Tian Cao

Contact Information

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Research Interests

Image Analysis, Computer Vision, Machine Learning

Education

University *of* North Carolina *at* Chapel Hill, Chapel Hill, NC, USA — since 08/2010
Ph.D. candidate in Computer Science

Sichuan University, Chengdu, Sichuan, China — 09/2007-05/2010
Master of Science in Computer Science

Sichuan University, Chengdu, Sichuan, China — 09/2003-05/2007
Bachelor of Engineering in Computer Science

Research Experience

Registration for Correlative Microscopy using Image Analogies 2011-2012
Research Assistant at UNC Chapel Hill Advisor: Marc Niethammer
Developed an image analogies based multi-modal registration algorithm, extended the traditional image analogies method with sparse representation model, and applied this algorithm to the registration of Correlative Microscopy images.

Energy based Crowd Motion Analysis 2009-2010
Research Assistant at SIAT/CUHK Advisor: Yangsheng Xu
Developed a energy based crowd motion analysis algorithm based on mutual information, and applied this algorithm to detect the crowd abnormal behaviors.

Super Resolution and Anisotropic Diffusion for Ultrasound Speckle Reduction 2009
Research Assistant at SCU/SASET Advisor: Dong C. Liu
Developed a fast and robust super-resolution method for intima reconstruction in medical ultrasound imaging, and applied anisotropic diffusion to reduce speckle with edge enhancement during the image reconstruction.

Motion Estimation and Visualization for Cardiac Ultrasound 2008-2009
Research Assistant at SCU/SASET Advisor: Dong C. Liu
Developed a novel method for motion estimation and visualization of cardiac ultrasound images. The motion vector fields are derived from an adaptive curve region based matching algorithm.

Publications

[1].**Tian Cao**, Christopher Zach, Marc Niethammer et al., "Registration for Correlative Microscopy using Image Analogies", *Fifth Workshop on Biomedical Image Registration* (accepted).

[2].**Tian Cao**, Bo Wang, Dong C. Liu, "Optimized GPU Framework of Semi-implicit AOS Scheme Based Speckle Reducing Nonlinear Diusion", *proceedings of SPIE Medical Imaging, 2009, Vol. 7259, 2009.*

[3].Bo Wang, **Tian Cao**, Yuguo Dai, Dong C. Liu, "Ultrasound Speckle Reduction via Super Resolution and Nonlinear Diffusion", *the 9th Asian Conference on Computer Vision (ACCV 2009), 2009.*

[4].**Tian Cao**, Chaowei Tan, Dong C. Liu, "Adaptive Curve Region based Motion Estimation and Motion Visualization of Cardiac Ultrasound Imaging", *the 3rd International Conference on Bioinformatics and Biomedical Engineering (ICBBE 2009), Vol. 3, pp. 453-457, 2009.*

[5].**Tian Cao**, Xinyu Wu, Jinnian Guo, Shiqi Yu, Yangsheng Xu, "Abnormal Crowd Motion Analysis", *IEEE International Conference on Robotics and Biomimetics (ROBIO 2009), 2009.*

Honors & Awards

Guanghua Scholarship.	2010
Graduate Student Fellowship 2009 (top 5%), Sichuan University.	2009
Excellent undergraduate Student (top 5%), Sichuan University.	2007
Student Innovation Award (top 3%), Sichuan University.	2006
1st prize of China Undergraduate Mathematical Contest in Modeling (CUMCM).	2006

Professional Skills

C/C++, Java, Python, Matlab