Daniel Leeds

4400 Fifth Avenue
Room 116B, Mellon Institute
Pittsburgh, PA 15213
dleeds@andrew.cmu.edu

EDUCATION

Carnegie Mellon University: **Pittsburgh, PA**
Candidate for Ph.D. in Neural Computation, June 2013
M.Sc., Robotics, January 2010
Relevant Courses: Machine Learning; Computer Vision; Computational Neuroscience Methods; Optimization

Massachusetts Institute of Technology   **Cambridge, MA**
M.Eng., Electrical Engineering and Computer Science (EECS), June 2006, GPA: 4.8/5.0
S.B., EECS, June 2005, GPA: 4.8/5.0
Relevant Courses: Machine Learning; Artificial Intelligence; Introduction to Communication, Control, and Signal Processing; Introduction to Algorithms; Probabilistic Systems Analysis; Laboratory in Software Engineering; Differential Equations

WORK EXPERIENCE

Carnegie Mellon University: **Pittsburgh, PA**
Tarr Lab
January 2010–Present. Graduate Student. Working on models of object recognition in the brain, incorporating work in computer vision and machine learning. Developing methods to determine fMRI voxel-based selectivities in the later stages of ventral stream vision pathway.

Carnegie Mellon University: **Pittsburgh, PA**
Laboratory for Computational Perception
September 2006–January 2010. Graduate Student. Worked on hierarchial encoding of audio signals for acoustic object recognition. Developed algorithms to learn non-linear, stochastic structure in spike codes developed by Smith and Lewicki.

Massachusetts Institute of Technology: **Cambridge, MA**
Computer Science / Artificial Intelligence Laboratory (CSAIL)
January 2004–June 2006. Researcher. Collaborated with professor in CSAIL and physicians at the Massachusetts General Hospital and a Department of Veterans Affairs Hospital to create software to help diagnose valvular defects from heart sounds. Tested methods for feature extraction and representation to give intuitive visualizations of acoustic data. Noted accuracy of medical practitioners' diagnoses.

New York University: Courant Institute of Mathematical Sciences   **New York, NY**
June 2003–August 2003. Technical Assistant. Collaborated with professor in Secure Computer Systems Group to design high-speed implementation of message authentication code. Developed structures to enhance program for remote login, to enable seamless resumption of interrupted sessions.

Massachusetts Institute of Technology: Media Laboratory   **Cambridge, MA**
January 2003–May 2003. Researcher. Collaborated with graduate student to improve isolation and analysis of human voices in recorded conversations in order to model interactions in a work group.

Massachusetts Institute of Technology: **Cambridge, MA**
Research Laboratory of Electronics
March 2002–August 2003. Undergraduate Research Opportunities Program Student. Collaborated with other scientists preparing data from a study on human speech production for statistical analysis; formulated novel method of formant extraction; worked on planned comparisons among acoustic and kinematic parameters as well as among speech conditions.
Assisted in preparation of grant proposal. Provided ideas on final analyses.

Rockefeller University: Laboratory of Mathematical Physics   **New York, NY**
June 2000–August 2001. Outreach Student. Collaborated with post-doctoral research associate to perform innovative research on Zebra Finch communication, revealing structure of language recognition, significant in the development of artificial intelligence. Results were presented internationally and recognized in Intel Science Talent Search.
Collaborated with post-doctoral fellow and others to reveal structure in neural activity in a manner feasible for characterization by differential equations. Developed imaging and data processing software of significant utility in ongoing project.

Polytechnic University: Department of Mechanical Engineering   **Brooklyn, NY**
July 1999–August 1999. Summer Institute Student. Collaborated with graduate student to improve operation of an active autonomous solar radiation tracking and acquisition unit.

PUBLICATIONS

M Dogar, V Hemrajani, D Leeds, B Kane, and S Srinivasa, "Proprioceptive localization for mobile manipulators." Pittsburgh, PA: CMU; 2010. CMU-RI-TR-10-05.
Z Syed, D Leeds, D Curtis, F Nesta, RA Levine, and J Guttag, "A Framework for the Analysis of Acoustical Cardiac Signals", *IEEE Trans Biomed Eng.*, 54(4), Apr 2007.

CONFERENCE PRESENTATIONS AND PROCEEDINGS

DD Leeds, DA Seibert, JA Pyles, and MJ Tarr, "Uncovering the visual components of cortical object representation," *Statistical Analysis of Neural Data*, May 2012.
DA Seibert, DD Leeds, JA Pyles, and MJ Tarr, "Exploring computational models of visual object perception," *Vision Sciences Society*, May 2012.
DD Leeds, DA Seibert, JA Pyles, and MJ Tarr, "Unraveling the visual and semantic components of object representation," *Vision Sciences Society*, May 2011.
DD Leeds and MJ Tarr, "Searching for the visual components of cortical object representation," *Temporal Dynamics of Learning Center All Hands Meeting*, January 2011.
Z Syed, D Leeds, D Curtis, and J Guttag, "Audio-visual tools for computer-assisted diagnosis of cardiac disorders," *Computer Based Medical Systems 2006*, June 2006.

TEACHING

Principles of Programming Languages (CMU): *Fall 2007* Teaching assistant
Computation Structures (MIT): *Spring 2006* Teaching assistant

HONORS AND ACTIVITIES

Presidential Fellow in the Life Sciences: Awarded in 2010
National Science Foundation Integrative Graduate Education and Research Training Fellow: Awarded in 2010
National Science Foundation Graduate Research Fellow: Awarded in 2006
Tau Beta Pi (Engineering Honor Society): Granted membership in February 2004
Eta Kappa Nu (Electrical and Computer Engineering Honor Society): Granted membership in April 2004; *June 2005–May 2006* Big Sibs Program Chair and participant.
EECS Associate Advising: *September 2005–May 2006*
Freshman Advising Seminar: *August 2001–June 2002* Associate Advisor. Advised freshmen. Recommended revisions to curriculum and helped organize seminar discussions.