

Jingdan Zhang
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RESEARCH INTERESTS

Machine learning, statistical image processing and computer vision with their application to biomedical image analysis.

EDUCATION

Ph.D. in Computer Science Advisor: Prof. Leonard McMillan University of North Carolina at Chapel Hill, Chapel Hill, NC	2008
M.S. in Computer Science Advisor: Prof. Leonard McMillan University of North Carolina at Chapel Hill, Chapel Hill, NC	2007
M.S. in Computer Science and Application Tsinghua University, Beijing, China Thesis – Realistic Modeling Techniques Based On Real-World Sampling Dataset	2003
B.E. in Computer Science and Technology Tsinghua University, Beijing, China	2000

PROFESSIONAL EXPERIENCE

- 2007.10 – present Research Scientist, Integrated Data System Department, Siemens Corporate Research
- 2007.7 – 2007.8 Lecturer at Department of Computer Science, University of North Carolina at Chapel Hill
Taught a course Comp 110: Introduction to Programming in summer session.
- 2007.5 – 2007.6 Internship at Integrated Data System Department, Siemens Corporate Research
Worked with Dr. Shaohua Kevin Zhou and Dr. Dorin Comaniciu
 - Participated in developing software for automatically segmenting heart chambers in echocardiogram.
- 2006.5 – 2006.12 Internship at Integrated Data System Department, Siemens Corporate Research
Worked with Dr. Shaohua Kevin Zhou and Dr. Dorin Comaniciu
 - Developed a learning based algorithm named probabilistic boosting network (PBN) for fast object detection and accurate pose estimation.
 - Applied PBN to estimate the configuration of heart chambers in 2D/3D ultrasound heart images.
- 2003.9 – 2006.5 Research Assistant at UNC at Chapel Hill,

With Prof. Leonard McMillan, Prof. Wei Wang, Prof. Marc Pollefeys

- Exploring novel image enhancement and editing techniques using probabilistic graph models.
 - Modeled the illumination changes with Markov Random Field to enable robust tracking and stereo matching under variable illumination.
 - Designed and developed machine learning approaches to enhance night vision images based on example daytime appearance models.
 - Developed a system to model and analyze human motion capture data.
- 2001.9 – 2003.7 Part time Internship at Microsoft Research Asia
Worked with Dr Baining Guo, Dr Harry Shum
 - Designed an interactive system to synthesize progressively-variant texture to 3D meshes.
 - Developed algorithms to synthesize sampled bi-directional texture function (BTF) to 3D meshes and render the synthesized BTF with GPU acceleration.
 - Developed an algorithm to interpolate sparsely sampled medical images.
- 2000.9 – 2002.12 Research Assistant at State Key Laboratory of Intelligent Technology and Systems, Tsinghua University, Beijing, China
Worked with Prof. Zhidong Deng on virtual reality project
 - Designed and developed a system to reconstruct 3D models of the objects using structured light.
 - Implement the motion planning sub-system.
- 1999.9 – 2000.7 Software Engineer and Project Manager at Chinaren Inc.(later acquired by Sohu.com) Beijing, China
 - Led a seven-member team in developing Internet games.

PUBLICATIONS

Conferences:

- **Jingdan Zhang**, S. Kevin Zhou, Dorin Comaniciu and Leonard McMillan. Discriminative Learning for Deformable Shape Segmentation: A Comparative Study. ECCV 2008.
- **Jingdan Zhang**, S. Kevin Zhou, Dorin Comaniciu and Leonard McMillan. Conditional Density Learning via Regression with Application to Deformable Shape Segmentation. CVPR 2008.
- **Jingdan Zhang**, S. Kevin Zhou, Leonard McMillan and Dorin Comaniciu. Joint Real-time Object Detection and Pose Estimation Using Probabilistic Boosting Network. CVPR 2007.
- **Jingdan Zhang**, Leonard McMillan, and Jingyi Yu. Robust Tracking and Stereo Matching under Variable Illumination. CVPR, 2006.
- Zhidong Deng, Jianjun Niu, **Jingdan Zhang**. A Realistic 3-D Reverse Modeling System Based on Real-World Sampling Dataset. 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems.
- Guodong Liu, **Jingdan Zhang**, Wei Wang and Leonard McMillan. Human Motion Estimation from a Reduced Marker Set. To appear ACM SIGGRAPH Symposium on Interactive 3D Graphics (I3D), 2006.
- Guodong Liu, **Jingdan Zhang**, Wei Wang and Leonard McMillan. A system for analyzing and indexing human motion databases (demo). Proc. ACM SIGMOD International Conference on Management of Data (SIGMOD), 924-926, 2005.

- **Jingdan Zhang**, Yongmei Wang and Baining Guo. Pyramidal Search of Maximum Coherence Direction for Biomedical Image Interpolation. IEEE International Symposium on Biomedical Imaging, 887-890, 2002.
- **Jingdan Zhang**, Zhidong Deng, Baining Guo. Two Stage Unsupervised Segmentation of Color Images. Proc. Chinagraph, 144-148, Beijing, Sept 2002.
- Ke Deng, **Jingdan Zhang**, Lifeng Wang and Baining Guo. Texture Mapping with a Jacobian-Based Spatially-Variant Filter. Proc. IEEE Pacific Graphics, 2002.

Journals:

- **Jingdan Zhang**, Kun Zhou, Luiz Velho, Baining Guo and Heung-Yeung Shum. Synthesis of Progressively-Variant Textures on Arbitrary Surfaces. ACM Transactions on Graphics(Proc. ACM SIGGRAPH), 295-302, 2003.
- Xin Tong, **Jingdan Zhang**, Ligang Liu, Xi Wang, Baining Guo and Heung-Yeung Shum. Synthesis of Bidirectional Texture Functions on Arbitrary Surfaces. ACM Transactions on Graphics(Proc. ACM SIGGRAPH), 665-672, 2002.
- Yongmei Michelle Wang, **Jingdan Zhang**, Zhunping Zhang, Baining Guo. Directional Coherence Interpolation for Three-Dimensional Gray-Level Images. International Journal of Image and Graphics, 4(4), 535-561, 2004.
- Xinguo Liu, Yaohua Hu, **Jingdan Zhang**, Xin Tong, Baining Guo and Heung-Yeung Shum. Synthesis and Rendering of Bidirectional Texture Functions on Arbitrary Surfaces. IEEE Transactions on Visualization and Computer Graphics, 10(3): 278-289, 2004.
- Bocheng Chen, Yingjie Li, **Jingdan Zhang**, Chaojun Xu, Xun Wang. Discrete Event System Simulation Software Prototype Using JAVA. Journal of Tsinghua University 40(7), 2000.

U.S. PATENT FILED

Shaohua Kevin Zhou, Jingdan Zhang, Bogdan Georgescu and Dorin Comaniciu. Fast Left Ventricle Detection with a Component-Based Approach. Siemens Disclosure No. 2006E21197US, October 2006.

Shaohua Kevin Zhou, Jingdan Zhang, Bogdan Georgescu and Dorin Comaniciu. Fast Detection of Left Ventricle and its Configuration in 2D/3D Echocardiogram Using Probabilistic Boosting Network. Siemens Disclosure No. 2006P22507US, October 2006.

Jingdan Zhang, Kun Zhou, Baining Guo and Heung-Yeung Shum. Synthesis of Progressively-Variant Textures and Application to Arbitrary Surfaces. MS Disclosure No. 303777.01, November, 2003.

HONORS

- Best Summer Student Award, Integrated Data System Department, Siemens Corporate Research, 2006.
- University Merit Assistantship, University of North Carolina at Chapel Hill, 2003-2004.
- Excellent Researcher Scholarship, State Key Laboratory of Intelligent Technology and Systems, Tsinghua University, 2002 - 2003.
- Excellent Student Scholarship, Tsinghua University, 1997 - 1999.
- National Olympiad in Informatics Contest, Second Prize, ranking 13th, 1995.8.