

Objective: Seeking a full-time position (December 2010) that will utilize my background in signal processing, detection/estimation theory, and pattern recognition to address challenging problems.

Education

Massachusetts Institute of Technology (MIT) Cambridge, MA

- PhD Candidate in the Harvard-MIT Division of Health Sciences and Technology (HST) (December 2010)
 - Thesis topic: Single-channel audio source separation with application to automatic speaker recognition
- SM in Electrical Engineering 2008, *GPA 5.0/5.0*
 - Thesis: Exploiting Pitch Dynamics for Speech Spectral Estimation Using a Two-Dimensional Processing Framework

Georgia Institute of Technology (Georgia Tech) Atlanta, GA

- BS with Highest Honors in Electrical Engineering 2005, *GPA 4.0/4.0*
 - Senior Design Project: Medical Diagnostic Software Package for Alzheimer's and Parkinson's disease.

Coursework: Discrete-time Signal Processing, Image Processing, Automatic Speech Recognition, Applied Probability, Algorithms for Estimation and Inference, Inference and Information (listener), Linear Algebra, Engineering Software Design

Work Experience

Graduate Research Assistant/Summer Intern, MIT Lincoln Laboratory (2006 - present) Lexington, MA

- Explored auditory models for acoustic feature extraction in speaker recognition [6].
- Formulated and developed novel formant analysis methods [3, 4].
- Explore two-dimensional processing approaches to single-channel audio source separation problem [1, 2].
- Brief high-level government officials to obtain research funding.

President's Undergraduate Research Award, Georgia Tech (2004 – 2005) Atlanta, GA

- Implemented and evaluated pattern recognition algorithms to assess feasibility of in-the-car face recognition system.
- Assisted in data collection of infrared face images used in recognition system.

National Science Foundation Summer Intern: Landmark-based Speech Recognition Team, Center for Language and Speech Processing – Johns Hopkins University (2004) Baltimore, MD

- Applied signal processing methods and support vector machines to detect acoustic phonetic features in speech [5, 7].
- Implemented cross validation module for tuning support vector machine classifier parameters [7].

Undergraduate Research Intern, Georgia Tech (2003 – 2004) Atlanta, GA

- Explored pattern recognition methods for user-trait (e.g., age, gender) classification of computer mouse movements.

Teaching Assistant, MIT Department of Electrical Engineering and Computer Science (2008)

- Led tutorial sessions and formulated exam questions for "Introduction to Communications, Control, and Signal Processing".

Lecturer, HST Short Course on Computational Modeling and Simulation (2008)

- Led 2-hour short-course in computational modeling and simulation attended by first-year HST students.

Refereed Publications

- [1] **T. T. Wang** and T.F. Quatieri, "Towards Co-channel Speaker Separation by 2-D Demodulation of Spectrograms," IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, New Paltz, NY, USA, October 2009.
- [2] **T. T. Wang** and T.F. Quatieri, "2-D Processing of Speech for Multi-pitch Analysis," 10th Annual Conference of the International Speech Communication Association, Brighton, UK, September 2009.
- [3] **T. T. Wang** and T.F. Quatieri, "High-pitch Formant Estimation by Exploiting Temporal Change of Pitch," IEEE Transactions on Audio, Speech, and Language Processing (in press).
- [4] **T. T. Wang** and T.F. Quatieri, "Exploiting Temporal Change of Pitch in Formant Estimation," IEEE International Conference on Acoustics, Speech, and Signal Processing. Las Vegas, NV, USA, April 2008.
- [5] M. Hasegawa-Johnson, J. Baker, S. Borys, K. Chen, E. Coogan, S. Greenberg, A. Juneja, K. Kirchhoff, K. Livescu, S. Mohan, J. Muller, K. Sonmez, **T. Wang**, "Landmark-Based Speech Recognition: Report of the 2004 Johns Hopkins Summer Workshop," IEEE International Conference on Acoustics, Speech, and Signal Processing. Philadelphia, PA, USA, March 2005.

Technical Reports

- [6] **T.T. Wang** and T.F. Quatieri. Auditory Modeling as a Basis for Spectral Modulation Analysis with Application to Speaker Recognition. MIT Lincoln Laboratory Technical Report 1119. January 2007.
- [7] M. Hasegawa-Johnson, J. Baker, S. Borys, K. Chen, E. Coogan, S. Greenberg, A. Juneja, K. Kirchhoff, K. Livescu, S. Mohan, J. Muller, K. Sonmez, **T. Wang**, "Landmark-Based Speech Recognition: Report of the 2004 Johns Hopkins Summer Workshop," Technical Report. January 2005.

Leadership

Founding Member, HST Resources for Easing Friction and Stress (REFS), Peer Counseling Program (2008 - present)
Treasurer, HST Graduate Student Council (2008 – present)
Social Chair, Institute of Electrical and Electronic Engineers (IEEE), Georgia Tech Branch (2004)

Technical Skills

MATLAB, C/C++, Unix and Windows platforms, Microsoft Office