

# Li Guan

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## EDUCATION

- University of North Carolina at Chapel Hill, NC, USA** 08/2007 – 05/2010  
Ph.D. Degree, Computer Science, Advisor: Prof. Marc Pollefeys
- University of North Carolina at Chapel Hill, NC, USA** 08/2004 – 07/2007  
M.S. Degree, Computer Science, Advisor: Prof. Marc Pollefeys
- Zhejiang University, Hangzhou, Zhejiang, China** 09/2000 – 06/2004  
B.S., Mixed Honors Class, Computer Science & Technology, Advisor: Prof. Jiaoying Shi

## EMPLOYMENT & RELATED RESEARCH ACTIVITIES

- Computer Scientist, Computer Vision Lab, GE Global Research, NY, USA** 08/2010 – present
- Intelligent video processing for 3D scene understanding including human, vehicle and other general shapes in the natural world. Develop algorithms, prototypes for varieties of GE businesses. Publish in academic conference and journal and file patents about the research works.
- Post Doc, University of North Carolina at Chapel Hill, NC, USA** 09/2009 – 07/2010
- Collaborate with Prof. Jan-Michael Frahm and Prof. Marc Pollefeys
  - Multi-view 3D human motion analysis. Using volumetric representation of 3D scene to model human motion as 3D motion field and compute arbitrary animals' kinematic skeletons for 3D pose tracking.
- Academic Guest, Computer Vision & Geometry Group, ETH at Zürich, Switzerland** 09/2007 – 07/2008
- Visiting Prof. Marc Pollefeys and his group ([cvg.ethz.ch](http://cvg.ethz.ch))
  - Multi-view multi-object dynamic 3D reconstruction & tracking analysis.
  - Multi-modal sensor network, focus on robust probabilistic sensor fusion of camcorders and Time-of-Flight cameras for 3D reconstruction, and heterogeneous sensor network calibration.
- Summer Intern, Honda Research Institute, Mountain View, CA, USA** 06/2005 – 08/2005
- Supervised by Dr. Hector Gonzales-Banos
  - Construct camera network, and vision-based reconstruction for humanoid robots. Design and implement the cross-platform generic sensor network protocol the "SensorTalk" as listed in the Patent section.
- Research Assistant, Department of Computer Science, UNC at Chapel Hill, USA** 08/2004 – 08/2009
- Propose the idea of "effective boundary" for automatic 2D occlusion mask generation from a single video.
  - Propose a Bayesian framework for 3D static occluder inference from silhouette cues, organize multi-camera datasets acquisition.
  - nVIDIA CUDA implementation of Real-time multi-view probabilistic visual hull, and occlusion inference.
- Member, Vision Group, Robocup F180 Team, Zhejiang University, China** 09/2003 – 06/2004
- Restore Robocup pitch image with variational image registration techniques. The algorithm was used in the final system in Robocup 2004, Lisbon, Portugal.
- Exchange Student, Institute of Mathematics, University of Lübeck, Germany** 10/2003 – 11/2003
- Study functional methods of medical image registration with Prof. Bernd Fischer
  - With a technical report "Gradient-driven affine image registration"
- Research Assistant, CAD & CG National Key Lab, Zhejiang University, China** 03/2002 – 06/2004
- Assist Prof. Jiaoying Shi
  - Survey and improve the "Image Matting" algorithms as my bachelor's topic.
  - Co-develop the "Selective Reliable Multi-cast Protocol for Distributed Virtual Environment Systems".

## PATENT

- H. Gonzalez-Banos, J. Wormer , **L. Guan**, "Interface for Sensor Query and Control (SensorTalk)", US Patent 2007/0078527 A1, H1053071 US02, Honda.

## PUBLICATION

- **L. Guan**, Multi-view Dynamic Scene Modeling, Ph.D. Thesis, UNC-Chapel Hill, 2010
- **L. Guan**, J.-S. Franco and M. Pollefeys, Probabilistic Multi-view Dynamic Scene Reconstruction and Occlusion Reasoning from Silhouette cues, International Journal of Computer Vision (IJCV), 2010
- **L. Guan**, J.-S. Franco, E. Boyer and M. Pollefeys, Probabilistic 3D Occupancy Flow with Latent Silhouette Cues, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010
- J.-S. Franco, **L. Guan**, E. Boyer and M. Pollefeys, 3D Occupancy Flow from Latent Silhouettes (in French), Reconnaissance des Formes et Intelligence Artificielle (RFIA), 2010
- **L. Guan** and M. Pollefeys, A Unified Approach to Calibrate a Network of Camcorders & ToF cameras, IEEE workshop on Multi-camera and Multi-model Sensor Fusion Algorithms and Applications (M2SFA2), in conjunction with 10th European Conference on Computer Vision (ECCV), 2008
- **L. Guan**, J.-S. Franco and M. Pollefeys, Multi-Object Shape Estimation and Tracking from Silhouette Cues, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2008
- **L. Guan**, J.-S. Franco and M. Pollefeys, 3D Object Reconstruction with Heterogeneous Sensor Data, International Symposium on 3D Data Processing, Visualization & Transmission (3DPVT), 2008
- **L. Guan**, J.-S. Franco and M. Pollefeys, 3D Occlusion Inference from Silhouette Cues, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2007
- **L. Guan**, S. Sinha, J.-S. Franco and M. Pollefeys, Visual Hull Construction in the Presence of Partial Occlusion, Inter-national Symposium on 3D Data Processing, Visualization & Transmission (3DPVT), 2006
- **L. Guan**, C. Guo and R. Xiong, Robocup Field Distortion Calibration with Variational Image Registration, Inter-national Symposium on Intelligent Multimedia, Video & Speech Processing (ISIMP), 2004
- **L. Guan**, Algorithms of Object Extraction in Digital Images based on Alpha value, Bachelor Thesis, CAD & CG National Key Lab, Zhejiang University, Hangzhou, 2004

## MEMBERSHIP & SERVICE

IEEE student member, 2005-2009

Sigma Xi Scientific Research Society member, since 2011

Member of the Program Committee, CVPR 2012

Student volunteer, 3<sup>rd</sup> International Symposium on 3D Data Processing, Visualization & Transmission (3DPVT) 2006

Reviewer of CVPR 2010-present, ICCV 2007-present, ECCV 2008, AVSS 2008, ACCV 2007, Machine Vision and Applications Journal (MVAJ), Journal on Advances in Signal Processing (JASP).

## HONORS & AWARDS

IEEE & Microsoft Student Travel Grant,	2008
Scholarship from Department of Computer Science, UNC-Chapel Hill,	2004 – 2009
Meritorious Winner, Mathematical Contest in Modeling, U.S.A,	2004
Outstanding Graduation, Zhejiang University	2004
Chu Kechen Honors Scholarship, Zhejiang University	2003
Second National Prize, China Undergraduate Math Contest in Modeling,	2003