Jarrell Waggoner

Biographical Data

Address:	Department of Computer Science and Engineering, University of South Carolina, Columbia, SC 29208
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Citizenship:	United States Citizen

Research Interests

Computer vision, segmentation, contour completion, perceptural grouping, document image analysis, event recognition, image processing.

Education

Present	Ph.D. Candidate in Computer Science, **University of South Carolina** Advisor: Dr. Song Wang
May 2009	Master of Engineering in Computer Science, **University of South Carolina** GPA: 3.8/4.0 | *magna cum laude*
May 2006	Bachelor of Science in Computer Science, **Bryan College** *summa cum laude*
May 2004	Associate of Science in Computer Science **University of South Carolina at Lancaster** GPA: 4.0/4.0 | *summa cum laude*

Research Experience

2011---Present — Research Assistant funded by AFOSR
Materials Volume Segmentation
Developed segmentation methods for materials image volumes. Created GUI interface for assisted segmentation, and conducted large-scale evaluations on multiple datasets for metallic and biological materials.

2010---2011 — Research Assistant funded by DARPA
Video Event Recognition
Explored segmentation methods for video event recognition while working at the Computer Vision Lab at USC. Managed lab computer network and organize weekly lab meetings. Attended P.I. meetings in San Diego (2010) and Colorado (2011). Visited Purdue University working with Dr. Jeffrey Mark Siskind (Dec 2010---Jan 2011).

2009---2010 — NSF Fellow at the Center for Digital Humanities
Digital Collation
Created a digital collation application to handle automatic differencing of sub-textual inconsistencies among multiple copies of *The Faerie Queene* by Edmund Spenser.

Teaching Experience

2008--2009 | GK-12 Fellow at Crayton Middle School
Teaching 8th Grade Science
Served in Crayton Middle School, coordinating with the classroom instructor to enhance the science curriculum and activities in an 8th grade science classroom. Subsequently coordinated and taught at the GK-12 Institute for Teachers, presenting the activities developed and delivered in the classroom.

2007--2008, 2011 | Graduate Teaching Assistant at USC
Teaching Software Development and Web Scripting
Supervised CSCE 145 labs, covering software development with Java, and taught CSCE 102, covering Javascript, HTML, and CSS. Taught CSCE 211 covering digital logic design.

Fall 2006 | Camp Instructor for USCL Arts and Sciences Adventure Camp
Teaching 5th-8th Grade Students
Worked in collaboration with Dr. Dwayne Brown. One of two instructors teaching Math and Computer Science to grade school students.

Publications

[C1] Dhaval Salvi, Jarrell Waggoner, Andrew Temlyakov, and Song Wang. A graph-based algorithm for multi-target tracking with occlusion. In *Workshop on Applications of Computer Vision*, 2013.

[C2] Dhaval Salvi, Jun Zhou, Jarrell Waggoner, and Song Wang. Handwritten text segmentation using average longest path algorithm. In *Workshop on Applications of Computer Vision*, 2013.

[C3] Andrew Temlyakov, Pahal Dalal, Jarrell Waggoner, Dhaval Salvi, and Song Wang. Shape and image retrieval by organizing instances using population cues. In *Workshop on Applications of Computer Vision*, 2013.

[C4] Andrei Barbu, Alexander Bridge, Dan Coroian Zachary Burchill, Sven Dickinson, Sanja Fidler, Aaron Michaux, Sam Mussman, Dhaval Salvi Siddharth Narayanaswamy, Lara Schmidt, Jeffrey Mark Siskind Jiangnan Shangguan, Jarrell Waggoner, Jinlian Wei Song Wang, Yifan Yin, and Zhiqi Zhang. Video in sentences out. In *Conference on Uncertainty in Artificial Intelligence*, pages 102--112, Catalina Island, CA, 2012.

[C5] Jarrell Waggoner, Jeff Simmons, Marc De Graef, and Song Wang. Graph cut approaches for materials segmentation preserving shape, appearance, and topology. In *International Conference on 3D Materials Science*, pages 147--152, Seven Springs, PA, 2012.

[C6] Jarrell Waggoner, Jeff Simmons, and Song Wang. Combining global labeling and local relabeling for metallic image segmentation. In *Proceedings of SPIE (Computational Imaging X)*, volume 8296, Burlingame, CA, 2012.

[C7] Zhiqi Zhang, Sanja Fidler, Jarrell Waggoner, Yu Cao, Sven Dickinson, Jeffrey Mark Siskind, and Song Wang. Superedge grouping for object localization by combining appearance and shape information. In *Conference on Computer Vision and Pattern Recognition*, pages 3266--3273, Providence, RI, 2012.

[C8] Song Wang, Jarrell Waggoner, and Jeff Simmons. Graph-cut methods for grain boundary segmentation. *JOM Journal of the Minerals, Metals and Materials Society*, 63:49--51, 2011.

[C9] Andrew Temlyakov, Brent C. Munsell, Jarrell Waggoner, and Song Wang. Two perceptually motivated strategies for shape classification. In *Conference on Computer Vision and Pattern Recognition*, pages 2289--2296, 2010.

[C10] Zhiqi Zhang, Yu Cao, Dhaval Salvi, Kenton Oliver, Jarrell Waggoner, and Song Wang. Free-shape subwindow search for object localization. In *Conference on Computer Vision and Pattern Recognition*, pages 1086--1093, 2010.

Presentations

[P1] *Combining Global Labeling and Local Relabeling for Metallic Image Segmentation.* Graduate Student Day Competition, Second Place. April 8, 2011.

[P2] *Image Registration for Digital Collation.* Graduate Student Day Competition, Honorable Mention. April 2, 2010.

[P3] *Aspect-Oriented Programming.* In CSCE 531. Guest lecture for Dr. Marco Valtorta. March 19, 2008.

[P4] *Math 241.* Vector Calculus. Guest lecture for Dr. Dwayne Brown. April 23---26, 2007.

[P5] *Math 242.* Differential Equations. Guest lecture for Dr. Dwayne Brown. April 23---26, 2007.

Honors/Awards

2011	Graduate Student Day Presentation, Second Place	USC
2010	Graduate Student Day Presentation, Honorable Mention	
2006	Senior Computer Science Award	Bryan College
2004	Clara P. Hammond Award	USCL
	Science and Mathematics Award	
	Highest Academic Average Award	

Teaching

Fall 2011	» CSCE 211	Digital Logic Design	USC
Summer II 2008	» CSCE 102	HTML/CSS/Javasript	
Spring 2008	» CSCE 145 Lab	Java	
Fall 2007	» CSCE 145 Lab	Java	
Spring 2007	» CSCE 204	Visual Basic	USCL
Spring 2007	» Math 241 & Math 242 (Guest Lecture)	Maple	

Skills & Languages

» Assembly	••	» Java	•••••	» Python	•••
» Bash	••••	» Javacript	•••	» Scheme	•••••
» Blender	•••	» LaTeX	•••	» SQL	•••
» C/C++	••••	» LISP	•	» Sys. Admin.	•••
» English	•••••	» Maple	•••	» Visual Basic	•••••
» GIT/SVN/CVS	••••	» MATLAB	•••••	» Wordpress	••••
» GNU/Linux	••••	» OpenCV	••••		
» HTML/CSS	••••	» PHP	••••		

- • Some familiarity, small-scale projects and assignments
- •• Implementation-specific experience
- ••• Quite familiar, used in limited settings as part of larger projects
- •••• Extensive knowledge or experience teaching
- ••••• Used in context of large scale, multi-group projects