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## CURRICULUM VITAE

Zilong Dong, Ph.D. student

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### Advisor

Prof. Hujun Bao      State Key Lab of CAD&CG, Zhejiang University, Hangzhou, China

### Education

09/2004-present      Ph.D. student,  
State Key Lab of CAD&CG, Zhejiang University, Hangzhou, China

09/2000-07/2004      B.S., Department of Computer Science and Engineering,  
Zhejiang University, Hangzhou, China

### Research Interests

Real-time camera tracking and its applications, including feature detection and matching, image recognition, video segmentation, augmented reality

### Publications

- Guofeng Zhang, **Zilong Dong**, Jiaya Jia, Tien-Tsin Wong, and Hujun Bao. *Efficient Non-Consecutive Feature Tracking for Structure-from-Motion*. ECCV, 2010.
- **Zilong Dong**, Lei Jiang, Guofeng Zhang, Qing Wang, and Hujun Bao. *Live Video Montage with a Rotating Camera*. Pacific Graphics(PG), 2009.
- **Zilong Dong**, Guofeng Zhang, Jiaya Jia, and Hujun Bao. *Keyframe-Based Real-Time Camera Tracking*. IEEE International Conference on Computer Vision (ICCV), 2009.
- Guofeng Zhang, **Zilong Dong**, Jiaya Jia, Liang Wan, Tien-Tsin Wong, and Hujun Bao. *Refilming with Depth-Inferred Videos*. IEEE Transactions on Visualization and Computer Graphics (TVCG), 15(5):828-840, 2009.
- **Zilong Dong**, Guofeng Zhang, Yuanlong Shao, and Wei Hua. *Chinese-Character-Marker based Augmented Reality System*. Journal of Image and Graphics, 14(7), 2009. (In Chinese)
- Hanqing Jiang, Guofeng Zhang, **Zilong Dong**, Wei Hua, Xinguo Liu, and Hujun Bao. *Fast Interactive Scene Modeling from an Image Sequence*. Journal of Computer-aided Design & Computer Graphics, 20(9),2008. (In Chinese)
- Guofeng Zhang, Xueying Qin, **Zilong Dong**, Wei Hua, and Hujun Bao. *Camera Tracking Based on Structure and Motion Recovery for Augmented Video*. Chinese Journal of

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Computers, Vol. 29, No. 12, pages 2104-2111, Dec. 2006. (In Chinese)

- Rui Wang, Wei Hua, **Zilong Dong**, Hujun Bao, and Qunsheng Peng, *Synthesizing trees by plantons*, The Visual Computer, Volume 22, Number 4, 238-248, April 2006.

## Professional Activities

**05/2007-present**      Ph.D. Student, State Key Lab of CAD&CG, Zhejiang University, Hangzhou, China

- **Real-time camera tracking**

In this system, we recover the camera pose at real-time frame rate, and superimpose computer-generated information over real scenes, helping users perceive the surrounding world.

The system utilizes multi-threading and network techniques to achieve real-time performance, and has implemented three camera tracking applications based artificial markers, natural markers, or natural feature points.

- **Re-filming from casual videos**

With the recovered camera pose in XTrack, we can further recover the 3D information of the scenes. Using the 3D information of the scenes, we can create new visual effects such as video composition, fogging, bullet time, etc..

I was in charge of separating the layers in the videos, and matting out the required video objects.

- **Hybrid feature tracking**

This is an enhancement of XTrack software. Combining frame-to-frame tracking and SIFT feature tracking, we can match the features among frames more robustly and efficiently, so as to recover the camera trajectories more precisely.

- **Fast interactive 3D modeling from image sequences**

We can reconstruct the 3D models of objects in the image sequences interactively. The system provides many UI elements, such as line, segment, polygon, and Bezier curve, etc.. I mainly designed the framework of the system.

- **Fast bi-layer segmentation with a rotating camera**

We deal with rotating camera in this work. A prior panorama image of the static background is constructed, and the online input frames are registered to the panorama to get the background information. Then, a fast bi-layer segmentation method is used to extract the foreground objects.

**10/2006-04/2007**      Internship, Microsoft Research Asia, Beijing, China

- **Transfer facial expression using image fusion**

Shadow is an important cue of face structure. By transferring shadow between face images, we can change the face structure, even the facial expression. Shadow transfer is completed by copying the gradient fields between images with Poisson fusion.

**09/2004-09/2006**                      Ph.D. Student, State Key Lab of CAD&CG, Zhejiang University, Hangzhou, China

- **Develop camera tracking software --- XTrack**

XTrack can recover the trajectory of the moving camera, and the camera parameters as well. I was responsible for designing and programming the User Interface of the software.

- **Synthesize tree models from samples using Markov Random Field**

We recover the partial 3D structure of trees, and synthesize similar but different tree models from the samples. We train the Markov Random Field based on the recovered structure of the trees, and synthesize new trees.

## **Programming Skills**

C++/C, OpenGL, MFC, Matlab, LaTeX, Boost, STL