

Romeil S. Sandhu

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Education: **Georgia Institute of Technology** Atlanta, GA

- Ph.D. of Science in Electrical Engineering August 2006 – August 2010
 - Academic Advisor: Allen Tannenbaum (expected)
 - Research Focus: Signal Processing, Computer Vision
Stochastic Optimization
- Master of Science in Electrical Engineering August 2006 – May 2009
- Bachelor of Science in Electrical Engineering August 2003 – May 2006
 - Academic Advisor: Arthur Koblasz
 - Research Focus: Medical Devices and Diagnostics
 - Highest Honors

Honors: **Outstanding Graduate Teaching Assistant** August 2006 – May 2007

- Awarded by the Department of Electrical and Computer Engineering for outstanding teaching performance by a graduate teaching assistant.

President's Undergraduate Research Award August 2005 – May 2006

- Awarded by Georgia Tech for past and on-going research projects. Funds in the amount of \$1500 were also given for travel and conducting research.

Experience: **Minerva Research Group, Georgia Tech** Atlanta, GA *Graduate Research Assistant* May 2007 – Present

- Developed a segmentation technique based on prediction theory with applications in medical imaging. This work has resulted in 2 publications.
- Developed a point set registration technique that employs stochastic optimization with applications in medical imaging. This work has resulted in 2 publications.
- Developed a coupled 2D-3D pose estimation and segmentation technique for applications in visual tracking. This work has resulted in 3 publications.
- Currently exploring the “cocktail party” problem or blind source separation with applications to jitter reduction for the airborne laser system.

Computer Vision Consultant May 2007 – Present

- Managed and worked with groups of 2-4 members on 5 separate consulting contracts to create advanced real-time visual tracking systems.
- Customers have included United Technologies, General Dynamics, Sikorsky Aircraft Corporation, Trex Enterprises, and MIT-Lincoln Laboratories.

School of Electrical Engineering, Georgia Tech Atlanta, GA *Graduate Teaching Assistant* August 2006 – May 2007

- Taught two undergraduate circuits design lab courses consisting of ~40 students.
- Responsibilities included instructing and assigning grades based on tests, homeworks, and lab exercises.
- Received the outstanding teaching assistant award.

About Me: **Activities:** IEEE Member, HKN Member, SIAM Academic Journal Reviewer
Interests: Soccer, Poetry, Running, and Blogging
Computing: Knowledge in C/C++ and MATLAB
Citizenship: United States Citizen

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Publications: Refereed Journal Publications

Romeil Sandhu, Samuel Dambreville, and Allen Tannenbaum. “Point Set Registration Via Particle Filtering and Stochastic Dynamics.” *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2009. Note: Accepted – In Print.

Romeil Sandhu, Samuel Dambreville, Anthony Yezzi, and Allen Tannenbaum. “A Non-Rigid Kernel Based Framework for 2D3D Pose Estimation and 2D Image Segmentation.” *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2009. Note: In Submission.

Yi Gao, **Romeil Sandhu**, Gabor Fichtinger, and Allen Tannenbaum. “A Coupled Global Registration and Segmentation Framework with Application to Magnetic Resonance Prostate Imagery.” *IEEE Transactions on Medical Imaging (TMI)*, 2009. Note: In Submission.

Samuel Dambreville, **Romeil Sandhu**, Anthony Yezzi, and Allen Tannenbaum. “A Geometric Approach to Joint 2D Region-Based Segmentation and 3D Pose Estimation Using a 3D Shape Prior.” *Society for Industrial and Applied Mathematics (SIAM)*, 2008. Note: In Submission.

Selected Conference Publications

Romeil Sandhu, Samuel Dambreville, Anthony Yezzi and Allen Tannenbaum. “Non-Rigid 2D-3D Pose Estimation and 2D Image Segmentation.” *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2009. pp. 786-793. Note: Acceptance Rate – 26.2%

Romeil Sandhu, Shawn Lankton, Samuel Dambreville, and Allen Tannenbaum. “Statistical Shape Learning for 3D Tracking.” *Proceedings of the IEEE Conference on Decision and Control (CDC)*, December 2009. Note: Acceptance Rate ~ 40%.

Samuel Dambreville, **Romeil Sandhu** Anthony Yezzi and Allen Tannenbaum. “Robust 3D Pose Estimation and Efficient 2D Region-Based Segmentation from a 3D Shape Prior.” *Proceedings of the European Conference on Computer Vision (ECCV)*, October 2008. pp. 169-182. Note: Acceptance Rate – 27.9%

Romeil Sandhu, Samuel Dambreville, and Allen Tannenbaum. “Particle Filtering for Registration of 2D and 3D Point Sets with Stochastic Dynamics.” *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2008, pp. 1-8. Note: Acceptance Rate – 31.9%

Romeil Sandhu, Tryphon Georgiou, and Allen Tannenbaum. “Tracking with a New Distribution Metric in a Particle Filtering Framework.” *Proceedings of the IS&T/SPIE Symposium on Electronic Imaging*, 2008. Vol. 6914. Note: Acceptance Rate – N/A

Romeil Sandhu, Tryphon Georgiou, and Allen Tannenbaum. “A New Distribution Metric for Image Segmentation.” *Proceedings of the SPIE Medical Imaging*. March 2008. Vol. 6813. Note: Acceptance Rate – N/A