

RUIGANG YANG
CURRICULUM VITAE – JULY 2014

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Research Interests

Computer Vision, Image Processing, Computer Graphics,
Multimedia, Human-Computer Interface

Education

Ph.D., Computer Science, Aug 2003
University of North Carolina at Chapel Hill (UNC-CH), Chapel Hill, NC

M.S., Computer Science, February 1998
Columbia University, New York, NY

Professional Experience

July, 2014 – Current:
Department of Computer Science
The University of Kentucky

Professor (with tenure)

July 2009 – June 2014:
Department of Computer Science
The University of Kentucky

Associate Professor (with tenure)

Aug 2010 – July 2011:
ETH Zurich, Switzerland (Sabbatical)

Visiting Professor

July 2003 – June 2009:
Department of Computer Science
The University of Kentucky

Assistant Professor

January 1998 – May, 2003:
The Office of the Future project

Graduate Research Assistant

Principal Investigator: Prof. Henry Fuchs, Prof. Greg Welch, and Herman Towles
Research on large format displays, 2D/3D video conferencing, telepresence, 3D scene reconstruction, real-time stereo, view synthesis.

May – December, 1997:

Software Engineer at mail.com, NYC.

Designed and implemented a web-based email client, over 10k lines of C++ code.

Awards

- Dean's Research Award, College of Engineering, University of Kentucky, 2013

- Best Paper Award at the 5th ACM/IEEE International Workshop on Projector-Camera Systems 2008 (this award is selected by attendees' votes)
- Best Reviewer Award for International Conferences for Multimedia and Exposition (ICME) 2013, Asian Conferences on Computer Vision (ACCV) 2007
- Best Demonstration Award at CVPR 2007
- NVIDIA Professor Partnership Award 2007
- NSF CAREER Award, 2005
- Link Foundation Fellowship, 2002
- Motorola Scholarship, Tsinghua University, Beijing, China, 1994
- Excellent Student Scholarship, First Prize, Tsinghua University, 1993, 1995

Publications

Summary: My main research area is in computer vision and computer graphics. Among the 100+ papers I have co-authored, there are 2 SIGGRAPH papers, 5 TVCG papers, 7 PAMI papers, 16 CVPR papers, 7 ICCV papers, and 4 ECCV papers. These papers have received 6000+ citations and my h-index is 38 as of 2014. My Google Scholar Page is at http://scholar.google.com/citations?hl=en&user=yveq40QAAAAJ&view_op=list_works

(Authors with * or ^ are graduate students or post-docs under my supervision)

Journal and book chapters

1. Chenxi Zhang*, Jizhou Gao*, Oliver Wang, Pierre Georgel, [Ruigang Yang](#), James Davis, Jan-Michael Frahm, Marc Pollefeys. Personal Photo Enhancement using Internet Photo Collections. In IEEE Transactions on Visualization and Computer Graphics (TVCG), accepted, to appear in 2014
2. Hui Lin*, Jizhou Gao*, Yu Zhou, Guiliang Lu, Mao Ye*, Chenxi Zhang*, Ligang Liu, [Ruigang Yang](#). Semantic Decomposition and Reconstruction of Residential Scenes from LiDAR Data. In the proceedings of ACM SIGGRAPH, 2013
3. Qing Zhang*, Jing Tong, Huamin Wang, Zhigeng Pan, [Ruigang Yang](#): Simulation Guided Hair Dynamics Modeling from Video. Comput. Graph. Forum 31(7-1): 2003-2010, 2012
4. Zhenzhou Wang, Xinyu Huang*, [Ruigang Yang](#), YuMing Zhang, Measurement of Mirror Surfaces using Specular Reflection and Analytical Computation, *Springer Journal of Machine Vision and Applications (MVA)*, DOI: 10.1007/s00138-012- 0432-6, 2012
5. Liang Wang*, Minglun Gong, Chenxi Zhang*, [Ruigang Yang](#), Cha Zhang, and Y-H. Yang, Automatic Real-Time Video Matting Using Time-of-Flight Camera and MultiChannel Poisson Equations, *in International Journal of Computer Vision (IJCV)*, 97(1), 104-121, 2012.
6. Miao Liao*, Jizhou Gao*, [Ruigang Yang](#) and Minglun Gong, Video Stereolization: Combining Motion Analysis with User. In *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 18(7), 1079-1088, 2012
7. Jiejie Zhu^, Liang Wang*, [Ruigang Yang](#), James E. Davis, Zhigeng Pan: Reliability Fusion of Time-of-Flight Depth and Stereo Geometry for High Quality Depth Maps. *IEEE Trans. Pattern Anal. Mach. Intell.* 33(7): 1400-1414 (2011)
8. Xianwang Wang*, Qing Zhang*, Qiong Han, [Ruigang Yang](#), Melody Carswell, Brent Seals, Erica Sutton, Endoscopic Video Texture Mapping on Pre-Built 3D Anatomical Objects Without Camera Tracking, in *IEEE Transactions on Medical Image Processing*, Jun;29(6):1213-23, 2010
9. Jiejie Zhu^, Liang Wang*, Jizhou Gao*, [Ruigang Yang](#): Spatial-Temporal Fusion for High Accuracy Depth Maps Using Dynamic MRFs. In *IEEE Transactions on Pattern Analysis and Machine Intelligence* 32(5): 899-909 (2010)

10. Huamin Wang, Miao Liao*, Qing Zhang*, [Ruigang Yang](#), and Greg Turk, Physically Guided Liquid Surface Modeling from Videos, in ACM Transactions on Graphics (SIGGRAPH 2009)
11. Qingxiong Yang*, Liang Wang*, [Ruigang Yang](#), Henrik Stewenius and David Nister, Stereo Matching with Color-weighted Correlation, Hierarchical Belief Propagation and Occlusion Handling, in *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 31(3):492-504, October 2009
12. Zhigeng Pan, Huansen Li, Mingmin Zhang, Yibin Ye, Xi Cheng, Alvin Tang, [Ruigang Yang](#): Photo Realistic 3D Cartoon Face Modeling Based on Active Shape Model. Transactions on Edutainment 2: 299-311 (2009)
13. Miao Liao*, [Ruigang Yang](#) and Zhengyou Zhang, Robust and Accurate Visual Echo Cancellation in a Full-duplex Projector-camera System, in *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 30(10):1831-1840, October 2008
14. M. Pollefeys, D. Nister, J.-M. Frahm, A. Akbarzadeh, P. Mordohai, B. Clipp, C. Engels, D. Gallup, S.-J. Kim, P. Merrell, C. Salmi, S. Sinha, B. Talton, L. Wang* , Q. Yang*, H. Stewenius, [Ruigang Yang](#), G. Welch, H. Towles, Detailed Real-Time Urban 3D Reconstruction From Video, *International Journal of Computer Vision (IJCV)*, 78(2):143 - 167, July 2008
15. [Ruigang Yang](#), Xinyu Huang, Sifang Li, Christopher Jaynes, Toward the Light Field Display: Autostereoscopic Rendering via a Cluster of Projectors, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 14(1): 84-96, January 2008
16. Minglun Gong, [Ruigang Yang](#), Mingwei Gong, and Liang Wang*, A performance study on different cost aggregation approaches used in real-time stereo matching, *International Journal of Computing Vision (IJCV)*, 75(2): 283 – 296, November 2007
17. Michael S. Brown, Mingxuan Sun*, [Ruigang Yang](#), Lin Yun, and Brent Seales, Restoring 2D Content from Distorted Documents, *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 29(11): 1904-1916, November 2007
18. Huaming Wang, Mingxuan Sun*, and [Ruigang Yang](#), Space-time Light Field Rendering, in *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 13(4): 697-710, July/August 2007
19. Liang Wang*, [Ruigang Yang](#), James E. Davis, BRDF Invariant Stereo Using Light Transport Constancy, in *IEEE Transactions on Pattern Recognition and Machine Intelligence (PAMI)*, 29(9):1616-1626, September 2007
20. [Ruigang Yang](#), Herman Towles, Andrew Nashel, Celso Setsuo Kurashima, and Marcelo Knörich Zuffo, Immersive Video Teleconferencing with User-Steerable Views, *Presence* 16(2): 188-205, 2007
21. Zhengyou Zhang, Zicheng Liu, and [Ruigang Yang](#), Model-based Face Modeling and Tracking With Application to Videoconferencing, in W. Zhao and R. Chellappa, editors, *Face Processing: Advanced Modeling and Methods*, Chapter 15, pp. 463-517, Academic Press, Elsevier, 2006
22. [Ruigang Yang](#), David Guinnip, and Liang Wang, View-Dependent Textured Splatting, *the Visual Computer*, 22(7): 456-467, 2006
23. Greg Welch, [Ruigang Yang](#), Sascha Becker, Adrian Ilie, Dan Russo, Jesse Funaro, Andrei State, Kok-Lim Low, Anselmo Lastra, Herman Towles, Bruce Cairns M.D., Henry Fuchs and Andy van Dam, *Immersive Electronic Books for Surgical Training*, in IEEE Multimedia, 12(3):22-35, 2005

24. Michael S. Brown, Aditi Majumder, [Ruigang Yang](#), Camera-Based Calibration Techniques for Seamless Multi-Projector Displays, *IEEE Transactions on Visualization and Computer Graphics* (TVCG), 11(2): 193-206, 2005
25. [Ruigang Yang](#) and Marc Pollefeys, A Versatile Stereo Algorithm on Graphics Hardware, *Journal of Real-time Imaging*, 11(1): 7-18, 2005
26. Daniel L. Lau and [Ruigang Yang](#), Real-Time Multispectral Color Video Recording Using Off-the-Shelf Cameras, *Journal of Real-time Imaging*, 11(2):109-116, 2005
27. [Yang, Ruigang](#), Marc Pollefeys, Hua Yang and Greg Welch. A Unified Approach to Real-Time, Multi-Resolution, Multi-Baseline 2D View Synthesis and 3D Depth Estimation using Commodity Graphics Hardware, *International Journal of Image and Graphics (IJIG)* (**invited submission**), 4(4): 1-25, 2004
28. [Ruigang Yang](#) and Zhengyou Zhang, Eye Gaze Correction with Stereovision for Video-Teleconferencing, in *IEEE Transactions on Pattern Analysis and Machine Intelligence* (PAMI), 26(7): 956-960, 2004
29. [Ruigang Yang](#) and Greg Welch, Real-Time Consensus-Based Scene Reconstruction using Commodity Graphics Hardware, *Computer Graphics Forum* (**invited submission**), 22(2): 207-216, 2003
30. [Ruigang Yang](#) and Greg Welch. Fast Image Segmentation and Smoothing Using Commodity Graphics Hardware, *Journal of Graphics Tools, special issue on Hardware-Accelerated Rendering Techniques*, 7(4):91-100, 2003

Conference (all peer-reviewed)

1. Xinyu Huang*, Changpeng Ti*, Alade Tokuta, [Ruigang Yang](#), An Experimental Study of Pupil Constriction for Liveness Detection, In IEEE Workshop on the Applications of Computer Vision (WACV), January 17-18, 2013
2. Mao Ye*, Cha Zhang and [Ruigang Yang](#). Video Enhancement of People Wearing Polarized Glasses: Darkening Reversal and Reflection Reduction. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013
3. Chenxi Zhang*, Brian Price, Scott Cohen, [Ruigang Yang](#). High-Quality Stereo Video Matching via User Interaction and Space-Time Propagation. In International Conference in 3D Vision (3DV), 2013
4. Jizhou Gao*, [Ruigang Yang](#). Online Building Segmentation from Ground-based LiDAR Data in Urban Scenes. In International Conference in 3D Vision (3DV), 2013
5. Cha Zhang, [Ruigang Yang](#), Tayler Large and Zhengyou. Zhang, "A Novel See-Through Screen Based on Weave Fabrics," ICME 2011, Barcelona, Spain, Jul. 2011
6. Qing Zhang*, Mao Ye*, [Ruigang Yang](#), Matsushita Yasuyuk, Edge-Preserving Photometric Stereo via Depth Fusion, CVPR 2012
7. Bo Fu*, Mao Ye*, [Ruigang Yang](#), Cha Zhang, See-through Image Enhancement through Sensor Fusion, in ICME 2012
8. Miao Liao*, Xinyu Huang*, [Ruigang Yang](#), Interreflections Removal for Photometric Stereo by Using Spectrum-dependent Albedo, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2011
9. Mao Ye*, Xianwang Wang*, [Ruigang Yang](#), Liu Ren and Marc Pollefeys, Accurate 3D Pose Estimation from a Single Depth Image, International Conference on Computer Vision (ICCV) 2011

10. Minglun Gong, Liang Wang*, Ruigang Yang, Y-H. Yang, Real-Time Video Matting Using MultiChannel Poisson Equations, In Proc. Graphics Interface (GI), 2010
11. Liang Wang*, Chenxi Zhang*, Ruigang Yang, and Cha Zhang, TofCut: Towards Robust Real-Time Foreground Extraction Using a Time-of-Flight Camera, In Proc. The Fifth International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT), 2010
12. Xianwang Wang*, Ruigang Yang, Learning 3D Shape from a Single Facial Image via Non-linear Manifold Embedding and Alignment, CVPR 2010, 2010
13. Chenxi Zhang*, Liang Wang*, and Ruigang Yang, Semantic Segmentation of Urban Scenes Using Dense Depth Maps, European Conference on Computer Vision, 2010
14. Miao Liao*, Qing Zhang*, Ruigang Yang, Minglun Gong, A Volumetric Approach for Merging Range Images of Semi-Rigid Objects Captured at Different Time Instances, International Symposium on 3D Data Processing, Visualization and Transmission 2010 (3DPVT)
15. Xinyu Huang*, Liu Ren and Ruigang Yang, Image Deblurring for Less Intrusive Iris Capture, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2009
16. R. Matt Steele^, Mao Ye*, and Ruigang Yang, Color Calibration of Multi-Projector Displays through Automatic Optimization of Hardware Settings, *PROCAMS 2009*
17. Jiejie Zhu^, Miao Liao*, Ruigang Yang and Zhigeng Pan, Joint Depth and Alpha Matte Optimization via Fusion of Stereo and Time-of-Flight Sensor, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2009
18. Miao Liao*, Qing Zhang*, Huamin Wang , Ruigang Yang and Minglun Gong, Modeling Deformable Objects from A Single Depth Camera, to appear in *Proceedings of International Conference on Computer Vision (ICCV)*, 2009 (oral presentation)
19. Jizhou Gao*, Yin Hu, Jinze Liu and Ruigang Yang, Unsupervised Learning of High-order Structural Semantics from Images, to appear in *Proceedings of International Conference on Computer Vision (ICCV)*, 2009
20. Xinyu Huang*, Jizhou Gao*, Sen-ching Cheung, and Ruigang Yang, Manifold Estimation in View-based Feature Space for Face Synthesis Across Pose, to appear in *Proceedings of Asian Conference on Computer Vision (ACCV)*, 2009, (oral presentation)
21. Xinyu Huang*, Xianwang Wang*, Jizhou Gao*, and Ruigang Yang, Estimating Pose and Illumination Direction for Frontal Face synthesis, *Biometrics workshop of CVPR 2008*
22. Jiejie Zhu^, Liang Wang , Ruigang Yang and James Davis, Fusion of Time-of-Flight Depth and Stereo for High Accuracy Depth Maps, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)* 2008
23. Liang Wang* , Hailin Jin, Ruigang Yang and Minglun Gong, Stereoscopic Inpainting: Joint Color and Depth Completion from Stereo Images, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, 2008
24. Ruigang Yang, James R. Heath, Subhasri Krishnan, Flexible pixel compositor for autostereoscopic displays, *IS&T / SPIE 's International Symposium on Electronic Imaging: Science and Technology , Stereoscopic Displays and Applications XIX* , 2008
25. R. Matt Steele^, Christopher Jaynes, and Ruigang Yang, Reducing Resolution Loss in Two-Pass Rendering by Optimal View Directions and Display-Surface Partitioning, in *the fifth ACM/IEEE workshop on Projector-camera systems*, 2008
26. Jin Zhou*, Liang Wang*, Amir Akbarzadeh, Ruigang Yang, Multi-Projector Display with Continuous Self-Calibration, in *the fifth ACM/IEEE workshop on Projector-camera systems*, 2008

27. Miao Liao*, Liang Wang*, [Ruigang Yang](#) and Minglun Gong, Real-time Light Fall-off Stereo, *International Conference on Image Processing (ICIP)*, 2008
28. Liang Wang*, Hailin Jin, and [Ruigang Yang](#), Search Space Reduction for MRF Stereo, *European Conference on Computer Vision (ECCV)*, 2008
29. Xianwang Wang*, Xinyu Huang*, Jizhou Gao*, and [Ruigang Yang](#), Illumination and Person-Insensitive Head Pose Estimation Using Distance Metric Learning, *European Conference on Computer Vision (ECCV)*, 2008
30. Xianwang Wang*, Qing Zhang*, [Ruigang Yang](#), Brent Seales, Melody Carswell, Feature-based Texture Mapping from Video Sequence, *Symposium on Interactive 3D Graphics, Proceedings of the 2008 symposium on Interactive 3D graphics and games (SI3D)*, 2008
31. Qingxiong Yang*, [Ruigang Yang](#), James Davis and David Nister, Spatial-Depth Super Resolution for Range Images, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2007.
32. Miao Liao*, Liang Wang*, [Ruigang Yang](#) and Minglun Gong, Light Fall-off Stereo, *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2007
33. Purell Merrell, Amir Akbarzadeh, Liang Wang*, Philippos Mordohai, Jan-Michael Frahm, [Ruigang Yang](#), David Nister and Marc Pollefeys, Real-Time Visibility-Based Fusion of Depth Maps, *IEEE International Conference on Computer Vision (ICCV)* Rio de Janeiro, Brazil (2007).
34. Xinyu Huang*, Jizhou Gao*, [Ruigang Yang](#), Calibrating Pan-Tilt Cameras with Telephoto Lenses, *8th Asian Conference on Computer Vision (ACCV)*, Tokyo, Japan, Pages: I 127-137 (2007).
35. Xinyu Huang*, Jizhou Gao*, Liang Wang, [Ruigang Yang](#), Exemplar-based Shape from Shading, *Sixth International Conference on 3-D Digital Imaging and Modeling (3DIM)*, Montréal, Québec, Canada, Pages: 349 – 356 (2007).
36. Oliver Wang, John Finger, Qingxiong Yang*, James Davis, [Ruigang Yang](#), Automatic Natural Video Matting with Depth, *Pacific Conference on Computer Graphics and Applications (Pacific Graphics)* Maui, Hawaii (2007)
37. Joan Mazur, [Ruigang Yang](#), Mingxuan Sun*, Rebecca Kayrouz, 3-D Graphical Hypermedia Meets Interactive E-Books: A New Paradigm for Experiential Learning, *Edutainment 2006*, 233-242, Hangzhou, China
38. A. Akbarzadeh, J.-M. Frahm, P. Mordohai, B. Clipp, C. Engels, D. Gallup, P. Merrell, M. Phelps, S. Sinha, B. Talton, L. Wang*, Q. Yang*, H. Stewenius, [R. Yang](#), G. Welch, H. Towles, D. Nister and M. Pollefeys, Towards Urban 3D Reconstruction From Video, *Third International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT)*, 2006
39. Liang Wang*, Miao Liao*, Minglun Gong, [Ruigang Yang](#) and David Nister, High Quality Real-time Stereo using Adaptive Cost Aggregation and Dynamic Programming, *Third International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT)*, 2006
40. Liang Wang*, Mingwei Gong, Minglun Gong and [Ruigang Yang](#), How Far Can We Go with Local Optimization in Real-Time Stereo Matching, *Third International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT)*, 2006
41. Qingxiong Yang*, Liang Wang*, [Ruigang Yang](#), Henrik Stewenius, and David Nistér, Stereo Matching with Color-Weighted Correlation, Hierarchical Belief Propagation and Occlusion Handling, *CVPR 2006*, 2347-2354.

42. [Ruigang Yang](#), Xinyu Huang*, Sifang Li*, Christopher Jaynes, Toward the Light Field Display: Autostereoscopic Rendering via a Cluster of Projectors, *Eurographics* (short-paper), 2006
43. Miao Liao*, Mingxuan Sun*, [Ruigang Yang](#), and Zhengyou Zhang, Robust and Accurate Visual Echo Cancellation in a Full-duplex Projector-camera System, *International workshop on projector-camera systems* (in conjunction with CVPR), 2006
44. Qingxiong Yang*, Liang Wang*, [Ruigang Yang](#), Shengnan Wang, Miao Liao, David Nistér, Real-time Global Stereo Matching Using Hierarchical Belief Propagation, *BMVC* 2006, 989-998.
45. [Ruigang Yang](#), Shunnan Chen*, Xinyu Huang*, Sifang Li*, Liang Wang*, and Chris Jaynes, Towards the Light Field Display, *VR 2005 workshop on Emerging Display Technologies*.
46. Huaming Wang and [Ruigang Yang](#), Towards Space-time Light Field Rendering, in *ACM SIGGRAPH 2005 Symposium on Interactive 3D Graphics and Games*, pp 125 – 132, 2005.
47. Minglun Gong and [Ruigang Yang](#), Image-Gradient-Guided Real-Time Stereo on Graphics Hardware. *3DIM* 2005: 548-555
48. Greg Welch, Diane Sonnenwald, Ketan Mayer-Patel, [Ruigang Yang](#), Andrei State, Herman Towles, Bruce Cairns, and Henry Fuchs, Remote 3D Medical Consultation. *Proceedings of BROADMED: 1st IEEE/CreateNet International Workshop on Telemedicine Over Broadband and Wireless Networks*, (Boston, MA, USA), October 2005
49. Mingxuan Sun*, [Ruigang Yang](#), Lin Yun, George Landon, W. Brent Seales, Michael S. Brown: Geometric and Photometric Restoration of Distorted Documents. *ICCV*2005: 1117-1123
50. James E. Davis, [Ruigang Yang](#), Liang Wang*: BRDF Invariant Stereo Using Light Transport Constancy. *ICCV* 2005: 436-443
51. David Guinnip*, [Ruigang Yang](#), and Liang Wang*, View-Dependent Textured Splatting , (short paper) *Pacific Graphics* 2005
52. David Guinnip*, Shuhua Lai, [Ruigang Yang](#), View-Dependent Textured Splatting for Rendering Live Scenes, *SIGGRAPH Poster*, 2004.
53. [Ruigang Yang](#), Andrew Nashel, and Herman Towles, Towards 3D Video-teleconferencing, *ACM Workshop on Effective Telepresence* (ETP 2004).
54. [Ruigang Yang](#), Scientific Computing Using Graphics Hardware, *International Symposium on Computational and Information Sciences* (CIS'04) 2004, Shanghai, China.
55. Daniel Lau, [Ruigang Yang](#), A. M. Tan, Wen Su, and Larry Hassebrook, Multi-Spectral Color Acquisition and Display Using Commodity Hardware, *Proceedings of Applications of Digital Image Processing XXVII*, SPIE, vol. 5558-69, Denver, Colorado, August 2004.
56. Greg Welch, [Ruigang Yang](#), Bruce Cairns, M.D., Herman Towles, Andrei State, Adrian Ilie, Sascha Becker, Dan Russo, Jesse Funaro, Diane Sonnenwald, Ketan Mayer-Patel, B. Danette Allen, Hua Yang, Eugene Freid, M.D., Andy van Dam, and Henry Fuchs. 3D Telepresence for Off-Line Surgical Training and On-Line Remote Consultation. *Proceedings of ICAT CREST Symposium on Telecommunication, Teleimmersion, and Telexistence*, December 2004
57. [Ruigang Yang](#), Marc Pollefeys, Sifang Li*, Improved Real-Time Stereo on Commodity Graphics Hardware, *IEEE Workshop on Real Time 3D Sensors and Their Use* (In conjunction with CVPR '04)
58. [Ruigang Yang](#) and Marc Pollefeys. Multi-Resolution Real-Time Stereo on Commodity Graphics Hardware, pp211-218, *CVPR* 2003
59. [Ruigang Yang](#), Marc Pollefeys, and Greg Welch. Dealing with Textureless Regions and Specular Highlights—A Progressive Space Carving Scheme Using a Novel Photo-consistency Measure, pp 576-584, *ICCV* 2003

60. [Ruigang Yang](#) and Zhengyou Zhang, Eye Gaze Correction with Stereovision for Video-Teleconferencing, *The seventh European Conference on Computer Vision (ECCV 2002)* May 27 – June 2, 2002, Copenhagen, Denmark.
61. [Ruigang Yang](#) and Zhengyou Zhang. Model-based Head Pose Tracking With Stereovision, in *the Fifth IEEE International Conference on Automatic Face and Gesture Recognition 2002 (FG 2002)*, May 20–21, 2002, Washington, D.C.
62. Kurashima, Celso, [Ruigang Yang](#), and Anselmo Lastra. Combining Approximate Geometry with View-Dependent Texture Mapping - A Hybrid Approach to 3D Video Teleconferencing, *SIBGRAPI 2002, XV Brazilian Symposium on Computer Graphics and Image Processing (07 - 10 October 2002, Fortaleza, CE, Brazil)*
63. [Ruigang Yang](#), Greg Welch, Gary Bishop. Real-Time Consensus-Based Scene Reconstruction using Commodity Graphics Hardware, in *Proceedings of Pacific Graphics 2002*. Tsinghua University, Beijing, China (October 9-11, 2002). A short version presented in *Technical Sketch SIGGRAPH 2002*.
64. Andries van Dam, Henry Fuchs, Sascha Becker, Loring Holden, Adrian Ilie, Kok-Lim Low, Anne Morgan Spalter, [Ruigang Yang](#), and Greg Welch. Immersive Electronic Books for Teaching Surgical Procedures, in *Proceedings of CREST Symposium, ICAT 2002*. The University of Tokyo, Tokyo, Japan (Dec 3, 2002).
65. [Ruigang Yang](#), Celso Kurashima, Andrew Nashel, Herman Towles, Anselmo Lastra, Henry Fuchs, Creating Adaptive Views for Group Video Teleconferencing -- An Image-Based Approach, *International Workshop on Immersive Telepresence (ITP 2002)* December 6, 2002, Juan Les Pins, France.
66. Herman Towles, Wei-Chao Chen, [Ruigang Yang](#), Sang-Uok Kum, Henry Fuchs, Nikhil Kelshikar, Jane Mulligan, Kostas Daniilidis, Loring Holden, Bob Seleznik, Amela Sadagic, Jaron Lanier, 3D Tele-Collaboration Over Internet2, *International Workshop on Immersive Telepresence (ITP 2002)* December 6, 2002, Juan Les Pins, France.
67. [Ruigang Yang](#) and Greg Welch, Automatic Projector Display Surface Estimation Using Everyday Imagery, in *the proceeding of 9th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision 2001*. Plzen, Czech Republic.
68. [Ruigang Yang](#), David Gotz, Justin Hensley, Herman Towles and Mike Brown. PixelFlex: A Reconfigurable Multi-Projector Display System. *IEEE Visualization 2001*
69. [Ruigang Yang](#), Michael S. Brown, W. Brent Seales, Henry Fuchs. Geometrically Correct Imagery for Teleconferencing, in *Proceedings of the Seventh ACM International Conference on Multimedia*, October 30 - November 5, 1999.
70. Ramesh Raskar, Michael S. Brown, [Ruigang Yang](#), Wei-Chao Chen, Greg Welch, Herman Towles, Brent Seales, Henry Fuchs, Multi-Projector Displays Using Camera-Based Registration, *Proceedings of IEEE Visualization 99*, pp. 161-168.
71. [Ruigang Yang](#) and Peter Allen, Registering, Integrating, and Building CAD Models from Range Data, *IEEE International Conference on Robotics and Automation (ICRA) 1998*

Invention Disclosures and Patents

- **Head Pose Tracking System**, with Zhengyou Zhang (Microsoft Research), patent pending (filed in May 2002).
- **Video-Teleconferencing System with Eye-gaze Correction**, with Zhengyou Zhang (Microsoft Research), US patent 6771303.
- **Real-time Sparse Light Field Rendering Using Graphics Hardware**, undergoing disclosure at UNC-CH with Greg Welch (UNC).

- **Real-time Stereo Using Graphics Hardware**
Invention disclosure at the University of Kentucky (2004) (licensed to one company)
- **FlexView3D—a New Auto Stereoscopic Display Architecture.**
Invention disclosure at the University of Kentucky (2005)
- **Anywhere Pixel Compositor using the Digital Visual Interface (DVI)**, patent pending (filed June 2008)
- **High-definition home theater with multiple projectors.** Invention disclosure at the University of Kentucky (2006)
- **High-quality Stereovision.** Invention disclosure at the University of Kentucky (2006)
- **Light Attenuation Stereo.** Invention disclosure at the University of Kentucky (2006)
- **Long-Range Iris Acquisition with Pan-Tilt-Zoom Cameras** Invention disclosure at the University of Kentucky (2008)

Grants and Contracts

[Total external research funding (as the PI or a Co-PI) is **\$18.7M**]

As the Principal Investigator (PI) (**\$5.2M** total)

- "Personal Immersive Trainer – PIT" **\$102,976**, Fort Knox, 2013
- "Touch Wall", **\$60,167**, Fort Knox, 2013
- "NRI-Small: Virtualized Welding: A New Paradigm for Intelligent Welding Robots in Unstructured Environment", **\$800,000**, NSF, 2012-2016.
- "SHB:Type 1(EXP): High Accuracy Motion Analysis using Commodity Depth Camera", **\$577,303**, NSF, 2012-2015
- MSR Collaboration Gift, **\$15,000**, 2011
- "Development of Versatile Mobile Range Scanning System— Enabling Large - scale High - density 3D Data Acquisition for Cross - Disciplinary Research", **\$1,021,682**, NSF, plus **\$434,600** from university matching, 2009-2012
- "Active and Passive Sensing Fusion for High-Quality 3D Reconstruction", **\$50,000**, Lockheed Corp., 2009-2010
- "Non-intrusive biometrics", Bosch Collaboration Gift, **\$50,000**, 2008, and **\$75,000**, 2009
- "CPA-G&V: Self-Completion of 4D (Space+Time) Models", **\$324,922**, NSF, 2008-2011
- "STTR Phase I: Rapidly Deployable Display with Continuous Self-Correction", **\$60,000**, Navy STTR, 2007-2008
- "STTR: Rapidly Deployable Display with Continuous Self-Correction", **\$299,991**, Navy STTR Phase II, 2008-2010,
- "Pixel Router for Tiled Displays", **\$140,000**, Kentucky Science and Technology Foundation, 2008-2010
- "Eye-Gaze Correction for Video Teleconference", **\$200,00**, NSF STTR, 2008, **\$100,000**, Kentucky State matching fund
- Microsoft Collaboration Gift, **\$12,000**, 2007
- "Anywhere-Pixel Compositor", **\$25,000**, NVIDIA, 2007
- "Large-Format Display for Design Visualization", **\$60,000**, GE, 2007
- "Wide-Area Rapid Iris Image Capture with Pan-Tilt-Zoom Cameras," **\$731,827**, Department of Homeland Security, 2005-2008
- "*Rapidly Deployable Displays for Emergency Response*", Department of Homeland Security, **\$311,630**, 2005-2008
- "*Three-Dimensional Light Field Display for Advanced Simulation & Training*", Department of Homeland Security, **\$285,085**, 2005-2008.

- "CAREER: *The Light Portal—3D Reconstruction and Visualization over Space and Time*", **\$592,000**, NSF, 2005-2009
- "Supercomputing using Commodity Graphics Processing Units with Applications to Information Retrieval", **\$15,000** Kentucky Science & Engineering Foundation, 2004-2005
- Hardware/software donations from Adobe, NVIDIA, Microsoft, ATI, Xilinx

As a Co-PI

- "Visualization for Training and Simulation in Night Environments", **\$937,425**, Lockheed, 2011-2012
- "Image-Net: Discriminatory Imaging and Network Advancement for Missiles", **\$1,476,774**, Army Space and Missile Defense Command 2011-2012
- "Machine-Human Cooperative Control of Welding Process", **\$449,935**, NSF, 2009-2012
- "Mobile Simulator", **\$910,000**, United States Army, and US Dept. of Defense, Fort Knox Mounted Battle Laboratory, 2008-2009
- "Anti-Sniper Infrared Tracking System Phase IIIa", **\$922,000**, M2 Technologies, 2007-2008
- "Large Rapidly Deployable Immersive Visualization and Training Systems for Urban Terrains", **\$910,332**, United States Army, and US Dept. of Defense, Fort Knox Mounted Battle Laboratory, 2006-2007
- "Anti-Sniper Infrared Targeting System- Phase II", **\$250,000**, M2 Technologies, 2006.
- "The Smart-Image Pipeline—Year 4", **\$348,947**, US Army Medical Research and Materiel Command, 2006-2010
- "Large Rapidly Deployable Immersive Visualization for Training and Simulation in Urban Terrains", **\$4,721,702**, United States Army, and US Dept. of Defense, Fort Knox Mounted Battle Laboratory, 2006-2010
- "Privacy-Protecting Video Surveillance," **\$694,613**, Department of Homeland Security, 2005-2008
- "Active & Passive Range Sensor Fusion for Automated Surveillance & Face Recognition", **\$654,668**, Department of Homeland Security, 2005-2008
- "UrbanScape", **\$659,813**, DARPA (sub-contract from GSTI), 2005-2007
- "The Smart-Image Pipeline", **\$280,860**, US Army Medical Research and Materiel Command, 2004-2009

Teaching Experience

Spring 2012: **Instructor**

CS485: iOS Programming, the University of Kentucky

This is a senior undergraduate level course for iOS programming

Fall 2004, Fall 2006, Fall 2007, Fall 2008: **Instructor**

CS 635 *Image Processing*, the University of Kentucky

This is a graduate level course for digital image processing and related techniques.

Spring 2004, Fall 2005, Spring 2007: **Instructor**

CS 684 *Image-based Modeling and Rendering*, the University of Kentucky

This is a senior graduate seminar covering advanced topics in 3D modeling, image-based rendering, and computational photography.

Fall 2003, Spring 2005, Fall 2010, Fall 2012, Fall 2013: **Instructor**

CS 335 *Graphics and Multimedia*, the University of Kentucky

This is an upper-undergraduate course covering basic principles in elementary 2D graphics, image processing, and graphical user interface design.

Summer, 2002: **Instructor**

COMP 04 *Power Tools of the Mind*, UNC-CH

This is an introductory course covering the history of computers and basic applications of computer.

Spring, 1998: **Teaching Assistant**

COMP 239 *Exploring Virtual World*, Instructor: Henry Fuchs, UNC-CH

Fall, 1997: **Teaching Assistant**

CS 3823 *Digital Logic*, Instructor: Stephen Unger, Columbia University

Activities and Professional Service

- Editorial Board
 - Machine Vision and Application (Impact factor 1.3) (2008-2012)
 - IEEE Transactions on Pattern Recognition and Machine Intelligence (Impact factor 4.9 – the highest in IEEE transactions) 2012- current
- Program Co-Chair
 - IEEE Winter conference on Applications of Computer Vision (WACV) 2014
 - International Conference on 3D Imaging, Processing, Transmission and Visualization (3DIMPVT) 2011
 - International Workshop on Projector and Cameras 2008
- Area Chair for
 - IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2009
 - Asian Conference on Computer Vision (ACCV), 2011
- Panel Chair for Teleimmersion 2008
- Computing chair for CVPR 2008
- Session Chair for
 - International Symposium on Computational and Information Sciences (CIS'04) 2004, Shanghai, China.
 - Third International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT), 2006, North Carolina
- Panelist for IEEE VR 2005 International Workshop on Emerging Display Technologies (in conjunction with VR 2005)
- Program committee member of
 - ACM SIGMM Workshop on Experiential Telepresence (2003, 2004)
 - CVPR 2005-2013
 - IEEE Workshop on Real Time 3D Sensors and Their Use (in conjunction with CVPR 2005)
 - 15th International Conference on Artificial Reality and Telexistence, 2005
 - Edutainment 2006, International Conference on E-learning and Games
 - Pacific Graphics 2013
 - ICCV 2005, 2007, 2009, 2011, 2013
 - ECCV 2006, 2008, 2010
 - ACCV 2006, 2007, 2009
 - Computer Graphics and Interfaces, 2006
 - 3DPVT 2006
 - ICPR 2006

- International Conference on Multimedia and Expo (ICME) 2011-2013
- Reviewer for
 - International Journal of Computer Vision, PAMI
 - Pattern Recognition Letter
 - Machine Vision and Applications
 - IEEE –Computer Vision and Pattern Recognition (CVPR), Transactions on Multimedia, Visualization, Robotics and Automation
 - International Workshop on Immersive Telepresence (with ACM Multimedia)
 - ACM SIGGRAPH, Eurographics, I3D
 - Journal of Virtual Reality and Application