

EDUCATION	University of North Carolina at Chapel Hill , Chapel Hill, NC	05/2016
	Ph.D. candidate in Computer Science	
	Sichuan University , Chengdu, Sichuan, China	06/2010
	M.S. in Computer Science	
	Sichuan University , Chengdu, Sichuan, China	05/2007
	B.E. in Computer Science	
SKILLS	Programming: C/C++, Java, Matlab, Python, SQL, SPARK, Bash, CUDA, OPENCV Machine Learning: Dictionary Learning, Deep Learning, Regression and Classification Image Processing: Registration, Segmentation, Denoising Computer Vision: Feature extraction, object detection, tracking	
EXPERIENCE	Intern, IBM Almaden Research Center , San Jose, CA	05/2014-08/2014
	Multi-atlas based Image Segmentation	
	<ul style="list-style-type: none"> Implemented multi-atlas based image segmentation system in Java; Investigated methods of learning from ambiguous labels using matlab and Java; Investigated atlas based image segmentation methods with different local features and classifiers. 	
	Intern, Siemens Corporate Research , Princeton, NJ	05/2012-08/2012
	Real-time Object Detection in Ultrasound Videos	
	<ul style="list-style-type: none"> Developed and implemented a needle detection system for ultrasound videos in C++ and MFC; Incorporated with different features and hough transform to vote the needle segment; Implemented a 3D steerable filtering method to incorporate spatial and temporal information for needle detection. 	
	Research Project, UNC Chapel Hill , Chapel Hill, NC	09/2014-01/2015
	Image Annotation using Deep Representations	
	<ul style="list-style-type: none"> Developed automatic image annotation with Convolutional Neural Network(CNN) features; Jointly modeling the image features and word features and tested on multiple dataset; Implemented in matlab, C++ and Caffe. 	
	Research Assistant, UNC Chapel Hill , Chapel Hill, NC	09/2010-present
Coupled Dictionary Learning for Image Analysis		
<ul style="list-style-type: none"> Developed coupled dictionary learning methods for image analysis; Learning coupled dictionaries based on sparse coding, and applied the learned dictionary to multi-modal image analysis problems; Implemented in matlab and C++. 		
Research Assistant, Chinese Academy of Sciences , Shenzhen, China	09/2009-03/2010	
Energy based Crowd Motion Analysis		
<ul style="list-style-type: none"> Implemented a abnormal crowd motion analysis system in C++ and OPENCV; Developed an energy based crowd motion analysis algorithm based on mutual information; Applied the algorithm to detect the crowd abnormal behaviors. 		
SELECTED PUBLICATIONS	[1]. Tian Cao , Nikhil Singh, Vladimir Jovic, Marc Niethammer, “Semi-coupled Dictionary Learning for Deformation Prediction”, <i>International Symposium on Biomedical Imaging (ISBI)</i> , 2015. [2]. Tian Cao , Christopher Zach, Marc Niethammer et al., “Multi-modal Registration for Correlative Microscopy using Image Analogies”, <i>Medical Image Analysis (MedIA)</i> , Elsevier, 2014. [3]. Tian Cao , Vladimir Jovic, Marc Niethammer et al., “Robust Multimodal Dictionary Learning”, <i>The 16th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)</i> , 2013. [4].Bo Wang, Tian Cao , Yuguo Dai, Dong C. Liu, “Ultrasound Speckle Reduction via Super Resolution and Nonlinear Diffusion”, <i>the 9th Asian Conference on Computer Vision (ACCV)</i> , 2009. [5]. 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 (SPIE MI)*, 2009.

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

HONORS &
AWARDS

HackNC 2015 Best UI Award.	2015
ISBI 2015 NIH Traval Award.	2015
Guanghua Scholarship.	2010
Outstanding graduate Student Award, Sichuan University.	2010
Graduate Student Fellowship, Sichuan University.	2007-2010
Student Innovation Award, Sichuan University.	2005-2007
1st prize of China Undergraduate Mathematical Contest in Modeling.	2006