

Shawn W. Ell

Curriculum Vitae

Associate Professor
Department of Psychology
Graduate School of Biomedical Sciences &
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updated: 2/15/2019

Research Interests

Basal ganglia, categorization, cognitive neuroscience, computational modeling, explicit learning, implicit learning, neurocomputational modeling, Parkinson's disease, prefrontal cortex, rule-guided behavior, stress and cognition, working memory

Educational Background

Postdoctoral Fellowship in Cognitive Neuroscience (September 2003 – December 2006)
University of California, Berkeley
Mentor: Rich Ivry

Ph.D. in Cognitive Psychology with an emphasis in Quantitative Methods (August 2003)
University of California, Santa Barbara
Dissertation: Selection and switching in rule-based category learning
Advisor: F. Gregory Ashby, Ph.D.

B.A. in Psychology (December 1997). Miami University

Professional Experience

Associate Professor, Department of Psychology, University of Maine, 9/2013 – present.

Assistant Professor, Department of Psychology, University of Maine, 1/2007 – 8/2013.

Faculty, Maine Graduate School of Biomedical Sciences & Engineering, 5/2008 – present.

Affiliate Scientist, Maine Institute for Human Genetics and Health, 2/2010 – 1/2013.

Postdoctoral Researcher, Helen Wills Neuroscience Institute, University of California, Berkeley, 9/2003 - 12/2006. Supervisor: Rich Ivry, Ph.D.

Graduate Research Assistant, Department of Psychology, University of California, Santa Barbara, 6/2002 - 8/2003. National Institute of Mental Health Grant R01 MH063760, The cognitive neuroscience of human category learning. Principal Investigator: F. Gregory Ashby, Ph.D.

Graduate Research Assistant, Department of Psychology, University of California, Santa Barbara, 1999-2002. National Science Foundation Grant BCS99-75037, Perceptual and cognitive processes in category learning. Principal Investigator: F. Gregory Ashby, Ph.D.

Research Support and Related Funding

Ongoing

National Science Foundation (Award #BCS-1349677 and BCS-1349737)

Title: Collaborative Research: A behavioral and computational investigation of category representation: Generality and transfer

Date: 7/2014 – 6/2019

Role: Principal Investigator

PIs: Sebastien Hélie, Shawn EII

Amount: \$630,856 (\$260,086 to the University of Maine)

Goal: To use behavioral, computational, and neural techniques to investigate the conditions that promote the learning of different knowledge representations and the utility of different knowledge representations for supporting generalization.

University of Maine Scholarly Materials and Equipment Award

Title: Functional Near Infrared Spectroscopy System

Date: 12/2018

Role: Principal Investigator

Amount: \$10,690

Goal: This proposal funds the purchase of a functional near-infrared spectroscopy system

Submitted

National Science Foundation

Title: MRI: Acquisition of a high-performance computing instrument to support deep learning, modeling/simulation, and visualization for STEM

Role: Senior Personnel

PIs: Roy Turner, Peter Koons, Bruce Segee, Jean-Sebastien Senecal, Huijie Xue

Amount: \$674,276

Completed

University of Maine Regular Faculty Research Award

Title: The enhancing and impairing effects of stress on cognition: An R01 pilot data proposal

Date: 1/2013 – 6/2014

Role: Principal Investigator

PIs: Shannon McCoy, Shawn EII

Amount: \$11,938

Goal: To examine adaptive (challenge) and maladaptive (threat) reactivity to acute social-evaluative stress and the consequences for different cognitive systems and to identify the impact of activating different physiological stress responses (i.e., sympathetic adrenal medullary (SAM) and hypothalamic pituitary adrenal (HPA) stress responses) on different cognitive systems

1R21CA143619-01A1

National Institutes of Health (National Cancer Institute)

Title: Videoconference CBT for rural breast cancer survivors with Cognitive Complaints

Date: 9/2011 – 8/2014

Role: Statistics Consultant

PI: Robert J. Ferguson, Ph.D., Eastern Maine Healthcare Systems

University of Maine Summer Faculty Research Award

Title: Motivation is key: An investigation of the impact of a match between motivational state and motivational incentives as a tool to improve cognitive performance in individuals with Parkinson's disease and older adults

Date: 6/2014 – 7/2014

Role: Principal Investigator

Amount: \$7500

Goal: Translate basic cognitive neuroscience research on the interface between motivation and cognition into training protocols designed to attenuate the impairment in selective-attention-demanding category learning tasks observed in patients with Parkinson's disease.

Intelligence Advanced Research Projects Activity (IARPA), Office of Inceptive Analysis (Announcement: IARPA-BAA-10-04): Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking (ICArUS)

Title: FRamework for Analogy and Memory Embodied in Spiking neurons (FRAMES)

Date: 12/2010 – 12/2012

Role: Subcontractor specializing in the basal ganglia, reinforcement learning, and rule-guided behavior

PI: Paul Kogut, Ph. D., Lockheed Martin IS&S

Amount: \$191,903 (total costs)

Goal: To construct brain-based computational models of the process known as sensemaking

Maine Institute for Human Genetics and Health

Title: Treating cognitive dysfunction in Parkinson's disease: A cognitive neuroscience-based approach to attenuating deficits of selective attention

Date: 1/2008 – 12/2008

Role: Principal Investigator

Co-PI: Edward Drasby, D.O., Neurologist - Port City Neurology

Amount: \$10,000 (total costs)

Goal: To apply rigorous methodological and analytical techniques from cognitive psychology to the problems of understanding and overcoming cognitive dysfunction in individuals with Parkinson's disease.

University of Maine Summer Faculty Research Award

Title: Treating cognitive dysfunction in Parkinson's disease: A cognitive neuroscience-based approach to attenuating deficits of selective attention

Date: 6/2008 – 7/2008

Role: Principal Investigator

Amount: \$7500

Goal: Translate basic cognitive neuroscience research into training protocols designed to attenuate the impairment in selective-attention-demanding category learning tasks observed in patients with Parkinson's disease.

F32 NS47884-01

National Institutes of Health (National Institute of Neurological Disorders and Stroke)

National Research Service Award

Title: The neural basis of category learning

Date: 3/2004 – 12/2006

Role: Principal Investigator

Amount: \$131,340 (direct costs)

Mentor: Richard B. Ivry
 Goal: Postdoctoral fellowship to examine neural substrates and computational components of category learning

Manuscript in Preparation (student co-authors are bolded)

Eil, S. W., & Maddox, W. T. Motivation is key: An investigation of the impact of a match between motivational state and motivational incentives as a tool to improve cognitive flexibility in older adults.

Eil, S. W., Hutchinson, S. B., **Smith, D. B.**, & McCoy, S. K. Delayed enhancement in rule-based category learning following acute psychosocial stress.

Manuscripts Under Review (student co-authors are bolded)

Eil, S. W., **Smith, D. B.**, **Deng, R.**, & Hélie, S. Learning and generalizing within-category representations in a rule-based category structure.

Hélie, S., **Shamloo, F.**, & Eil, S. W. The impact of training methodology and representation on rule-based categorization: An fMRI study.

Publications (student co-authors are bolded)

Hélie, S., **Shamloo, F.**, & Eil, S. W. (in press). The effect of training methodology and category structure on the formation of new categories from existing knowledge.

Hélie, S., **Shamloo, F.**, & Eil, S. W. (2017). The effect of training methodology on knowledge representation in perceptual categorization. *PLoS ONE*. DOI: 10.1371/journal.pone.0183904.

Eil, S. W., **Smith, D. B.**, **Peralta, G.**, & Hélie, S. (2017). The impact of category structure and training methodology on learning and generalizing within-category representations. *Attention, Perception, & Psychophysics*, *79*, 1777-1794. DOI: 10.3758/s13414-017-1345-2

Hélie, S., Turner, B. O., Crossley, M. J., Eil, S. W., & Ashby, F. G. (2017). Trial-by-trial identification of categorization strategy using iterative decision bound modeling. *Behavioral Research Methods*, *49*, 1146-1162. DOI: 10.3758/s13428-016-0774-5.

Thomas, R. D., Silbert, N. H., Grossman, E., & Eil, S. W. (2016). Identifying separable and integral dimensions using a selective attention comparison task. In J. W. Houpt and L. M. Blaha (Eds.), *Mathematical Models of Perception and Cognition: A Festschrift for James T. Townsend*. New York: Psychology Press.

Hélie, S., Eil, S. W., Filoteo, J. V., & Maddox, W. T. (2015). Criterion learning in rule-based categorization: simulation of neural mechanism and new data. *Brain and Cognition*, *95*, 19-34.

Hélie, S., Eil, S. W., & Ashby F. G. (2015). Learning robust cortical-frontal associations with the basal ganglia: An integrative review. *Cortex*, *64*, 123-135.

Smith, J. D., & Eil, S. W. (2015). One giant leap for categorizers: One small step for categorization theory. *PLoS ONE*. DOI: 10.1371/journal.pone.0137334.

McCoy, S.K., **Hutchinson, S.**, **Hawthorne, L.** Cosley, B., Eil, S. W. (2014). Is pressure stressful? The impact of pressure on the stress response and category learning. *Cognitive, Affective, and Behavioral Neuroscience*, *14*, 769-781.

Eil, S. W. (2013). Targeted training of the decision rule benefits rule-guided behavior in Parkinson's disease. *Cognitive, Affective, and Behavioral Neuroscience*, *13*, 830-846.

- Eil, S. W., & Ashby, F. G. (2012). The impact of category separation on unsupervised categorization. *Attention, Perception, & Psychophysics*, *74*, 466-475.
- Eil, S. W., Ashby, F. G., & **Hutchinson, S.** (2012). Unsupervised category learning with integral-dimension stimuli. *Quarterly Journal of Experimental Psychology*, *65*, 1537-1562.
- Eil, S. W., Hélie, S., & **Hutchinson, S.** (2012). Contributions of the putamen to cognitive function. In A. Costa and E. Villalba (Eds.), *Horizons in Neuroscience Research: Vol. 7*. Nova Science Publishers.
- Eil, S. W., & **Zilioli, M.** (2012). Categorical learning. In N. Seel (Ed.), *Encyclopedia of the Sciences of Learning*. New York: Springer.
- Eil, S. W., **Hutchinson, S.**, & Maddox, W. T. (2012). Explicit and procedural-learning based systems of perceptual category learning. In N. Seel (Ed.), *Encyclopedia of the Sciences of Learning*. New York: Springer.
- Eil, S. W., **Cosley, B.**, McCoy, S. K. (2011). When bad stress goes good: Increased threat reactivity to a psychosocial stressor predicts improved category learning performance. *Psychonomic Bulletin & Review*, *18*, 96-102.
- Eil, S. W., **Weinstein, A.**, & Ivry, R. B. (2010). Rule-based categorization deficits in focal basal ganglia lesion and Parkinson's disease patients. *Neuropsychologia*, *48*, 2974-2986.
- Schnyer, D. M., Maddox, W. T., Eil, S. W., Davis, S., Pacheco, J., Verfaellie, M. (2009). Prefrontal contributions to rule-based and information-integration category learning. *Neuropsychologia*, *47*, 2995-3006.
- Eil, S. W., **Ing, D. A.**, & Maddox, W. T. (2009). Criterial noise effects on rule-based category learning: The impact of delayed feedback. *Attention, Perception, & Psychophysics*, *71*, 1263-1275.
- Eil, S. W., & Ivry, R. B. (2008). Cerebellar pathology does not impair performance on identification or categorization tasks. *Journal of the International Neuropsychological Society*, *14*, 760-770.
- Eil, S. W. & Ashby, F. G. (2006). The effect of category overlap on the decision strategy in information-integration and rule-based category learning tasks. *Perception & Psychophysics*, *68*, 1013-1026.
- Eil, S. W., Marchant, N. L., & Ivry, R. B. (2006). Focal putamen lesions impair learning in rule-based, but not information-integration categorization tasks. *Neuropsychologia*, *44*, 1737-1751.
- Ashby, F. G., Eil, S. W., Valentin, V. V., & Casale, M. B. (2005). FROST: A distributed neurocomputational model of working memory maintenance. *Journal of Cognitive Neuroscience*, *17*, 1728-1743.
- Eil, S. W., & Ashby, F. G. (2004). Dynamical trajectories in category learning. *Perception & Psychophysics*, *66*, 1318-1340.
- Ashby, F. G., Eil, S. W., & Waldron, E. M. (2003). Procedural learning in perceptual categorization. *Memory & Cognition*, *31*, 1114-1125.
- Ashby, F. G., Noble, S., Filoteo, V., Waldron, E., & Eil, S. W. (2003). Category learning deficits in Parkinson's disease. *Neuropsychology*, *17*, 115-124.
- Ashby, F. G., & Eil, S. W. (2002). Single versus multiple systems of category learning: Reply to Nosofsky and Kruschke (2001). *Psychonomic Bulletin & Review*, *9*, 175-180.
- Ashby, F. G., & Eil, S. W. (2002). Single versus multiple systems of learning and memory. In J. Wixted (Ed.), *Steven's Handbook of Experimental Psychology: Vol. 4. Methodology (3rd ed.)*. New York: Wiley.

Ashby, F. G., & Eil, S. W. (2001). The neurobiology of human category learning. *Trends in Cognitive Sciences*, 5, 181-225.

Technical Reports

Eil, S. W., & Hélie, S. (2011). The basal ganglia. Technical report submitted to Lockheed Martin (Framework for Analogy and Memory Embodied in Spiking Neurons team) in support of the Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking (ICArUS) funding program.

Hélie, S., & Eil, S. W. (2011). The prefrontal cortex. Technical report submitted to Lockheed Martin (Framework for Analogy and Memory Embodied in Spiking Neurons team) in support of the Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking (ICArUS) funding program.

Published Abstracts (student co-authors are bolded)

Eil, S. W., **Weinstein, A.**, & Ivry, R. B. (2008). The effect of focal basal ganglia lesions on rule-based and information-integration category learning. *Journal of the International Neuropsychological Society*, 14 (S1), 223.

Schnyer, D. M., Maddox, W. T., Eil, S. W., Davis, S., & Verfaellie, M. (2008). Dissociating rule-based and information-integration category learning: Evidence from frontal lesion patients. *Journal of the International Neuropsychological Society*, 14 (S1), 224.

Invited Presentations

Eil, S. W. (2013, September). Multiple systems of category learning: Categorization as a tool for understanding cognitive process. Department of Exercise Science and STEM Education. University of Maine

Eil, S. W. (2012, April). Characterizing and improving rule-guided behavior in Parkinson's disease. Cognitive Psychology area, Psychology Department, University of Massachusetts, Amherst.

FRAMES (FRamework for Analogy and Memory Embodied in Spiking neurons) team (2010, November). Kickoff meeting for Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking (ICArUS) funding program. College Park, MD.

Eil, S.W. (2010, September). Parkinson's disease and cognition. Maine Institute for Human Genetics and Health, Bangor, ME.

Eil, S. W., & Drasby, E. (2009, October). Treating cognitive dysfunction in Parkinson's disease: A cognitive neuroscience-based approach to attenuating deficits of selective attention: A study update. Talk presented at the 3rd annual meeting of the Maine Neurogenetics Consortium, Biddeford, ME.

Eil, S. W. (2009, April). The impact of basal ganglia dysfunction on rule-based category learning. Psychology Department, University of Texas, Austin.

Eil, S. W. (2008, April). Parkinson's study update. Presented at the 6th annual Parkinson's Awareness Conference, Freeport, ME.

Eil, S. W. (2008, March). The cognitive neuroscience of category learning. Psychology Department, Colby College.

Eil, S. W., & Drasby, E. (2007, September). Treating cognitive dysfunction in Parkinson's disease: A cognitive neuroscience-based approach to attenuating deficits of selective attention. Talk presented at the 1st annual meeting of the Maine Neurogenetics Consortium Conference, Bar Harbor, ME.

Eil, S. W. (2007, May). The consequences of basal ganglia dysfunction for learning and memory. Talk presented at the annual meeting of the Maine Association of Psychiatric Physicians, Freeport, ME.

Conference Presentations (student co-authors are bolded)

Hélie, S., **Shamloo, F., Fansher, M.**, & Eil, S. W. (2019, March). Using fMRI to explore the effects of task instruction and response strategy. Poster presented at the 26th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Smith, D. B., Deng, R., Driscoll, A. B., Savoie, R., Hélie, S., & Eil, S. W. (2018, November). Learning and generalization of within-category representations in rule-based tasks? Poster presented at the 59th annual meeting of the Psychonomic Society, New Orleans, LA.

Smith, D. B., Deng, R., Hélie, S., & Eil, S. W. (2017, November). Can within-category representations be learned and generalized in rule-based tasks? Poster presented at the 58th annual meeting of the Psychonomic Society, Vancouver, BC.

Hutchinson, Z., Hélie, S., & Eil, S. W. (2017, March). sFROST: a Spiking Model of Working Memory Maintenance. Poster presented at the 24th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Smith, D. B. Hutchinson, S., McCoy, S. K., & Eil, S. W. (2017, March). Delayed enhancement in rule-based category learning following acute psychosocial stress. Poster presented at the 24th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Herron, K., Haroldsen, D., Peralta, G., D., Smith, D. B., Huff, R. M., Eil, S. W., & McCoy, S. K. (2017, January). Cognition under stress: The impact of social-evaluative stress during cognitive task performance. Poster presented at the annual meeting of the Society for Personality and Social Psychology, San Antonio, TX.

Peralta, G., Smith, D. B., Hélie, S., & Eil, S. W. (2016, November). The learning and generalization of within-category representations. Poster presented at the 57th annual meeting of the Psychonomic Society, Boston, MA.

Smith, D. B., Huff, R. M., Peralta, G., Herron, K., Eil, S. W., & McCoy, S. K. (2016, November). Cognition under stress: The impact of social-evaluative stress during cognitive task performance. Poster presented at the 57th annual meeting of the Psychonomic Society, Boston, MA.

Huff, R. M., Bogucki, O. E., Hutchinson, S. K., Goetze, R. E., Eil, S. W., McCoy, S. K. (2015, November). Stress and the Grocery Cart: Examining Gender Differences in Stress-Driven Food Choices. Poster presented at the 49th annual meeting of the Association for Behavioral and Cognitive Therapies. Chicago, IL.

Hélie, S., **Shamloo, F., Jellison, L. D.**, & Eil, S. W. (2015, November). Empirical cross-validation and generalization in perceptual categorization. Talk presented at the 56th annual meeting of the Psychonomic Society, Chicago, IL.

Szymula, L., Hutchinson, S., Heikkinen, M., Hélie, S., & Eil, S. W. (2015, November). The impact of category structure and training methodology on the acquisition and generalizability of within-category information. Poster presented at the 56th annual meeting of the Psychonomic Society,

Chicago, IL.

- Heikkinen, M., Rubin, N., Perry, E., Groat, A., Peralta, G., Hutchinson, S., Hélie, S., & Eil, S. W.** (2015, May). The impact of category structure and training methodology on the development and generalizability of within-category knowledge. Poster presented at the 6th annual meeting of Mainely Data, Biddeford, ME.
- Canzon, P., Boynton, C., Inkova, D., Peralta, G., Groat, A., Hutchinson, S., McCoy, S. K., & Eil, S. W.** (2015, May). The belated effects of acute stress on rule-based category learning. Poster presented at the 6th annual meeting of Mainely Data, Biddeford, ME.
- Perry, E., Beckwith, S., Hutchinson, S., & Eil, S. W.** (2015, May). The effects of time delay on rule-based category learning after exposure to cold-pressor stress. Poster presented at the 6th annual meeting of Mainely Data, Biddeford, ME.
- Groat, A., Inkova, D., Boynton, C., Peralta, G., Canzon, P., Hutchinson, S., McCoy, S. K., & Eil, S. W.** (2015, May). Delayed impact of stress on working memory performance in humans. Poster presented at the 6th annual meeting of Mainely Data, Biddeford, ME.
- Gilbert, C., Violette, S., Szymula, L., McCoy, S. K., & Eil, S. W.** (2015, May). The influence of self-control use on cognitive processing. Poster presented at the 6th annual meeting of Mainely Data, Biddeford, ME.
- Szymula, L., Maddox, W. T., & Eil, S. W.** (2015, March). The impact of a match between global and local incentives on categorization rule switching in individuals with Parkinson's disease and healthy older adults. Poster presented at the 22nd annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Eil, S. W., **Hutchinson, S. B., Hawthorne, L., Szymula, L., & McCoy, S. K.** (2014, November). Good things come to those who wait: Enhancement in a rule-based category learning task after social-evaluative stress. Talk presented at the 55th annual meeting of the Psychonomic Society, Long Beach, CA.
- Szymula, L., McCoy, S. K., & Eil, S. W.** (2014, November). The influence of self-control use on cognitive processing. Poster presented at the annual meeting of the 55th annual meeting of the Psychonomic Society, Long Beach, CA.
- Hutchinson, S. B., Hawthorne, L., Szymula, L., McCoy, S. K., & Eil, S.W.** (2014, November). A matter of time: Post-stress enhancement of rule-based category learning performance. Poster presented at the annual meeting of the Society for Neuroscience, Washington, D.C.
- Hutchinson, S. B., Hawthorne, L., Szymula, L., McCoy, S. K., & Eil, S.W.** (2014, August). Exploring the timeline of the acute stress response and impact on cognitive performance. Poster presented at the annual meeting of the International Society of Psychoneuroendocrinology, Montreal, Canada.
- Perry, E., & Eil, S. W.** (2014, April). An investigation of the effects of virtual social support on working memory and stress. Talk presented at the 5th annual meeting of Mainely Data, Orono, ME.
- Hutchinson, S., McCoy, S.K., Hawthorne, L., & Eil, S.W.** (2014, April). Investigating the physiological timeline of the human stress response and its impact on rule-based category learning. Talk presented at the 5th annual meeting of Mainely Data, Orono, ME.
- Szymula, L., McCoy, S. K., & Eil, S. W.** (2014, April). The influence of self-control use on cognitive processing. Talk presented at the 5th annual meeting of Mainely Data, Orono, ME.

- Tardiff, R., Hutchinson, S., Hawthorne, L., McCoy, S.K., & Eil, S.W.** (2014, April). An investigation of the differential effects of psychosocial stress appraisal on working memory Poster presented at the 5th annual meeting of Mainely Data, Orono, ME.
- Hutchinson, S. B., Hawthorne, L., Szymula, L., McCoy, S. K., & Eil, S.W.** (2014, April). The time-course of stress and its effects on rule-based category learning. Poster presented at the annual meeting of the Cognitive Neuroscience Society, Boston, MA.
- Hutchinson, S. B., Hawthorne, L., McCoy, S. K., & Eil, S.W.** (2013, November). Stress and pressure: Differential effects on physiological reactivity and cognitive performance. Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA.
- Hutchinson, S. B., McCoy, S. K., Hawthorne, L., & Eil, S. W.** (2013, November). Stress and pressure: Differential effects on physiological reactivity and cognitive performance. Poster presented at the annual meeting of the Maine chapter of the Society for Neuroscience, Waterville, ME.
- Hutchinson, S., McCoy, S.K., Hawthorne, L., & Eil, S.W.** (2013, May). Recovery from stress: Implications for rule-based category learning. Talk presented at the 4th annual meeting of Mainely Data, Brunswick, ME.
- Hélie, S., Eil, S. W., Filoteo, J. V., Glass, B. D., & Maddox, W. T. (2013, April). A computational cognitive neuroscience model of criterion learning in rule-guided behavior. Poster presented at the 20th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Eil, S. W. (2012, November). Characterizing rule-based categorization impairments in individuals with Parkinson's disease. Talk presented at the 53rd annual meeting of the Psychonomic Society, Minneapolis, MN.
- Hélie, S., Maddox, W. T., Eil, S. W., Filoteo, J. V., & Glass, B. D. (2012, November). A neurocomputational model of criterion learning in rule-based categorization Talk presented at the 53rd annual meeting of the Psychonomic Society, Minneapolis, MN.
- Hutchinson, S. B., Hélie, S., McCoy, S. K., & Eil, S. W.** (2012, October). An investigation of the impact of stress on a spiking model of working memory maintenance. Poster presented at the annual meeting of the Society for Neuroscience, New Orleans, LA.
- Hutchinson, S., Cosley, B., McCoy, S. K., Eil, S. W.** (2012, May). Category learning under pressure Talk presented at the 3rd annual meeting of Mainely Data, Waterville, ME.
- Hutchinson, S. B., & Eil, S. W.** (2012, April). Parkinson's disease impairs intra-dimensional set shifting. Poster presented at the 2nd annual meeting of the Maine chapter of the Society for Neuroscience, Biddeford, ME.
- Eil, S. W., **Hutchinson, S., & McCoy, S. K.** (2011, November). Pressure, stress, and cognition: Using categorization as a model task to investigate the stress-cognition relationship. Talk presented at the 52nd annual meeting of the Psychonomic Society, Seattle, WA.
- Hutchinson, S., Cosley, B., McCoy, S. K., Eil, S. W.** (2011, May). Performance pressure, stress, and cognition: Pressure affects task engagement and cognitive performance, but not stress reactivity Talk presented at the 2nd annual meeting of Mainely Data, Lewiston, ME.
- Zilioli, M. K. C., & Eil, S. W.** (2011, April). Characterizing cognitive dysfunction in Parkinson's disease. Poster presented at the 1st annual meeting of the Maine chapter of the Society for Neuroscience, Lewiston, ME.
- Hutchinson, S., Cosley, B., McCoy, S. K., & Eil, S. W.** (2011, April). Is pressure stressful? The impact of pressure on stress reactivity and category learning. Poster presented at the 18th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

- Eil, S. W., **Zilioli, M.** (2010, November). The impact of Parkinson's disease on intra-dimensional shifts of the decision criterion in rule-based category learning. Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA.
- Eil, S. W., **Cosley, B.**, McCoy, S. K. (2010, May). When bad stress goes good: Increased threat reactivity predicts improved category learning performance. Talk presented at the 1st annual meeting of Mainely Data. Waterville, ME.
- Briggs, A.**, Ivry, R. B., & Eil, S. W. (2010, May). Category Learning Depends Upon Holistic Processing. Poster presented at the 1st annual meeting of Mainely Data. Waterville, ME.
- Fick, E.**, Maddox, W. T., Eil, S. W. (2010, May). The Impact of Global and Local Incentives on Probabilistic Decision Making. Poster presented at the 1st annual meeting of Mainely Data. Waterville, ME.
- Zilioli, M.**, Maddox, W. T., Drasby, E. J., & Eil, S. W. (2010, May). The impact of fronto-striatal dysfunction on the effects of a match between global and local incentives in categorization. Talk presented at the 1st annual meeting of Mainely Data. Waterville, ME.
- Zilioli, M.**, Maddox, W. T., Drasby, E. J., & Eil, S. W. (2010, April). The impact of Parkinson's disease on the effects of a match between global and local incentives in rule-based category learning. Poster presented at the 17th annual meeting of the Cognitive Neuroscience Society, Montreal, Canada.
- Eil, S. W., & **Favreau, L.**, & Drasby, E. (2009, March). Improving the Performance of Parkinson's Disease Patients on a Selective-Attention-Demanding, Category-Learning Task. Poster presented at the 16th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- McCoy, S. K., **Cosley, B.**, & Eil, S. W. (2009, March). Sympathetic and parasympathetic effects on cognitive performance. Poster presented at the 16th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Cosley, B.**, McCoy, S. K., **Wellman, J. D.**, **Newell, E. E.**, & Eil, S. W. (2009, February). Can threat enhance performance? Evidence for enhanced cognitive performance under physiological threat. Poster presented at the meeting of the Society for Personality and Social Psychology, Tampa, FL.
- Eil, S. W., **Weinstein, A.**, & Ivry, R. B. (2008, April). Rule-based categorization deficits in patients with Parkinson's disease are not dependent upon dopaminergic medication. Poster presented at the 15th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Eil, S. W., **Weinstein, A.**, Filoteo, J. V., Maddox, W. T., & Ivry, R. B. (2007, May). Selective attention demand mediates rule-based categorization deficits in focal basal ganglia lesion patients. Talk presented at the 14th annual meeting of the Cognitive Neuroscience Society, New York, NY.
- Schnyer, D., Eil, S. W., Maddox, W. T., Davis, S., Verfaellie, M. (2007, May). Impaired category learning in patients with damage to prefrontal cortex. Poster presented at the 14th annual meeting of the Cognitive Neuroscience Society, New York, NY.
- Eil, S. W., **Marchant, N. L.**, & Ivry, R. B. (2005, April). Category learning deficits in patients with focal basal ganglia lesions. Poster presented at the 12th annual meeting of the Cognitive Neuroscience Society, New York, NY.
- Eil, S. W. & Ashby, F. G. (2004, April). Probabilistic category learning varies as a function of the task: A comparison of rule-based and information-integration category learning tasks. Poster presented at the 11th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

- Ashby, F. G., Eil, S. W., Valentin, V. V., & Casale, M. B., Spiering, B., & O'Brian, J. (2004, May). Building and testing biologically plausible computational models of neuroscience, neuroimaging, and behavioral data. Talk presented at the Notre Dame Series on Quantitative Methodology.
- Ashby, F. G., Eil, S. W., Valentin, V. V., & Casale, M. B. (2003, April). A neurocomputational model of working memory. Poster presented at the 10th annual meeting of the Cognitive Neuroscience Society, New York, NY.
- Ashby, F. G., Eil, S. W., Valentin, V. V., & Casale, M. B. (2002, September) Evidence for functionally separate explicit and implicit category learning systems. Talk presented at the McDonnell-Pew Foundation Symposium on the Neurobiology of Category Learning, New York, NY.
- Ashby, F. G., Eil, S. W., Valentin, V. V., & Casale, M. B. (2002, August). A neurocomputational model of working memory. Talk presented at the 1st Annual Summer Interdisciplinary Conference. Squamash, BC.
- Eil, S. W., Ashby, F. G., Valentin, V. V., Casale, M. B., Waterhouse, E. G. (2002, July). Towards a biologically plausible model of rule-based category learning. Talk presented at the 33rd annual meeting of the Society for Mathematical Psychology, Oxford, OH
- Ashby, F. G., Eil, S. W., Casale, M. B., Valentin, V. V., Waterhouse, E. G. (2002, April). Biologically plausible models of rule-based and implicit categorization. Poster presented at the 9th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Ashby, F. G., Eil, S. W., Casale, M. B., & Ing, D. A. (2001, November). A computational model of working memory: reverberation in frontal-striatal-thalamic loops. Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA.
- Ashby, F. G., & Eil, S. W. (2001, July). A neurobiological model of implicit category learning. Talk presented at the 3rd International Conference on Memory, Valencia, Spain, Invited Address.
- Ashby, F. G., & Eil, S. W. (2001, July). A neurobiologically plausible model of implicit category learning. Talk presented at the Workshop on Speech Recognition as Pattern Classification, Nijmegen, The Netherlands, Invited Address.
- Ashby, F. G., Eil, S. W., Casale, M. B., & Ing, D. A. (2001, March). A frontal-striatal based model of working memory. Poster presented at the 8th annual meeting of the Cognitive Neuroscience Society, New York, NY.
- Ashby, F. G., Eil, S. W., & Waldron, E. M. (2000, November). A striatal-based model of implicit category learning. Talk presented at the 41st annual meeting of the Psychonomic Society, New Orleans, LA.
- Ashby, F. G. & Eil, S. W. (2000, October). Do multiple memory systems participate in human category learning? Talk presented at the Annual Meeting of the Memory Disorders Research Society, Toronto, ON, Invited Address.
- Waldron, E. M., Eil, S. W., Ashby, F. G., McCormick, M., & Casale, M. B. (2000, April). A striatal-based model of implicit category learning. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.
- Eil, S. W., Ashby, F. G., & Waldron, E. (1999, April). Dynamical trajectories in category learning. Talk presented at the 30th annual meeting of the Society for Mathematical Psychology.
- Thomas, R. & Eil, S. W. (1998, November). On the effects of integrality and perceptual dependencies on same-different judgments. Talk presented at the 39th annual meeting of the Psychonomic Society, Dallas, TX.

Thomas, R., Ell, S. W., & Grossman, E. (1997, August). Exploring the consequences of integrality and perceptual dependencies on component same-different judgments. Talk presented at the 30th annual meeting of the Society for Mathematical Psychology.

Research Mentorship

Graduate Students

- Rose Deng, current PhD student
- Zachary Hutchinson, current PhD student in Computer Science
- David Smith, current PhD student
- Steve Hutchinson, PhD (2015)
- Rena Lolar, Graduate research assistant, 2009
- Lauren Szymula, MA (2016)
- Monica Zilioli, MA (2012)

Post-Baccalaureate

Gabriela Peralta, study coordinator, 2016-2017

Erin Perry, research assistant, 2014-2015

Lacey Favreau, research assistant, 2008

Undergraduate Theses and Senior Research Projects

Megan Bossie, Josh Comins, Ethan Fick, Mikael Heikkinen, Kelsey Hickey (Honors), Diana Inkova, Sarah Lombard, Erin Perry (Honors)

Undergraduate Research Assistants

Jessica Arm, Sam Armfield, Sydney Beckwith, Brailee Black, Megan Bossie, Connor Boynton, Maddie Burgess, Anna Briggs, Abbie Burton, Devin Cain, Pilar Canzon, Christopher Carey (Center for Undergraduate Research fellowship), Allison Casiles, Julie Cole, Josh Comins, Ross Dean, Hayden Dow, Anna Driscoll, Shea Ellison, Ethan Fick, Emma Garner, Christopher Gilbert, Katerina Grady, Alex Groat, Annie Guest, Nicole Hamlin, Mikael Heikkinen (Center for Undergraduate Research fellowship), Kelsey Hickey, Kate Hogdon, Diana Inkova, Marion Lawrence, Sarah Lombard, Chelsea Martin, Savannah Michaud, Bethany Miles, Jeremiah Molinaro, Leah Moser, Amanda Parslow, Gabriela Peralta, Zack Perrow, Erin Perry (Center for Undergraduate Research fellowship), Pamela Reitsma, Greg Richard, Nicole Rubin, Renee Savoie (Center for Undergraduate Research fellowship), Elizabeth Schreiber, Ilana Silver, Bryant Sirois, Olivia Stevenson, Ryan Tardiff (College of Liberal Arts and Sciences fellowship), Sakura Violette, Kelsey Wilcox, Jared Williams

High School

University of Maine Upward Bound mentor, Roukie Houssein, summer 2017

Internship supervisor, Mia Harrow-Mortelliti, Maine School of Science and Mathematics, 1/2012

Teaching Experience

Department of Psychology, University of Maine

- Advanced Psychological Statistics and Methods I (Graduate Course), 2007 - present
- Advanced Psychological Statistics and Methods II (Graduate Course), 2008 - present
- Advanced Cognitive Psychology (Graduate Course), 2007 - present
- Proseminar in Psychological Sciences (Graduate Course), 2009-2010, 2017-2018
- Statistics in Psychology (Undergraduate Course), 2013 – present
- Cognitive Neuroscience (Undergraduate Course), 2016 – present

- Senior Seminar in Psychology: Brain and Cognition (Undergraduate Course), 2010
- Senior Seminar in Psychology: Stress and Cognition (Undergraduate Course), 2013, 2017

Service to the Psychology Department and University

- Graduate Coordinator, Department of Psychology, 2017-present
- Member, Spatial Informatics faculty search committee, Spring 2017
- Member, Psychology Department Chair search committee, 2016
- Steering committee, , MainelyData meeting, A conference highlighting psychological research in Maine (spring, 2015 - present)
- Chair, Psychology Department Colloquium Committee, 1/2007 – 5/2014
- Member, Psychology Department Human Subjects Pool Committee, 1/2007 – present
- Member, Psychology Department Undergraduate Committee, 10/2014 - present
- Ombudsperson for clinical psychology graduate students, 9/2010 - present
- Member, Psychology Department Policy Advisory Committee, 9/2010 – 8/2012
- Member, University of Maine Institutional Review Board, 7/2011 – present
- Member, University of Maine Multiuser Equipment Initiative review panel, 3/2012

Service to the Community

State of Maine

- Technical advisor, Maine Secretary of State panel on driver's education program curriculum, 2012

Parkinson's disease support group presentations

- Bangor Area Group, 5/20/2007, 2/15/2009
- Camden Area Group, 10/7/2008
- Blue Hill Group, 10/17/2007
- Augusta Area Group, 6/10/2007

Other service-oriented presentations

Ell, S. W. (2008, April). Parkinson's study update. Talk presented at the 6th annual Parkinson's Awareness Conference, Freeport, ME.

Ell, S. W. (2007, May). The consequences of basal ganglia dysfunction for learning and memory. Talk presented at the annual meeting of the Maine Association of Psychiatric Physicians, Freeport, ME.

Awards and Honors

University of Maine, College of Liberal Arts and Sciences Junior Faculty Research Fellowship, 2010

University of Maine Summer Faculty Research Award, 2008, 2014

National Travel Award from the College of Liberal Arts and Sciences, 2007, 2011, 2015

Siff Foundation Fellowship, Santa Barbara, 2002-2003

Graduate Student Travel Grant, University of California, Santa Barbara, 2001, 2002, 2003

Non-Resident Tuition Fellowship, Department of Psychology, University of California, Santa Barbara, 1998-1999

Summer Research Fellowship, Miami University, 1997

Professional Affiliations

Cognitive Neuroscience Society, Maine Society for Neuroscience, Psychonomic Society, Society for Neuroscience

Editorial Reviews (ad hoc)

Applied Psycholinguistics; Annals of the New York Academy of Sciences; Attention, Perception & Psychophysics; Australian Journal of Psychology; Brain and Cognition; Cerebral Cortex, Cognition; Cognitive, Affective, & Behavioral Neuroscience; Cognitive Psychology; Cognitive Science; Cognitive Systems Research; Current Directions in Psychological Science; European Journal of Neuroscience; Frontiers in Human Neuroscience; Frontiers in Systems Neuroscience; Human Brain Mapping; Journal of Cognitive Neuroscience; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory, & Cognition; Journal of Mind and Behavior; Memory & Cognition; National Science Foundation; Neurobiology of Learning and Memory; Neural Networks; Neuropsychologia; Neuropsychology; PLOS One; Psychological Science, Psychonomic Bulletin & Review; Psychosomatic Medicine; Psychological Research; Sleep; Social Psychology; Quarterly Journal of Experimental Psychology