Theresa M. Desrochers

Brown University, CLPS
Box 1821 - Metcalf Lab
190 Thayer Street
Providence, RI 02912
office: (401) 863-5197
Theresa_Desrochers@brown.edu

EDUCATION

Massachusetts Institute of Technology (MIT)**,** Cambridge, MA, 2001-2010
Ph.D. in Brain and Cognitive Sciences (BCS), Feb. 2011, Area of Specialization: Systems Neuroscience

New York University (NYU), New York, NY, 1996-2000
B.S. in Neural Science, minor in Science Education, magna cum laude with honors

AWARDS and HONORS

Brown University NIMH Training Grant (NIMH T32), January 2012
Eye Movement Gordon Conference travel fellowship, August 2011
Friends of the McGovern Institute Graduate Student Fellow, 2008-2009
Angus MacDonald Award for Excellence in Undergraduate Teaching, BCS, MIT, 2006
Dean's Educational and Student Advising Award, School of Science, MIT, 2004
National Defense Science and Engineering Graduate (NDSEG) Fellowship, 2002- 2005
National Science Foundation Graduate Research Fellowship Honorable Mention, 2002
Phi Beta Kappa/Albert Borgman Prize, CAS, NYU: Best honors thesis in the Natural Sciences, 2000
Sherrington Prize, CNS, NYU: Best undergraduate senior thesis in Neural Science, 2000
Wang Prize, CAS, NYU: Best undergraduate science presentation, 2000
University Honors Scholar, NYU, 2000; National Merit Scholar, 1996

RSEARCH EXPERIENCE

Postdoctoral Research: CLPS, Brown, Jan. 2012-present, (research advisor: Dr. David Badre)

- Investigating the control and monitoring of hierarchical task sequences using fMRI

Postdoctoral Research: BCS, MIT, Jan. 2011-Dec. 2011, (research advisor: Dr. Ann M. Graybiel)

- Analysis of neural data from ~100 chronically implanted and independently moveable electrodes in the prefrontal cortex, frontal eye fields, and striatum acquired during habit formation

Doctoral Research: BCS, MIT, 2001-2010, (research advisor: Dr. Ann M. Graybiel)

- Thesis title: *The nature of habits in the nonhuman primate: the formation of sequences of eye movements and neural activity in the frontal eye field.*
- Developed the ability to record chronically from over 100 independently moveable electrodes implanted in multiple cortical and subcortical brain areas
- Developed and analyzed eye movement task to examine natural habit formation and test the limits of reinforcement learning theory

Undergraduate Honors Research: CNS, NYU, 1998-2000, (research advisor: Dr. Joseph E. LeDoux, supervisors: Dr. Jeff Muller and Dr. Chris Repa)

- Honors Thesis title: *Cross correlations between cell pairs in the lateral nucleus of the amygdala and the auditory thalamus show significantly greater changes after fear conditioning than cell pairs in surrounding areas.*
- Contributed to all aspects of chronic awake, behaving rodent electrophysiology: training, surgery, recording, perfusion, histology, cell sorting, and analysis

PUBLICATIONS

J. Feingold*, **T.M. Desrochers***, N. Fujii*, R. Harlan, P.L. Tierney, H. Shimazu, K. Amemori, and A.M. Graybiel. A system for recording neural activity chronically and simultaneously from multiple cortical and subcortical regions in non-human primates. *J Neurophysiology*, 2011 Dec 14. [Epub ahead of print] *these authors contributed equally to the work.

T.M. Desrochers, D.Z. Jin, N.D. Goodman, and A.M. Graybiel. Optimal habits can develop spontaneously through sensitivity to local cost. *PNAS*, 107 (47):20512-7, 2010.

J.C. Repa, J. Muller, J. Apergis, **T.M. Desrochers**, Y. Zhou, and J.E. LeDoux. Two different lateral amygdala cell populations contribute to the initiation and storage of memory. *Nature Neuroscience*, 2001, 4, 7, 724-731.

SELECTED ABSTRACTS

T.M. Desrochers, D.Z. Jin, N.D. Goodman, and A.M. Graybiel. Uninstructed monkey eye movement patterns driven by reward in a naturalistic free-viewing scan task. *Society for Neuroscience* (SfN) meeting November 2010. Program # 77.18, Poster # RR13.

T.M. Desrochers and A.M. Graybiel. FEF neural responses during uninstructed, optimal eye movements in a free-viewing scan task. Frontiers in Systems Neuroscience. Conference Abstract: *Computational and systems neuroscience* (COSYNE) February 2009. doi: 10.3389/conf.neuro.06.2009.03.177

J. Feingold*, N. Fujii*, **T.M. Desrochers-Feledy**, R. Harlan and A.M. Graybiel. A method for recording neural activity simultaneously from independently moveable, chronically implanted electrodes in cortical and sub-cortical areas of monkeys. *Neural Coding Computation and Dynamics* (NCCD) meeting September 2007.

T.M. Feledy, J. Feingold, D.Z. Jin and A.M. Graybiel. Optimal eye-movement paths emerge as monkeys perform a free-viewing scan task. *Computational and Systems Neuroscience* (COSYNE) conference February 2007, Abstract # 188, Poster # II-45.

T.M. Feledy, J. Feingold, D.Z. Jin and A.M. Graybiel. Eye-movement patterns emerge as monkeys perform a free-viewing scan task. *Society for Neuroscience* (SfN) meeting October 2006, Program # 48.12, Poster # H11

T.M. Feledy, J. Feingold, N. Fujii, R. Harlan and A.M. Graybiel. Chronic multielectrode recording in the macaque. *Okinawa Computational Neuroscience Course* (OCNC) July 2005, poster.

T.M. Desrochers, J. Muller, J.C. Repa, J. Apergis, and J.E. LeDoux. Cross correlations between cell pairs in the lateral nucleus of the amygdala and the auditory thalamus show significantly greater changes after fear conditioning than cell pairs in surrounding areas. *Society for Neuroscience Abstracts*, 2000, 26, 1-2, 466.6

TALKS and PRESENTATIONS

Eye Movement Gordon Conference Young Investigator Talk, August 2011
Harvard Visual Attention Lab seminar series, April 2010
MIT McGovern Institute for Brain Research Retreat, June 2008

WORKSHOPS and COURSES

Path of Professorship Workshop, MIT, Oct. 22-23, 2010
Multi-Modal Short Course, Martinos Center for Biomedical Imaging, MGH, May 17-28, 2010
Okinawa Computational Neuroscience Course (OCNC), OIST, July 1-10, 2005
CNS, NYU, Summer Undergraduate Research Program, June-August, 1999

TEACHING and MENTORING EXPERIENCE

Supervisor for students in the Undergraduate Research Opportunity Program (UROP), MIT

Lulu Wang	September 2009 – May 2011
Allison Quach	June 2008 – May 2011
Daniela Yuschenkoff	January 2011 – May 2011
Geoffrey Diehl	June 2010 - August 2010, January 2011
Lauren Habenicht	October 2007 - May 2009
Jennifer Sim	January 2007 - August 2007

Volunteer Activity Leader for Women in Science and Engineering Conference, MIT, October 2005
Teaching Assistant, Laboratory in Systems Neuroscience, BCS, MIT, Spring 2005
Head Teaching Assistant, Introduction to Psychology, BCS, MIT, Fall 2003
Teaching Assistant, Introduction to Psychology, BCS, MIT, Fall 2002
Founder and Chair of BCS Interview Weekend Committee, MIT, Fall 2002 - Summer 2007
Volunteer Teaching Assistant, Introduction to Neuroanatomy, BCS, MIT, January 2002
High School Teacher, Merrimack High School, Merrimack, NH, September 2000 - June 2001
- 9th grade Physical Science
- 10th grade Biology
- 12th grade Anatomy and Physiology

Group Leader, Inst. for the Academic Advancement of Youth at NYU "Mind and Brain: the Inner Frontier", December 1998
Student Teacher, Manhattan Comprehensive Night and Day High School, New York, NY, Feb. - June 2000
- Biology for mostly non-native English speakers
- Coordinated text book donation (students previously working without a book)

Memberships

Sigma Xi, 2011
American Association for the Advancement of Science (AAAS), 2000-present
Society for Neuroscience, 2006-present
Phi Beta Kappa, 1999
Alumnae Scholar's Circle, 1997
Baird Scholar's Group, 1996

Activities

Fourth-degree black belt, American Shaolin Kempo Karate, 1994-present
Basic conversational abilities in Spanish and Italian