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R. BECKET EBITZ, PHD

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EDUCATION:

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

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

POSITIONS:

2017-present **Senior Research Associate**, Mentor: Dr. Ben Hayden
University of Rochester, Brain and Cognitive Sciences, Rochester, NY
University of Minnesota, Department of Neuroscience, Minneapolis, MN

2015-2017 **CV Starr Fellow**, Mentors: Drs. Jon Cohen, Tim Buschman
Princeton University, Princeton Neuroscience Institute, Princeton, NJ

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

2007-2013 **Graduate Student**, Mentor: Dr. Michael Platt
Duke University, Neurobiology Department, Durham, NC

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

RESEARCH SUPPORT:

2019-2021 NARSAD Young Investigator Grant
$35,000/year direct costs
Project title: Neuromodulatory interventions to regulate flexibility in brain and behavior
Role: PI; *Mentor:* Ben Hayden

2015-2017 CV Starr Foundation Fellowship
$20,000/year direct costs, $65,000/year salary support

Project title: Top-down and bottom-up attentional priorities in a distributed oculomotor decision-making network.
Role: PI; *Mentorship team:* Tim Buschman, Jon Cohen

2014-2017 NIMH National Research Service Award (F32 MH102049)
$5,000/year direct costs plus salary support at NIH levels
Project title: Selective attention and reward value in the prefrontal control of choice.
Role: PI; *Mentorship team:* Tirin Moore, Tim Buschman

OTHER AWARDS AND FELLOWSHIPS:

2018	Ripple Innovation in Research and Technology Award Finalist
2018	Poster Spotlight Award, Cognitive Science Society Workshop: Understanding Exploration-Exploitation Trade-offs
2014, 2016	Travel Awards, Gordon Conference, Neurobiology of Cognition
2013-14	Stanford Vision Training Program Fellowship (T32)
2010-11	Preparing Future Faculty Fellowship, Duke University
2009-10	Ruth K. Broad Foundation 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	8th place in the USA, Discovery Young Scientists Challenge

RESEARCH PAPERS:

Ebitz, R. B., Sleezer, B.J., Jedema, H.P., Bradberry, C.W., Hayden, B. Y. (bioRxiv). "Exploratory noise governs both flexibility and spontaneous errors and is regulated by cocaine"

Ebitz, R. B., Albarran, E., & Moore, T. (2018). "Exploration disrupts choice predictive signals and alters population dynamics in prefrontal cortex." *Neuron 97 (2)*, 450-461. (**Cover**)

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 COMMENTARIES:

Ebitz, R. B., Moore, T. (under review). "Both a gauge and a filter: Cognitive modulations of pupil size"

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).*

INVITED TALKS:

2018 Society for Neuroscience, Nanosymposium (anticipated), San Diego, CA
Ecology, Evolution and Behavior Department, University of Minnesota
Biomedical Engineering Department, University of Minnesota
Cognitive Science Society, Workshop on Exploration-Exploitation Trade-offs
Montreal Neurological Institute, McGill University

2017 Neuroscience and Social Decision Making, Princeton University
Charles River Analytics, Cambridge, MA

2016 Computational Neuroscience Initiative, University of Pennsylvania
Gordon Seminar on the Neurobiology of Cognition, Newry, ME
COSYNE workshops, "Executive Flexibility", Snowbird, UT
COSYNE main meeting, Salt Lake City, UT

2015 Maths, Monkeys, & Machines, Stanford University (x2)

2014 Memory, Attention, and Decision-Making, Stanford University
Department of Neuroscience, Columbia University
Translational Oxytocin Research Group, Stanford University Medical School
Department of Brain and Cognitive Sciences, University of Rochester

2012 Society for Neuroscience, Nanosymposium talk, New Orleans, LA
Neurobiology Department, Northwestern University
Decision Making Across the Disciplines Conference, Duke Center for Interdisciplinary Decision Sciences

MEETING ABSTRACTS/POSTERS:

Ebitz, R.B., Hayden, B.Y., Moore, T. "Exploration via disrupted sensorimotor control dynamics." (July 2018). Cognitive Science Society 2018 Workshop: Understanding Exploration-Exploitation Trade-offs. (**Spotlight Award Poster**)

Ebitz, R.B., Moore, T., Hayden, B.Y. "An intrinsic brain state improves the accuracy and efficacy of direct cortical microstimulation." 6th Annual Neuromodulation Symposium, University of Minnesota, Minneapolis, MN.

Ebitz, R.B., Cohen, J.D., & Buschman, T. (November 2017). "Control mechanisms for flexibility in a changing world." Society for Neuroscience, Washington, DC.

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.

COMMENTARIES & PRESS COVERAGE:

Binda, P. & Gamlin, P. D. (2017). "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),* 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,* 263.

OTHER PROFESSIONAL ACTIVITIES:

Ad hoc Reviewer: *Journal of Neuroscience, Nature Neuroscience*, *eLife, Scientific Reports, Hormones and Behavior, PLOS One, Frontiers in Neuroscience, Frontiers in Neurology,* COSYNE meeting

Professional Memberships: *Society for Neuroscience*, 2005-present, *Cognitive Science Society*, 2018-present

2018 Nanosymposium co-chair, "Decision Making: Circuits and Computations"
Society for Neuroscience, San Diego, CA

2016 Workshop organizer, co-chair, "Executive Flexibility"
COSYNE workshops, Snowbird, UT

2014-15 Co-organizer, *Maths, Monkeys & Machines* interdisciplinary seminar series
Stanford University, Stanford, CA

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

2013 Attendee, Bay Area Ophthalmology Course
Bay Area Ophthalmology Consortium, Stanford Medicine, Stanford, CA

2010-13 Workshop leader and volunteer, Brain Awareness Week
Durham, NC & Raleigh, NC

2011-12 Organizer, Social Neuroscience Journal Club

Duke University, Durham, NC

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

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

TEACHING/MENTORING:

Research assistants mentored:
Cindy Tu (2017-present, currently a research assistant at University of Minnesota)
Lu Yang (2014-2015, masters student at Stanford University)
Eddy Albarran (2013-2014, now a PhD student at Stanford University)

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

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

Teaching Assistant/Course Organizer:
2009 Brain and Behavior, Duke University Medical School

Coursework with a substantial focus on teaching:
2009 Foundations in College Teaching (Duke, Fall semester, GS 302)
2010 Colloquium on the Academic Profession (Duke, Fall semester, GS 300)
2010 Seminar in Teaching College Biology (Duke, Fall semester, BIO 390)