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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

AWARDS AND FELLOWSHIPS:

2018 (Anticipated) 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

GRANTS AND RESEARCH SUPPORT:

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.
Project 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.
Project role: PI; *Mentorship team:* Tirin Moore, Tim Buschman

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.

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., 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).*

Selected Talks:

"Exploration via disrupted sensorimotor control dynamics." (Scheduled, November 2018). Nanosymposium talk, Society for Neuroscience, San Diego, CA.

"A biophysics of exploration." (Scheduled, July 2018). Cognitive Science Society 2018 Workshop: Understanding Exploration-Exploitation Trade-offs.

"Exploratory regimes in brain and behavior." (January 2018). Montreal Neurological Institute, McGill University.

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

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

"Altered balance between top-down and bottom-up saccade control across exploration and exploitation." (July 2016). Gordon 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, Salt Lake City, Utah.

"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.

"dACC neurons signal salient, task-irrelevant stimuli and predict behavioral adjustment." (October 2012). Nanosymposium talk, 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.

MEETING ABSTRACTS/POSTERS:

Ebitz, R.B., Hayden, B.Y., Moore, T. "Exploration via disrupted sensorimotor control dynamics." (Scheduled, 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),* 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:

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

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

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

2014-15 Seminar series co-organizer, *Maths, Monkeys & Machines* interdisciplinary 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 Invited participant, 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)