

Zhan Yu

CONTACT INFORMATION

Futurewei Technologies, Santa Clara
Huawei
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RESEARCH INTERESTS

Computer Graphics, Computational Photography, and Computer Vision.

EDUCATION

University of Delaware, Newark, DE 19716, USA

Ph.D., Computer Science, August 2010 - December 2013

- Dissertation Topic: *Improving The Spatial, Angular, and Temporal Resolution in Light Field Imaging*
- Adviser: Dr. Jingyi Yu

Xiamen University, Xiamen, Fujian 361005, P.R. China

B.S., Software Engineering, September 2004 - July 2008

PROFESSIONAL EXPERIENCE

Principal Graphics Architect February 2019 to Present
– Architecting next generation graphics and image processing framework.
Huawei USA,
2330 Central Expy, Santa Clara, CA 95050

Sr. Computer Scientist Lead November 2015 to February 2019
– Revolutionize Photoshop’s core compositing pipeline.
Adobe Photoshop Group,
Adobe Systems Incorporated, San Jose, CA 95110, USA,

Research Scientist December 2013 to November 2015
– Architect of Photoshop Mix and its framework.
Adobe Photoshop Group,
Adobe Systems Incorporated, San Jose, CA 95110, USA,

Research Intern June 2013 to September 2013
Adobe Photoshop Group,
Adobe Systems Incorporated, San Jose, CA 95110, USA,
– Designing and implementing light field imaging algorithms for Mac.
★ *Implementing GPU based light field rendering, fourier slice photography, and depth based light field rendering on Mac*
– Mentor : Jeff (Jenchan) Chien and Dr. Todor Georgiev

Research Intern June 2012 to September 2012
Qualcomm QCT Group,
Qualcomm, San Diego, CA 92121, USA,
– Designing algorithms for a mobile plenoptic camera.
★ *Research on “Lytro” light field camera and technology, as well as other light field camera models such as the “focused plenoptic camera” model.*

– Mentor : Dr. Todor Georgiev

Research Intern June 2011 to September 2011
Adobe Photoshop Group,
Adobe Systems Incorporated, San Jose, CA 95110, USA,
– Rendering artifact free images with Light Field data captured by Plenoptic Camera 2.0.
★ *Implemented “Plenoptichop” software for various light field applications such as calibration, refocusing, depth estimation, anti-aliasing, HDR, and dynamic polarization.*
– Mentor : Dr. Todor Georgiev
– Manager : Michelle Shali Qi

Research Assistant August 2010 to Dec 2013
Department of Computer and Information Sciences,
University of Delaware, Newark, DE 19716, USA
– Light Field Rendering, Stereo Matching, and Image Based Modeling
– Supervisor : Dr. Jingyi Yu

Research Assistant September 2008 to June 2010
Department of Computer Science and Information Engineering,
Inha University, Incheon 402-751, Korea
– Pattern Recognition
– Supervisor : Dr. Phill Kyu Rhee

TEACHING
EXPERIENCE

Teaching Assistant Spring 2011 and Spring 2013
Department of Computer and Information Sciences,
University of Delaware, Newark, DE 19716, USA
– CISC 640: Computer Graphics
– Professor : Dr. Jingyi Yu

SELECTED
CONFERENCE
PUBLICATIONS

Yang Yang, Haiting Lin, **Zhan Yu**, Sylvain Paris, and Jingyi Yu. *Virtual DSLR: High Quality Dynamic Depth-of-Field Synthesis on Mobile Platforms*. In Electronic Imaging, Digital Photography and Mobile Imaging XII 2016 [Best Student Paper Award]

Zhan Yu, Yang Yang, Sylvain Paris, and Jeff Chien. *Dynamic Depth of Field Synthesis on Mobile Photography using RGBD Data*. in Adobe Tech Summit 2015.

Xinqing Guo, Haiting Lin, **Zhan Yu**, and Scott McCloskey. *Barcode Imaging using a Light Field Camera..* In Proceedings of European Conference on Computer Vision (ECCV) Workshop on Light Fields for Computer Vision (LF4CV) 2014.

Can Chen, Haiting Lin, **Zhan Yu**, Sing Bing Kang, and Jingyi Yu. *Light Field Stereo Matching Using Bilateral Statistics of Surface Cameras*. In Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) 2014.

- Xuan Yu, **Zhan Yu**, Xiaogang Chen, and Jingyi Yu. *A Hybrid Image-CAD Based System for Modeling Realistic Hairstyles*. In Proceedings of ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) 2014.
- Xinqing Guo, Jin Sun, **Zhan Yu**, Haibin Ling, and Jingyi Yu. *Mobile Multi-Flash Photography*. In Proceedings of SPIE conference of Digital Photography X 2014.
- Qiaosong Wang, **Zhan Yu**, Christopher Rasmussen, and Jingyi Yu. *Stereo Vision based Depth of Field Rendering on a Mobile Device*. In Proceedings of SPIE conference of Digital Photography X 2014 [Best Student Paper Award].
- Yang Yang, Xinqing Guo, **Zhan Yu**, and Jingyi Yu. *An Immersive Surgery Training System With Live Streaming Capability*. In Proceedings of Medical Meets Virtual Reality Conference (MMVR) 2014.
- Zhan Yu**, Xinqing Guo, Haibin Lin, Andrew Lumsdaine, and Jingyi Yu. *Line-Assisted Light Field Triangulation and Stereo Matching*. In Proceedings of the Thirteenth International Conference on Computer Vision (ICCV), 2013
- Zhan Yu**, Jingyi Yu, Andrew Lumsdaine, and Todor Georgiev. *Plenoptic Depth Map in the Case of Occlusions*. In Proceedings of SPIE 8667, Multimedia Content and Mobile Devices, 86671S (March 7, 2013); doi:10.1117/12.2005847
- Todor Georgiev, **Zhan Yu**, Andrew Lumsdaine, and Sergio Goma. *Lytro Camera Technology: Theory, Algorithms, Performance Analysis*. In Proceedings of SPIE 8667, Multimedia Content and Mobile Devices, 86671J (March 7, 2013); doi:10.1117/12.2013581
- Xinqing Guo, David Lopez, **Zhan Yu** and Jingyi Yu. *A Portable Immersive Surgery Training System using RGB-D Sensors*. In Proceedings of Medical Meets Virtual Reality Conference (MMVR) 2013.
- Zhan Yu**, Jingyi Yu, Andrew Lumsdaine, and Todor Georgiev. *An Analysis of Color Demosaicing in Plenoptic Cameras*. In Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) 2012.
- Zhan Yu**, Christopher Thorpe, Xuan Yu, Scott Grauer-Gray, Feng Li, and Jingyi Yu. *Dynamic Depth of Field on Live Video Streams: A Stereo Solution*. In Proceedings of Computer Graphics International (CGI) 2011.
- Zhan Yu**, Mi Young Nam, and Phill Kyu Rhee. *Online Evolutionary Context-Aware Classifier Ensemble Framework for Object Recognition*. In Proceedings of IEEE International Conference on Systems, Man, and Cybernetics (SMC) 2009.

Mi Young Nam, **Zhan Yu**, and Phill Kyu Rhee. *Facial Landmark Detection System using Interest-region Model and Edge Energy Function*. In Proceedings of IEEE International Conference on Systems, Man, and Cybernetics (SMC) 2009.

SELECTED
JOURNAL
PUBLICATIONS

Xinqing Guo, **Zhan Yu**, Sing Bing Kang, Haiting Lin, and Jingyi Yu. *Enhancing Light Fields through Ray-Space Stitching*. in Proceedings of IEEE Trans. on Visualization and Computer Graphics (TVCG) 2015.

Qiaosong Wang, **Zhan Yu**, Christopher Rasmussen, and Jingyi Yu. *Stereo Vision based Depth of Field Rendering on a Mobile Device*. In Journal of Electronic Imaging (JEI) 23 (2), 023009 (March 19, 2014); doi: 10.1117/1.JEI.23.2.023009.

Zhan Yu, Xuan Yu, Christopher Thorpe, Scott Grauer-Gray, Feng Li, and Jingyi Yu. *Racking Focus and Tracking Focus on Live Video Streams: A Stereo Solution*. In The Visual Computer Journal (TVCG), February 2014, Volume 30, Issue 1, pp 45-58

Christopher Thorpe, Feng Li, Zijia Li, **Zhan Yu**, David Saunders, and Jingyi Yu. *A Co-Prime Blur Scheme for Data Security in Video Surveillance*. To appear in IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2013

Zhan Yu, Mi Young Nam, Suman Sedai, and Phill Kyu Rhee. *Evolutionary Fusion of a Multi-Classifer System for Efficient Face Recognition*. In the International Journal of Control, Automation, and Systems (IJCAS). 2009. vol. 7, no. 1, pp.33-40

PROFESSIONAL
ACTIVITIES

Program Committee of Conferences:

- International Conference on Computational Photography
- SPIE Conference of Digital Photography
- SPIE Conference of Digital Photography and Mobile Imaging
- International Conference on Computer Vision and Image Analysis
- World Symposium on Computer Applications and Research

Reviewers for Journals and Conferences:

- Journal of Machine Vision and Applications
- The Visual Computer Journal
- SPIE Journal of Electronic Imaging
- IEEE Transactions on Circuits and Systems for Video Technology
- The 4th International Conference on Electronics, Communications and Networks
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Image Processing (TIP)

PATENTS AND
SOFTWARE
LICENCES

US Patents:

- **Zhan Yu**, Yumin Jia, Haiting Lin, and Jinoh Oh *Parallel Rendering Engine*. P7987-US filed
- **Zhan Yu** *Fast Dynamic Depth of Field Synthesis using Ray Tracing Approximation*. US Patent 9,905,041
- Todor Georgiev, and **Zhan Yu**. *Methods and apparatus for generating plenoptic depth maps*. US Patent 9,390,505

- Jingyi Yu, Xinqing Guo, and **Zhan Yu**. *3D Light Field Camera and Photography Method*. U.S. Application No. 15/107,661

Software Licence Submitted:

- Jingyi Yu, and **Zhan Yu**. *Light Field Quilting*.

RESEARCH
PROJECTS

Light Field Imaging (Ph.D. Dissertation Topic) August 2010 to Present
Sponsor: Computer Graphics and Imaging Lab, University of Delaware
Responsibilities: Improving the spatial, angular and temporal resolution of light field imaging.

Photoshop Light Field Plugin June 2013 to September 2013
Sponsors: Adobe Systems Incorporated
Responsibilities: Designing algorithms and implemented GPU light field rendering, GPU light field depth estimation and reconstruction, and GPU Fourier Slice Photography for Adobe Photoshop.

IR Face Detection Project January 2013 to June 2013
Sponsors: U.S. Army Research Laboratory
Responsibilities: Designing infrared face detection algorithms.

Plenoptic Camera Project June 2012 to September 2012
Sponsors: Qualcomm
Responsibilities: Designing algorithms and implementing software for a mobile plenoptic camera.

Plenoptic Camera Project June 2011 to September 2011
Sponsors: Adobe Systems Incorporated
Responsibilities: Designing algorithms and implementing software to render artifact free Light Field Images based on Computational Photography, Computer Vision and Computer Graphics.

Korean Airlines Perimeter Protection System September 2008 to December 2009
Sponsors: General Electric Company, Korean Air Lines Co., Ltd.
Responsibilities: Designing the classification module for common and uncommon events in the airport based on context aware trajectory learning.

Samsung Visual Mouse System July 2008 to July 2009
Sponsors: Samsung Group
Responsibilities: Designing and implementing the system for iris localization and tracking based on hierarchical Haar feature classifier on the PC and ported it to the Samsung test board.

EXPERTISE

Computer Science and Engineering:

- Computer Graphics, Computer Vision, Computational Photography, Image Processing, Pattern Recognition and Machine Learning, and Video Game Development

Software Engineering

- Object Oriented Software Engineering, Requirement Analysis, and Software Testing

HARDWARE AND
SOFTWARE SKILLS

Computer Programming:

- C, C++, Obj-C, MetalSL, HLSL, GLSL, Java, C#, HTML/CSS, Matlab

Embedded and Real-time Systems:

- Windows CE, Apple iOS

Interfaces and Architectures:

- DirectX 9-12, Metal, OpenGL/Vulkan, CUDA, Windows API, Microsoft .NET 1.0-4.0

Operating Systems:

- Microsoft Windows 3.1-10, Apple OS X

REFERENCES
AVAILABLE TO
CONTACT

Dr. Jingyi Yu (e-mail:yu@eecis.udel.edu; phone: +1-302-831-0345)

- Professor, Department of Computer and Information Sciences, University of Delaware
- ◇ 410 Smith Hall, University of Delaware, Newark, DE 19716, USA
- ★ *Dr. Yu was my Ph.D. adviser.*

Dr. Todor Georgiev (e-mail:todorg@qti.qualcomm.com; phone: +1-408-990-4997)

- Principal Engineer, QCT Group, Qualcomm Incorporated
- ◇ 2581 Junction Ave, San Jose, CA, USA
- ★ *Dr. Georgiev was my mentor in Qualcomm QCT Group and Adobe Photoshop Group.*

Jeff (Jenchan) Chien (e-mail:jchien@adobe.com; phone: +1-408-536-4703)

- Sr. Principal Scientist, Adobe Photoshop Group, Adobe Systems Incorporated
- ◇ W10-606, 345 Park Avenue, San Jose, CA, USA
- ★ *Jeff Chien is my supervisor in Adobe Photoshop Group.*

Michelle (Shali) Qi (e-mail:mqi@adobe.com; phone: +1-408-536-6346)

- Quality Engineering Manager, Adobe Photoshop Group, Adobe Systems Incorporated
- ◇ W10-606, 345 Park Avenue, San Jose, CA, USA
- ★ *Mrs. Qi was my manager in Adobe Photoshop Group.*

* More references available upon requests.