

RESUME

Xueying Qin
Associate Professor
State Key Laboratory of CAD&CG
Zhejiang University, P.R. China

Tel: +86-571-88206681 (O)
Fax: +86-571-88206680 (O)
Cell: 13064710766
Email: xyqin@cad.zju.edu.cn

Research Interests

- ◆ **Computer Vision: camera motion, camera calibration, moving object tracking**
- ◆ **Image-Based Rendering: photo Montage, panoramic Montage, video Montage**
- ◆ **Computer Graphics: photo-realistic rendering, water, trees and forests, clouds, etc.**
- ◆ **Augmented Reality**
- ◆ **Image Processing and Pattern Recognition**

Education

PhD, Engineering, Hiroshima University, Japan, 2001
Dissertation: *"Photo-Realistic Representation of Landscapes for Environmental Assessment"*
MS, Applied Mathematics, Zhejiang University, Hangzhou, P.R.China, 1991
Thesis: *"The global Cube: A Light Energy Distributor For Light Propagation in General Environment"*
BS, Mathematics, Peking University, Beijing, P.R. China, 1988

Research Experience

State Key Lab of CAD&CG, Zhejiang University: Associate Professor (Jan.2003-present)

- ▶ **Vision Based Real-Time Camera Tracking Techniques:** a 863 project
- ▶ **Augmented Virtual Reality:** a subject of 973 program of China about Virtual Reality.
- ▶ **Integrating Virtual objects into Video Sequences:** NSFC project.

Sannei Graphic/Image Co. Canada: Senior Researcher (Mar.2001-Dec.2002)

- ▶ **Video Montage:** a research project to composite computer generated images with video sequences taken by a moving camera. The video sequence is analyzed to recover the camera parameters.
- ▶ **SkyScene:** a research project to render the outdoor scenes under daylight. It is ported to PC from SGI Indigo workstation.

Sanei Co. Japan: Researcher (Oct.1995 – Feb.2001)

- ▶ **Video Montage:** a project to composite computer generated images with video sequences taken by a camera on tripod. The features are: camera parameters of panned/zoomed/tilted video sequence are recovered automatically without tracking moving objects in scenes; video sequence images are composited with CG images harmonically by considering the atmosphere conditions and shadows; moving objects are tracked and then erased in a panned video sequence after camera parameters are recovered; and image mosaics are composited from video sequence frame images.
- ▶ **SkyScene:** is a photo-realistic rendering system to simulate the natural landscape scenes taking into account the effects of sunlight, skylight, inter-reflection of objects, fog, haze clouds, water, trees and forests. The precision of sunlight shadows, including umbrae and penumbrae, can be preserved to be superior to that of any visible surface by plural shadow buffers. The shadows of skylight are processed on a parallelepiped. The functions also includes the fast rendering of quasi-3D trees and forests, anti-aliasing of water surfaces and shadows of water surfaces and inter-reflection of objects, and achieved the rendering speed by using adaptively sampling techniques. Z-buffers are employed to accelerate the calculation.
- ▶ **Recovering wave shapes of water surface from photos:** In order to composite CG images into photos with water surface by montages, the wave shapes are recovered from a photo and then the reflected image is rendered and composited into the photo by flexible matching of patterns above water and those on water.
- ▶ **Planter: Arrangement of trees and forest in virtual environment:** an application interface for arrangement of trees or forest on the land of a 3D model. The edited parameters of each tree include its size, position, density, color, texture, and the views of its scene can be observed in convenient way.

Chengdu Institute of Computer Application, Chinese Academy of Sciences: Assistant Researcher

(Oct.1991 – Jul.1995)

Responsible for the following projects:

- ▶ Photo realistic simulating of the pilot's compartment by oct-tree ray tracing. By using oct-tree ray tracing method, the pilot's compartment was simulated in high reality to show the dizzy effect due to the reflection of instrument light source. It was for checking the light illuminate effect in compartment before manufactured.
- ▶ Smoothness analysis of curved surface with Computer Graphics. It was a project from airplane projection research institute to check the smoothness of the outside surface of plane using the computer graphics technique.

Key Lab of CAD & CG, Zhejiang University, P.R.China: Lab Assistant

(Sep.1988 - Jul.1991)

- ▶ Developed a progressive radiosity package for display of complex curved surface environment, features include simulation of surface light resource and illumination model improvement, shadow calculation, curved-mirror reflection light effect evaluation, used as a part of realistic image render test bed in Zhejiang University

Publications

1. G. Zhang, Xueying Qin, H. Bao. Video Stabilization and Retiming Based on Structure and Motion Recovery. Submitted to *Journal of the Visual Computer*.
2. G. Zhang, Xueying Qin, W. Hua, H. Bao. Golden Tracking: An Efficient Approach to Structure and Motion Recovery for Long Sequences. *CVPR.2007*
3. G. Zhang, W. Hua, Xueying Qin, T. Wong, H. Bao. Stereoscopic Video Synthesis with Commodity Video Camera. *IEEE Transactions on Visualization & Computer Graphics*, 13(4): 686-696 (2007).
4. G. Zhang, Xueying Qin, X. An, W. Chen, H. Bao. As-Consistent-As-Possible Compositing of Virtual Objects and Video Sequences. *Computer Animation and Virtual Worlds journal (CASA2006)*, 17:305-314..
5. Yasuo Nagai, Masatoshi Fujiwara, Katsumi Tadamura, Xueying Qin, Eihachiro Nakamae. Synthesizing background Panned Video Sequence Images and CG Models for Design of Outdoor Vehicles. *The journal of the society for art and science*, Vol.5, No.2, pp.45-56, June, 2006. (In Japanese)
6. Xiaobo An, Xueying Qin, Guofeng Zhang, Wei Chen, Hujun Bao, Robust Camera Motion Estimation in Video Sequences. *To appear in International Conference on Computer Vision Theory and Applications 2006*.
7. Xiaobo An, Xueying Qin, Hujun Bao. Automatic and robust segmentation of motion layers in image sequences. *To appear in International Workshop Energy Minimization Methods in Computer Vision and Pattern Recognition 2006*.
8. Zhenlong Du, Xueying Qin, Hai Lin, Hujun Bao. Shadow Removal in Gradient Domain. *ICIAI 2005, Second International Conference, Toronto, Canada, September 28-30, ICIAI 2005*: 107-115.
9. Zhenlong Du, Hai Lin, Xueying Qin, Hujun Bao. Oriented Poisson matting. *ICIR2005*: II-626-634.
10. E. Nakamae, X. Qin and K. Tadamura. Compositing of Computer Graphics with Landscape Video Sequences. *Visualization in Landscape and Environmental Planning – Technology and Applications*, edited by I. Bishop and E. Lange, published by Taylor & Francis, London and New York, pp.226-233, 2005.
11. Yasuo Nagai, Katsumi Tadamura, Xueying Qin, Eihachiro Nakamae, Measurement of High Dynamic Range Luminance based on Video Signal, *The Journal of The Institute of Image Information and Television Engineers, Volume 59, No. 10, 2005*.
12. Guofeng Zhang, Xueying Qin, Xiaobo An, Wei Chen and Hujun Bao. Seamless Compositing of Virtual Objects And Video Sequences. *In Pacific graphics 2005*, pp.78-81. (poster)
13. Xue-ying Qin, Eihachiro Nakamae, Wei Hua, Yasuo Nagai, and Qun-Sheng Peng. Anti-Aliased Rendering of Water Surface. *Journal of Computer Science and Technology*, Sept. 2004, Vol.19, No.5, pp.626-632(SCI)
14. X. Qin, E. Nakamae, W. Hua, Y. Nagai, and Q. Peng. Anti-Aliasing of Reflection Effects of Water Surface. *Proceedings of 8th International Conference on CAD/Graphic*, pp.61-66.(2003)
15. Katsumi Tadamura, Xueying Qin, Guofang Jiao, Yasuo Nagai, Eihachiro Nakamae. Landscapes Taking into Account Optical Effects of Clouds. *画像电子学会志, 第32卷, 第四号*, pp.346-354.(published in Japanese)
16. X. Qin, E. Nakamae, K. Tadamura and Y. Nagai. Fast Photo-Realistic Rendering of Trees in Daylight. *Computer Graphics Forum (Eurographics 2003)*, Vol.22, No.3, pp.243-252.
17. X. Qin, E. Nakamae and K. Tadamura. Automatically Compositing Still Images and Landscape Video Sequences. *IEEE Computer Graphics and Applications*, Vol.22, No.1, Jan./Feb., pp.68-78. (2002) (SCI)
18. K. Tadamura, X. Qin, G. Jiao and E. Nakamae. Fast Rendering Water Surface for Outdoor Scenes. *International Journal of Image and Graphics*, Vol. 1, No. 2, pp.313-327. (2001)
19. E. Nakamae, X. Qin and K. Tadamura. Rendering of Landscapes for Environmental Assessment. *Landscape and Urban Planning*, Volume 54, Issues 1-4, 25 May, Pages 19-32. (2001) (SCI)
20. K. Tadamura, X. Qin, G. Jiao and E. Nakamae. Rendering Optical Solar Shadows Using Plural Sunlight Depth Buffers. *Journal*

- of the Visual Computer*, Vol.17, No.2, pp.76-90. (2001) (SCI)
21. X. Qin, K. Tadamura, T. Ishibashi and E. Nakamae. Composite Panned Landscape Video Sequences with Computer Generated Still Images. *The Transactions of the Institute of Electronics, Information and Communication Engineers*, Vol. J83-D-II, No.4, pp.1140-1152. (2000) (published in Japanese).
 22. E. Nakamae, X. Qin, G. Jiao, P. Rokita and K. Tadamura. Computer Generated Still Images Composited with Panned/Zoomed Landscape Video Sequences. *Journal of the Visual Computer*, Vol.15, No.9, pp.429-442. (1999) (SCI)
 23. X. Qin, K. Tadamura, Y. Nagai and E. Nakamae. Creating a Precise Panorama from Panned Video Sequence Images. *Journal of Information Processing*, Vol.40, No.10, pp.3685-3693, Oct. (1999) (published in Japanese).
 24. K. Tadamura, G. Jiao, X. Qin, N. Kato and E. Nakamae. Rendering Optical Solar Shadows Using Plural Sunlight Depth Buffers. *Journal of Information Processing*, Vol.40, No.3, pp.1156-1168. (1999) (published in Japanese).
 25. K. Tadamura, X. Qin, Y. Nagai and E. Nakamae. Landscapes Taking into Account Optical Effects of Clouds. Proceedings – Industrial Systems and Engineering II, 6th World MultiConference on Systemics, Cybernetics and Informatics, Vol.12, pp.85-90 (2002)(ISTP).
 26. E. Nakamae, X. Qin, K. Tadamura and Y. Nagai. Fast Rendering for Photo-Realistic Trees in Daylight. *Animation Theaters of SIGGRAPH 2002*.
 27. X. Qin, E. Nakama and K. Tadamura. Creating a Precise Panorama from Panned Video Sequence Images. *Proc. of Pacific Graphics*, pp.6-11. (1999)
 28. K. Tadamura, X. Qin, G. Jiao and E. Nakamae, Rendering Optical Solar Shadows Using Plural Sunlight Depth Buffers. *Proc. of CG International*, pp.166-173. (1999) (ISTP)
 29. E. Nakamae, X. Qin, G. Jiao, P. Rokita, K. Tadamura and Y. Usagawa. Panned/Zoomed Landscape Video Sequences Composited with Computer Generated Still Images. *SIGGRAPH'98 conference abstracts and applications*, pp.279. (1998) (ISTP)
 30. E. Nakamae, X. Qin, G. Jiao, P. Rokita, K. Tadamura and Y. Usagawa. Computer Generated Still Images Composited with Panned Landscape Video Sequence. *Proceedings of the 1998 MultiMedia Modeling (MMM'98)*, pp.62-69. (1998) (ISTP)
 31. S. Fu, Q. Peng and X. Qin, The Global Cube: A Light Energy Distributor For Light Propagation in General Environments. *Proc. of Pacific Graphics*, pp.129-147. (1994)