

TIAN CAO

CONTACT INFORMATION

Department of Computer Science
Sitterson Hall, UNC-Chapel Hill
Chapel Hill, NC 27599-3175 USA

Phone: (919)-699-9542
E-mail: tiancao@cs.unc.edu
<http://cs.unc.edu/~tiancao/>

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	GPA: 3.7/4.0
SICHUAN UNIVERSITY, Chengdu, Sichuan, China	09/2007-05/2010
Master of Science in Computer Science	GPA: 3.8/4.0
SICHUAN UNIVERSITY, Chengdu, Sichuan, China	09/2003-05/2007
Bachelor of Engineering in Computer Science	GPA: 3.7/4.0

RESEARCH EXPERIENCE

Registration for Correlative Microscopy using Image Analogies	2011-2012
<i>Research Assistant</i> 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.	
Deformable Registration with built-in Invariant to Affine Transformations	2010-2011
<i>Research Assistant</i> at UNC Chapel Hill	Advisor: Marc Niethammer
Developed a deformable registration algorithm with built-in affine transformations, which can update the affine transformation at each deformable registration iteration, and applied this algorithm to the registration between fluorescence microscopy and TEM images.	
Energy based Crowd Motion Analysis	2009-2010
<i>Research Assistant</i> 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
<i>Research Assistant</i> 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.	

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 Diffusion", *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, Sichuan University.	2009
	Excellent undergraduate Student, Sichuan University.	2007
	Student Innovation Award (1st prize), Sichuan University.	2006
	1st prize of China Undergraduate Mathematical Contest in Modeling (CUMCM).	2006
PROFESSIONAL SKILLS	C/C++, Java, Python, Matlab, Windows, Linux, MacOS X	