

# R. Becket Ebitz, PhD

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## EDUCATION AND POSITIONS:

**Research Associate**      Mentor: Dr. Benjamin Hayden      2017-present  
University of Rochester, Department of Brain and Cognitive Sciences, Rochester, NY

**CV Starr Fellow**      Mentor: Dr. Timothy Buschman      2015-2017  
Princeton University, Princeton Neuroscience Institute, Princeton, NJ

**Postdoctoral Fellow**      Mentor: Dr. Tirin Moore      2013-2017  
Stanford University & HHMI, Neurobiology Department, Stanford, CA

**Ph.D. in Neurobiology**      Mentor: Dr. Michael Platt      2007-2013  
Duke University, Neurobiology Department, Durham, NC  
Certificate in Cognitive Neuroscience, Center for Cognitive Neuroscience  
Dissertation: *Determinants of distraction in the rhesus macaque*.

**Research Assistant**      Mentor: Dr. Leslie Ungerleider      2005-2007  
National Institutes of Health, Bethesda, MD

**B.A. (*cum laude*)**      2001-2005  
Simon's Rock College, Great Barrington, MA  
Concentrations: Biology, Psychology, and Research Methods

## FELLOWSHIPS AND AWARDS:

2015-2017	CV Starr Foundation Fellowship, Princeton University
2014-2017	NIMH National Research Service Award (F32)
2014, 2016	Travel Awards, Gordon Conference, Neurobiology of Cognition
2013-14	Stanford Vision Training Program Postdoctoral Fellowship (NEI T32)
2010-11	Preparing Future Faculty Fellowship, Duke University
2009-10	Ruth K. Broad Foundation Research Fellowship, Duke University
2007-11	James B. Duke Fellowship, Duke University
2005-07	Intramural Research Training Award, NIMH
2003-05	Robert M. Hutchins Scholarship, Simon's Rock College
2001-03	Acceleration to Excellence Scholarship, Simon's Rock College
1999	8 <sup>th</sup> place in the USA, Discovery Young Scientists Challenge

## RESEARCH PAPERS:

Ebitz, R. B., Moore, T. (2017). "FEF microstimulation modulates the pupil light reflex." *Journal of Neuroscience* 37 (19), 5008-18.

Ebitz, R. B., Platt, M. L. (2015). "Neuronal activity in primate dorsal anterior cingulate cortex signals task conflict and predicts adjustments in pupil-linked arousal." *Neuron* 85(3), 628-40.

Ebitz, R. B., Pearson, J., Platt, M. L. (2014). "Pupil size and social vigilance in rhesus macaques." *Frontiers in Neuroscience* 8(100).

Pearson, J., Watson, K. K., Klein, J., Ebitz, R. B., & Platt, M. L. (2013). Individual differences in social information gathering revealed through Bayesian hierarchical models. *Frontiers in Neuroscience* 7(165).

Ebitz, R. B., Watson, K. K., & Platt, M. L. (2013). "Oxytocin reduces social vigilance in rhesus macaques." *Proceedings of the National Academy of Sciences*, 110(28), 11630-5.

Chang, S. W., Barter, J. W., Ebitz, R. B., Watson, K. K., & Platt, M. L. (2012). "Inhaled oxytocin amplifies both vicarious reinforcement and self reinforcement in rhesus macaques (*Macaca mulatta*)." *Proceedings of the National Academy of Sciences*, 109(3), 959-964.

## REVIEWS AND PREVIEWS:

Ebitz, R. B., Hayden, B. (2016). "Dorsal anterior cingulate: A Rorschach test for cognitive neuroscience." *Nature Neuroscience*, 19, 1278-1279.

Ebitz, R. B., Platt, M. L. (2013). "An evolutionary perspective on the behavioral consequences of exogenous oxytocin delivery." *Frontiers in Behavioral Neuroscience* 2(225).

## RESEARCH PAPERS IN PROGRESS:

Ebitz, R. B., Albarran, E., & Moore, T. (under review). "Exploration disrupts choice predictive signals and alters population dynamics in prefrontal cortex."

Ebitz, R. B., Takahashi, D. (in preparation). "Thermodynamics of exploratory choice in man, monkey, and rat."

Ebitz, R. B., Buschman, T. J., Moore, T. (in preparation). "Bottom-up salience drives choice during exploration."

Ebitz, R.B., Cohen, J.D., Buschman, T.J. (in preparation). "Control mechanisms for flexibility in a changing world."

## RECENT & SELECTED TALKS:

"Exploration for learning in brain and behavior." (January 2017). Charles River Analytics, Cambridge, MA.

"Social vigilance in the rhesus macaque." (November 2016). Neuroscience and Social Decision-Making seminar series, Princeton University.

"Exploration in brain and behavior." (October 2016). Computational Neuroscience Initiative talk series, University of Pennsylvania.

"Altered balance between top-down and bottom-up saccade control across exploration and exploitation." (July 2016). Gordon Research Seminar on the Neurobiology of Cognition.

"Frontal eye field dynamics differ between explore and exploit states." (March 2016). Workshop on Executive Flexibility, COSYNE workshops.

"Exploration flattens prefrontal target selectivity, enhances learning in network states and behavior." (February 2016). COSYNE main meeting.

"Frontal eye field microstimulation modulates the pupil light reflex." (May 2015). Math, Monkeys, & Machines seminar series, Stanford University.

"Target selectivity in the frontal eye fields is blunted during exploratory choice." (January 2015). Math, Monkeys, & Machines seminar series, Stanford University.

"Frontal eye field target selectivity is blunted during exploration." (December 2014). Memory, Attention, and Decision-Making seminar series, Stanford University.

"Exploration, distraction, and saccadic selection in rhesus macaques." (November 2014). Department of Neuroscience, Columbia University.

"Exploration, distraction, and saccadic selection in rhesus macaques." (November 2014). Department of Brain and Cognitive Sciences, University of Rochester.

"Social vigilance and oxytocin." (June 2014). Translational oxytocin research group meeting, Stanford University Medical School.

"dACC neurons signal salient, task-irrelevant stimuli and predict behavioral adjustment." (October 2012). Society for Neuroscience, New Orleans, LA.

“Determinants of distraction in the rhesus macaque.” (July 2012). Neurobiology Department, Northwestern University.

“Social attentive control: How neural filtering and neuromodulatory regulation help you ignore salient faces.” (May 2012). Decision Making Across the Disciplines Conference, Duke Center for Interdisciplinary Decision Sciences.

Invited presentations at the lab meetings of Nathaniel Daw (Princeton, 2016), Carlos Brody (Princeton, 2015), Jon Cohen (Princeton, 2015), Justin Gardiner (Stanford, 2015), Bill Newsome (Stanford, 2014), and Sam McClure (Stanford, 2013).

## MEETING ABSTRACTS/POSTERS:

**Ebitz, R.B.,** Buschman, T., & Moore, T. (June 2017). “Exploration via transient disruptions in prefrontal control.” Reinforcement Learning and Decision-Making, Ann Arbor, MI.

**Ebitz, R.B.,** Moore, T., & Buschman, T. (February 2017). “Bottom-up salience drives choice during exploration.” COSYNE, Salt Lake City, UT.

**Ebitz, R.B.,** Moore, T., & Buschman, T. (November 2016). “Altered balance between top-down and bottom-up control across exploration and exploitation.” Society for Neuroscience, San Diego, CA.

**Ebitz, R.B.,** & Moore, T. (July 2016). “Altered balance between top-down and bottom-up saccade control across exploration and exploitation.” Gordon Research Conference on the Neurobiology of Cognition, Newry, ME.

**Ebitz, R.B.,** & Moore, T. (June 2016). “Altered balance between top-down and bottom-up saccade control across exploration and exploitation.” Future of Visual Attention workshop, Center for Visual Science, University of Rochester.

**Ebitz, R. B.,** & Moore, T. (November 2015). “Modulation of the pupil light reflex by frontal eye field microstimulation.” Society for Neuroscience, Chicago, IL.

**Ebitz, R. B.,** Albarran, E., Soltani, A. & Moore, T. (November 2014). “Target selectivity in the frontal eye field (FEF) is blunted during exploratory choice.” Society for Neuroscience, Washington, DC.

**Ebitz, R. B.,** Albarran, E., Soltani, A. & Moore, T. (July 2014). “Uncertainty and exploration in the frontal eye field.” Gordon Research Conference on the Neurobiology of Cognition, Newry, ME.

**Ebitz, R. B.,** Albarran, E., Soltani, A. & Moore, T. (February 2014). “Attention and uncertainty during reward contingency learning.” COSYNE, Salt Lake City, UT.

Ebitz, R. B., & Platt, M. L. (November 2013). "Pupil constriction betrays the locus of attention." Society for Neuroscience, San Diego, CA.

Ebitz, R. B., & Platt, M. L. (February 2012). "Neuronal activity in anterior cingulate cortex predicts susceptibility to distraction." COSYNE, Salt Lake City, UT.

Ebitz, R. B., & Platt, M. L. (November 2011). "Oxytocin blunts social distraction." Society for Neuroscience, Washington, DC.

Ebitz, R. B., Watson, K. K., Platt, M. L. (November 2008). "Oxytocin administration affects valuation of social images." Society for Neuroscience, Washington, DC.

## COMMENTARIES & PRESS COVERAGE:

Binda, P. & Gamlin, P. D. (in press). "Renewed attention on the Pupil Light Reflex." Commentary on "FEF microstimulation modulates the pupil light reflex." *Trends in Neuroscience* Spotlight article.

Shenhav, A. & Botvinick, M. (2015). "Uncovering a Missing Link in Anterior Cingulate Research." Commentary on "Neuronal activity in primate dorsal anterior cingulate cortex signals task conflict and predicts adjustments in pupil-linked arousal." *Neuron* 85(3), pp. 455-7.

"The Science of Love: What Are You Looking At?" Write-up of "Oxytocin reduces social vigilance in rhesus macaques." in October 10, 2013 *Cell: Select* column. *Cell*, 155, p. 263.

## OTHER PROFESSIONAL ACTIVITIES:

Invited Reviewer: *Nature Neuroscience*, *Scientific Reports*, *Frontiers in Neuroscience*, COSYNE meeting

Professional Membership, *Society for Neuroscience*, 2005-present

Workshop co-organizer (with Tim Buschman), "Executive Flexibility", March 2016 COSYNE workshops, Snowbird, UT

Co-organizer, *Maths, Monkeys & Machines* interdisciplinary seminar series, 2014-2015 Stanford University, Stanford, CA

Discussant, *Gordon Research Seminar on Neurobiology of Cognition*, June 2014 Gordon Research Conferences, Newry, ME

*Bay Area Ophthalmology Course*, July 2013  
Bay Area Ophthalmology Consortium, Stanford Medicine, Stanford, CA

Workshop leader and volunteer, *Brain Awareness Week*, 2010-2013  
Durham, NC & Raleigh, NC

Organizer, *Social Neuroscience Journal Club*, 2011-2012  
Duke University, Durham, NC

Consortium member, *Neuroscience Graduate Student Consortium*, 2011  
Duke University, Durham, NC

Invited participant, *Neuroscience, Juries, Decision-Making short course*, 2011  
Duke University Law School, Durham, NC

## TEACHING/MENTORING:

### *Instructor/Section Leader:*

Neuroscience Junior Tutorial (2 sessions), Princeton University, 2016  
Launch into Pharmacology (2 sessions, summer intensive), Duke University, 2011  
Biological Bases of Behavior (2 sections), Duke University, 2010

### *Guest Instructor:*

Principles of Cognitive Neuroscience (graduate course), Duke University, 2012  
Introduction to Biology, Guilford College, Greensboro, NC, 2010  
Sensory Systems, Guilford College, Greensboro, NC, 2010

### *Teaching Assistant:*

Brain and Behavior, Duke University Medical School, 2009

### *Research assistants mentored:*

Lu Yang (2014-2015, masters student at Stanford University)  
Eddy Albarran (2013-2014, now a PhD student at Stanford University)