

Zachary Pezzementi

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Education

- Johns Hopkins University, Baltimore, MD (Sept 2005-Present)
- PhD candidate, 2010 expected
 - Master of Science in Engineering, in Computer Science, 2007
 - Advanced Simulation and Training Fellowship from the Link Foundation
- Swarthmore College, Swarthmore, PA (Sept 2001-May 2005)
- Double major, Bachelor of Arts in Computer Science; Bachelor of Science in Engineering
 - Howard M. and Elsa P. Jenkins Scholarship in Engineering, 2003-2005

Work and Research Experience

- Research Intern to Michael Comberiate, NASA Goddard, Greenbelt, MD (Summer 2008)
- Extended mobile robot code to improve localization and mapping capabilities.
 - Implemented remote monitoring GUI application for Antarctic base station.
- Research Assistant to Greg Hager, Johns Hopkins University, Baltimore, MD (Spring 2006-Present)
- Developed system to visualize and register pre-operative OCT images to intra-operative fundus images for retinal surgery.
 - Designed and implemented a set of haptic guidance virtual fixtures for human-machine cooperative manipulation.
 - Developed and implemented system for visual tool tracking in surgical and other domains.
 - Ongoing work on haptic object recognition, exploration, and tactile sensor simulation.
- Teaching Assistant to Greg Hager, Johns Hopkins University, Baltimore, MD (Fall 2006)
- Assisted in the teaching of Computer Vision (600.461).
- Research Assistant to Bruce Maxwell, Swarthmore College, Swarthmore, PA (Summer 2003-4)
- Analyzed classifiers for texture-based image segmentation and texture size estimation.
 - Developed CVED.org, a resource for computer vision educators. Built database of resources, developed metadata format for incorporation into the NSF's NSDL, designed webpages for displaying and searching resources.
- Intern at CRS Engineering Incorporated, Birmingham, AL (Summer 2002)
- Implemented intranet for employees as webmaster, performed on-site analysis of lighting quality.

Selected Publications

- Zachary Pezzementi, Sandrine Voros, and Gregory D. Hager. “**Articulated Object Tracking by Rendering Consistent Appearance Parts.**” In *International Conference on Robotics and Automation*, May 2009.
- Zachary Pezzementi, Daniel Ursu, Sarthak Misra, and Allison Okamura. “**Modeling Realistic Tool-Tissue Interactions with Haptic Feedback: A Learning-based Method.**” In *Haptics Symposium*, March 2008.
- Zachary Pezzementi, Allison Okamura, Gregory D. Hager. “**Dynamic Guidance with Pseudoadmittance Virtual Fixtures**” In *International Conference on Robotics and Automation*, April 2007.
- Geoffrey Hollinger, Zachary Pezzementi, Benjamin Mitchell, Yavor Georgiev, Anthony Manfredi, and Bruce Maxwell. “**Design of a Social Mobile Robot Using Emotion-Based Decision Mechanisms.**” In *International Conference on Intelligent Robots and Systems*, Fall 2006.
- Geoffrey Hollinger, Zachary Pezzementi, Alexander Flurie, and Bruce Maxwell. “**Design and Construction of an Indoor Robotic Blimp for Urban Search and Rescue Tasks.**” Swarthmore College Senior Design Thesis, Spring 2005.

Skills

- *Languages:* Programming – C, C#, C++, D, Java, Perl, PHP, Scheme, VHDL. Markup – CSS, HTML, LaTeX, XML. Spoken – Fluent in French, intermediate reader and speaker of Spanish.
- *Software:* CVS, Matlab, OpenGL, OpenHaptics, SVN, Trac