institute of Technology, Pasadena, CA 91125

### **PUBLICATION**

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#### **JOURNAL**

1. *Single-Image Vignetting Correction*, Yuanjie Zheng, Sing-Bing Kang, Chandra Kambhampettu, [Jingyi Yu](#), and Steve Lin, to appear in IEEE Transaction on Pattern Analysis and Machine Intelligence (TPAMI), 2009.
2. *Towards Multiperspective Rasterization*, Xuan Yu, [Jingyi Yu](#), Leonard McMillan, to appear in Visual Computers, Special Issues of Computer Graphics International (CGI) 2009.
3. *Line-art Illustration of Dynamic and Specular Surfaces*, Yongjin Kim, [Jingyi Yu](#), Xuan Yu, and Seungyong Lee, to appear in ACM Transaction on Graphics (Proceedings of ACM SIGGRAPH Asia 2008), 2008.
4. *Multiperspective Modeling and Rendering Using General Linear Cameras*, [Jingyi Yu](#), Yuanyuan Ding, and Leonard McMillan, to appear Communications in Information and Systems, 2008
5. *Interactive Glossy Reflections Using GPU-based Ray Tracing with Adaptive LOD*, Xuan Yu, Rui, Wang, and [Jingyi Yu](#), to appear in Computer Graphics Forum (Proceedings of Pacific Graphics '08), 2008.
6. *Harnessing Real-World Depth Edges with Multi-Flash Imaging*, Ramesh Raskar, Kar-han Tan, Rogerio Feris, J. Kobler, [Jingyi Yu](#), and Mathew Turk, IEEE Computer Graphics and Applications (CG&A), Volume 25, No. 1. 2005:32-38.

7. *Gradient Domain Context Enhancement Using Poisson Integration*, Adrian Ilie, Ramesh Raskar and [Jingyi Yu](#), International Journal on Pattern Recognition and Artificial Intelligence, 2005.
8. *Non-photorealistic Camera: Depth Edge Detection and Stylized Rendering Using Multi-Flash Imaging*, Ramesh Raskar, Kar-han Tan, Rogerio Feris, [Jingyi Yu](#), and Mathew Turk. In ACM Transaction on Graphics (Proceedings of ACM SIGGRAPH '04): 679-688.
9. *Surface Camera Light Field Rendering*, [Jingyi Yu](#), Leonard McMillan, and Steven Gortler, International Journal on Image and Graphics, Volume 4. No. 4, 2004: 605-626

## INTERNATIONAL REFEREED CONFERENCES

10. *Real-time Projector Depixelation for Videos*, Kevin Kreiser and [Jingyi Yu](#), In Proceedings of Computer Graphics International (CGI 2008).
11. *State of the Art Report: Multiperspective Rendering, Modeling, and Imaging*, [Jingyi Yu](#), Leonard McMillan, and Peter Sturm, In Proceedings of Eurographics 2008.
12. *Recovering Shape Characteristics on Near-flat Specular Surfaces*, Yuanyuan Ding and [Jingyi Yu](#), in Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2008).
13. *Single-Image Vignetting Correction Using Radial Gradient Symmetry*. Yuanjie Zheng, [Jingyi Yu](#), Steve Lin, Sing-bing Kang, and Chandra Kambhamettu, in Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2008).
14. *FuzzyMatte: A Computationally Efficient Scheme for Interactive Matting*, Yuanjie Zheng, Chandra Kambhamettu, and [Jingyi Yu](#), Thomas Bauer, and Karl Steiner, in Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2008).
15. *A Hybrid Camera for Motion Deblurring and Depth Super-resolution*, Feng Li, [Jingyi Yu](#), and Jinxiang Chai, in Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2008).
16. *Multiperspective Distortion Correction via Collineation*, Yuanyuan Ding and [Jingyi Yu](#), in Proceedings of Asian Conference on Computer Vision (ACCV) 2007.
17. *Image-space Curvature and Caustics*, Xuan Yu, Feng Li and [Jingyi Yu](#), in Proceedings of the 15<sup>th</sup> Pacific Conference on Computer Graphics and Applications 2007 (PG '07).
18. *Epsilon Stereo Pairs*, Yuanyuan Ding and [Jingyi Yu](#), in Proceedings of the British Machine Vision Conference (BMVC) 2007.
19. *De-enhancing the Dynamic Contrast-Enhanced Breast MRI for Robust Registration*, Yuanjie Zheng, [Jingyi Yu](#), Chandra Kambhamettu, Sarah Englander, Mitchell D. Schnall, and Dinggang Shen, in Proceedings of the 10<sup>th</sup> International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2007).
20. *Lung Nodule Growth Analysis from 3D CT Data Using a Coupled Segmentation and Registration Framework*, Yuanjie Zheng, Karl Steiner, Thomas Bauer, [Jingyi Yu](#), Dinggang Shen, and Chandra Kambhamettu, in Proceedings of ICCV Workshop on Mathematical Methods in biomedical Image Analysis (MMBIA 07).
21. *Focal Surfaces of Discrete Geometry*, [Jingyi Yu](#), Xiaotian Yin, Xianfeng Gu, Leonard McMillan, and Steven Gortler, in Proceedings of the fifth Eurographics Symposium on Geometry Processing (SGP '07), Barcelona, Spain, 2007.
22. *Robust Tracking and Stereo Matching under Varying Illumination*, Jingdan Zhang, Leonard McMillan, and [Jingyi Yu](#), in Proceedings of 2006 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR '06):
23. *Multiperspective Projection and Collineation*, [Jingyi Yu](#) and Leonard McMillan, in Proceedings of 2005 International Conference on Computer Vision (ICCV '05): 580-587
24. *Real-Time Reflection Mapping with Parallax*, [Jingyi Yu](#), Jason Yang, and Leonard McMillan, in Proceedings of the 2005 Symposium on Interactive 3D Graphics and Games (I3D): 133- 138.

25. *Analyzing Reflections via Multiperspective Imaging*, Jingyi Yu and Leonard McMillan, in Proceedings of 2005 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR '05): 117-124.
26. *A Framework for Multiperspective Rendering*, Jingyi Yu and Leonard McMillan, in Proceedings of Eurographics Symposium on Rendering (EGSR '04), 2004: 61-68
27. *General Linear Cameras*, Jingyi Yu and Leonard McMillan, in 8<sup>th</sup> European Conference on Computer Vision (ECCV '04), 2004, Volume 2, 14-27.
28. *Image Fusion for Context Enhancement*, Ramesh Raskar, Adrian Ilie and Jingyi Yu, in Proceedings of 3<sup>rd</sup> International Symposium on Non-photorealistic Animation and Rendering (NPAR '04), 2004: 85-94
29. *Gradient Domain Context Enhancement for Fixed Cameras*, Adrian Ilie, Ramesh Raskar and Jingyi Yu, in Proceedings of ACCV 2004, Jeju Island, Korea, 2004.
30. *A New Reconstruction Filter for Undersampled Light Fields*, Stewart, Jason, Jingyi Yu, Steven J. Gortler, and Leonard McMillan, in Proceedings of Eurographics Symposium on Rendering (EGSR '03), 2003: 150-156
31. *Scam Light Field Rendering*, Jingyi Yu, Leonard McMillan, and Steven Gortler, in Proceedings of Proceedings of Pacific Graphics 2002: 137-144

## SKETCHES AND TUTORIALS

32. *Multi-perspective Modeling, Rendering, and Imaging*, Jingyi Yu, ACM SIGGRAPH ASIA Tutorial, 2008.
33. *Geometric Modeling Using Focal Surfaces*, Jingyi Yu, Xiaotian Yin, Xianfeng Gu, Leonard McMillan, and Steven Gortler. In ACM SIGGRAPH 2007, Technical Sketch.
34. *A Non-Photorealistic Camera: Detecting Silhouettes with Multi-flash*, Ramesh Raskar, Jingyi Yu, and Adrian Ilie, in SIGGRAPH 2003 Technical Sketches.

## AWARDS

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2007 Exemplary Use of Technology in Teaching Award, University of Delaware  
 2000 Caltech Graduation with Honor  
 2000 Caltech Moore Fellowship  
 1999 Zeigler Memorial Award

## PATENTS

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1. Reducing Texture Details in Images, United States Patent 7,102,638, with Ramesh Raskar and Adrian Ilie.
2. Enhancing Low Quality Images of Naturally Illuminated Scenes, United States Patent 7,103,227. with Ramesh Raskar and Adrian Ilie.
3. Stylized Imaging Using Variable Controlled Illumination, United States Patent 7,218,792. with Ramesh Raskar.
4. Detecting Silhouette Edges in Images, United States Patent 7,206,449, with Ramesh Raskar.

## PROFESSIONAL EXPERIENCE

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8/ 2005 – present     Assistant Professor  
                                  Department of Computer and Information Sciences  
                                  University of Delaware

03/2003 – 03/2004:    Visiting Research Assistant  
                                  Department of Computer Sciences, University of North Carolina, Chapel Hill  
                                  Advisor: Prof. Leonard McMillan

06/2003 – 12/2003:    Research Internship

- Mitsubishi Electronic Research Lab (MERL)  
Mentor: Dr. Ramesh Raskar
- 09/2000 – 08/2005: Graduate Research Assistant  
Massachusetts Institute of Technology  
Advisor: Prof. Leonard McMillan and Prof. Steven Gortler (Harvard)
- 03/1999 – 06/2000: Undergraduate Research Assistant  
California Institute of Technology  
Advisor: Prof. Alan Barr, Dr. David Breen

## PROFESSIONAL ACTIVITIES

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- **Conference Organization**

Program Co-Chair, IEEE Workshop on Projector-Camera Systems (ProCams 2009) in Conjunction with CVPR 2009

- **Conference Program Committee Member**

IEEE Computer Vision and Pattern Recognition (CVPR) 2009  
Pacific Graphics 2009  
IEEE Computer Vision and Pattern Recognition (CVPR) 2008  
The 5<sup>th</sup> International Workshop on Project-Camera Systems (ProCams) 2008  
Shape Modeling International (SMI) 2008  
Computer Animation and Social Agents (CASA) 2008  
International Conference on Computer Vision (ICCV) 2007  
European Conference on Computer Vision (ECCV) 2006  
Asian Conference on Computer Vision (ACCV) 2006  
Computer Graphics International (CGI) 2006

- **Journal/Conference Reviewer**

ACM SIGGRAPH, ACM Transaction on Graphics (TOG), Transaction on Visualization and Computer Graphics (TVCG), Transaction on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Computer Graphics and Applications (CG&A), Eurographics, IEEE Computer Vision and Pattern Recognition (CVPR), Asian Conference on Computer Vision (ACCV), European Conference on Computer Vision (ECCV), Eurographics, Computer Graphics Forum.

- **Invited Research Presentations**

University of Central Florida (03/05), UT Dallas (04/05), Virginia Tech (03/05), George Mason University (03/05), University of Delaware (03/05), UC Berkeley (08/05), Adobe System (08/05), Shanghai Jiaotong University (10/05), Drexel University (11/05), Siemens Corporate Research (12/05), Army Research Lab (07/06), SUNY Stony Brooks (11/05, 11/07), University of Kentucky (10/07).

## COURSES TAUGHT

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- Advanced Computer Graphics, Fall 2008
- Computational Geometry, Spring 2008
- Computational Photography and Videos (CISC 849), Fall 2005, Fall 2006, Fall 2007
- Interactive 3D Graphics (CISC440/640), Spring 2006, Fall 2006, Spring 2006, Fall 2007.

## INDIVIDUAL PH.D. STUDENT SUPERVISION

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- Feng Li, Fall 2006 – present, current research topic: building a multi-camera array
- Yuanyuan Ding, Spring 2007 – present, current research topic: multiperspective reconstruction and rendering
- Xuan Yu, Spring 2007 – present, current research topic: real-time rendering of reflections, refractions, and caustics.
- Kevin Kreiser, 2007 – present, current research topic: projector defocusing video.
- David Lopez, Fall 2007 – present, current research topic: tree and plant modeling and rendering

- Christopher Thorpe, Spring 2008 – present, current research topic: multi-flash photography

## **PROJECTS AND GRANTS**

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- *Building An Immersive, Interactive Display for Smith Hall*, Co-PI, UD Transformation Grant, 06/2006-06/2008, \$25,000, PI: Christopher Rasmussen.
- *3D Fluid Surface Reconstruction Using A Multi-Camera System*, PI, NSF MCS, 09/2006-09/2009, \$499,430, Co-PI: Phillippe Guyenne.

## **Media Coverage**

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- *3D Fluid Surface Reconstruction with a Multi-camera Interactive System*, UD Daily, <http://www.udel.edu/PR/UDaily/2007/aug/nsf082206.html>
- *A deeper look at fluid surfaces*, UD Messenger, Volume 14, Number 4, 2006, <http://www.udel.edu/PR/Messenger/05/04/deeper.html>