Todd A. Hester

5207 Wayborne Hill Dr.
Austin, TX 78723
508-816-3495

todd at cs.utexas.edu
www.toddhester.net

Education

Pre-Candidate for Doctor of Philosophy in Computer Science, University of Texas at Austin, Austin, TX
Researching Robotics and Reinforcement Learning

Bachelor of Science in Computer Engineering, Summa Cum Laude, Northeastern University, Boston, MA, April 2005
Capstone Design Project: Portable Muscle Oxygenation Detector

Experience

Spaulding Rehabilitation Hospital, Boston, MA May 2005-June 2006
Collected data for studies using wearable technology to evaluate movement abilities in different patient populations. Designed amplification units for use in motor unit recordings. Wrote Labview software to collect and view data from motor units. Wrote Matlab software to extract features from accelerometers and EMG to be used to predict clinical scores for Parkinson's Disease and stroke populations. Used pattern recognition techniques such as artificial neural networks, self-organizing maps, clustering, and principal components analysis to predict clinical scores and help with clinical decision-making.

Motorola, Marlborough, MA June-December 2004
Analyzed, reproduced, and debugged customer issues with the BSR64000 broadband cable router. Made visits to customers sites for further debugging of problems. Solved issues with a combination of software fixes or configuration changes. Helped to architect the next generation broadband cable router design.

Sun Microsystems, Burlington, MA June-December 2003
Wrote Perl scripts to automate various processes and routines. Worked on circuit design and layout for the UltraSparc V. Ran back end tools and spice simulations on designs. Maintained, tested, and characterized custom latch and flop library.

Air Force Research Lab, Hanscom AFB, MA Fall 2001, Spring 2002, Winter 2003
Worked with another student on a project to build a temperature controller device to drive multiple devices in a hyperspectral imager. Programmed 8052 microprocessor and GUI and designed and built the circuits to control the temperatures. Designed and fabricated various printed circuit boards for the device. Worked on design and programming for multiple stepper motor drives. Worked on board layout and programming to interface sensors through USB.

Northeastern University, Boston, MA Fall 2000
Taught AutoCAD to the freshmen engineering design classes.

Journal Publications

S. Patel, **T. Hester**, R. Hughes, N. Huggins, A. Flaherty, D. Standaert, J. Growdon, and P. Bonato, "Processing Wearable Sensor Data to Optimize Deep-Brain Stimulation," In *IEEE Pervasive Computing*, Jan 2008.

Conference Publications

T. Hester and P. Stone, "Negative Information and Line Observations for Monte Carlo Localization," In *IEEE International Conference on Robotics and Automation (ICRA)*, May 2008.

N. Jong, **T. Hester**, and P. Stone, "The Utility of Temporal Abstraction in Reinforcement Learning," In *The Sixth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2008.

P. Boissy, **T. Hester**, D. M. Sherrill, H. Corriveau, and P. Bonato, "Monitoring Mobility Assistive Device Use in Post-Stroke Patients," in *Proceedings of the 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, August 2007.

S. Patel, **T. Hester**, R. Hughes, N. Huggins, D. Standaert, A. Flaherty, and P.Bonato, "Using Wearable Sensors to Enhance DBS Parameter Adjustment for Parkinson's Disease Patients Through Measures of Motor Response," in *Proceedings of the 3rd IEEE EMBS International Summer School and Symposium on Medical Devices and Biosensors*, September 2006.

T. Hester, D. M. Sherrill, M. Hamel, K. Perreault, P. Boissy, and P. Bonato, "Identification of Tasks Performed by Stroke Patients Using a Mobility Assistive Device," in *Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, August – September 2006.

P. Boissy, **T. Hester**, D. M. Sherrill, H. Corriveau, and P. Bonato, "Monitoring Mobility Assistive Device Use in Patients After Stroke," in *Proceedings of the 16th Congress of the International Society of Electrophysiology and Kinesiology*, June – July 2006.

T. Hester, R. Hughes, D. M. Sherrill, S. Patel, N. Huggins, A. Flaherty, D. Standaert, and P. Bonato, "Adjusting DBS Settings to Optimize Parkinson's Control Therapy," in *Proceedings of the 16th Congress of the International Society of Electrophysiology and Kinesiology*, June – July 2006.

T. Hester, D. M. Sherrill, M. Hamel, K. Perreault, P. Boissy, and P. Bonato, "Using Wearable Sensors to Analyze the Quality of Use of Mobility Assistive Devices," in *Proceedings of the Third Annual International Workshop on Wearable and Implantable Body Sensor Networks*, April 2006.

T. Hester, R. Hughes, D. M. Sherrill, B. Knorr, M. Akay, J. Stein, and P. Bonato, "Using Wearable Sensors to Measure Motor Abilities following Stroke," in *Proceedings of the Third Annual International Workshop on Wearable and Implantable Body Sensor Networks*, April 2006.

S. Patel, D. Sherrill, R. Hughes, **T. Hester,** N. Huggins, T. Lie-Nemeth, D. Standaert, and P. Bonato, "Analysis of the Severity of Dyskinesia in Patients with Parkinson's Disease via Wearable Sensors," in *Proceedings of the Third Annual International Workshop on Wearable and Implantable Body Sensor Networks*, April 2006.

Conference Presentations

P. Bonato, A. Flaherty, **T. Hester**, N. Huggins, R. Hughes, S. Patel, D. Standaert, and M. Welsh, "Wearable Systems to Improve Parkinson's Control Therapy," presented at *pHealth 2006: International Workshop on micro- and nanosystems for Personalized Health*, Luzern, Switzerland, 2006.

P. Bonato, T. Fulford-Jones, A. Flaherty, **T. Hester**, N. Huggins, R. Hughes, M. John, D. Standaert, and M. Walsh, "Wearable Systems to Optimize Parkinson's Control Therapy by Deep Brain Stimulation," presented at the *CIMIT Annual Briefing*, Boston, MA 2005.

M. Stanton, M. Leammukda, **T. Hester**, J. Randall, and J. Yong, "Portable Muscle Oxygenation Detector," presented at the *Soren Buus Memorial Research Workshop*, Boston, MA, 2005.

Honors

Microelectronics and Computer Development Graduate Fellowship
Ell Scholar
Northeastern University Honors
Sears B. Condit Award
Capstone Competition Winner

Society Memberships

Tau Beta Pi
Eta Kappa Nu