

CONTACT aaron@bornstein.org <http://aaron.bornstein.org/>

POSITIONS

2013-Present Postdoc, Norman and Cohen labs, Princeton
 2007-2013 Graduate researcher, Daw lab, NYU
 2006 Research assistant, Deicken lab, UCSF/VA
 2005-2007 Research assistant, Wagner lab, Stanford

WORKING PAPERS **Bornstein AM**, Aly M, Feng SF, Turk-Browne NB, Norman KA, Cohen JD.
 Decisions on the basis of continuous accumulation of memory and sensory
 evidence.

Novick AS, **Bornstein AM**, Norman KA, Cohen JD. Resting reinstatements
 from episodic memory alter the content of working memory.

PEER-REVIEWED JOURNAL ARTICLES **Bornstein AM**, Khaw MW, Shohamy D, Daw ND (2017). Reminders of past
 choices bias decisions for reward in humans. *Nature Communications*, 8:15958.
 doi:10.1038/ncomms15958

Bornstein AM, Norman KA (2017). Reinstated episodic context
 guides sampling-based decisions for reward. *Nature Neuroscience*.
 doi:10.1038/nn.4573

Bornstein AM, Daw ND (2013). Cortical and hippocampal correlates of de-
 liberation during model-based decisions for rewards in humans. *PLoS Com-
 putational Biology*, 9(12):e1003387. doi:10.1371/journal.pcbi.1003387

Bornstein AM, Daw ND (2012). Dissociating hippocampal and striatal contri-
 butions to sequential prediction learning. *European Journal of Neuroscience*,
 35:1011-1023. doi:10.1111/j.1460-9568.2011.07920.x

Preston AR, **Bornstein AM**, Hutchinson JB, Gaare ME, Glover GH, Wagner
 AD (2010). High-resolution fMRI of content-sensitive subsequent memory
 responses in human medial temporal lobe. *Journal of Cognitive Neuroscience*,
 22:156-173. doi:10.1162/jocn.2009.21195

PEER-REVIEWED ARTICLES IN CONFERENCE PROCEEDINGS Kane GA, **Bornstein AM**, Shenhav A, Wilson RC, Daw ND, Cohen JD (in
 press). Mechanisms of overharvesting in patch foraging in rodents. *Proceed-
 ings of the 39th Annual Conference of the Cognitive Science Society*.

Floares A, Jakary A, **Bornstein A**, Deicken R (2006). Neural networks and
 classification and regression trees are able to distinguish females with major
 depression from healthy controls using neuroimaging data. *Proceedings of the
 IEEE International Joint Conference of Neural Networks, 2006*, 4605-4611.
 doi:10.1109/ijcnn.2006.247090

REVIEWS,
COMMENTARIES,
BOOK CHAPTERS

Bornstein AM (in press). Mixing memory and desire: How episodic memory aids goal-directed decisions. To appear in: Morris RM, Bornstein AM, Shenhav A (eds.) *Goal-Directed Decision Making: Computations and Circuits*. Amsterdam: Elsevier.

Bornstein AM, Miller KJ, Shenhav A (2015). Walking bundles of habits (and Response-Outcome associations). *European Journal of Neuroscience*, 41:1356-1357. doi:10.1111/ejn.12906

Bornstein AM (2014). Functions of the hippocampal memory system in instrumental control (Doctoral dissertation). Available from ProQuest Dissertations & Theses Global (3614853).

Wallisch P, **Bornstein AM** (2013). Enhanced motion perception as a psychophysical marker for autism? *Journal of Neuroscience*, 33(37):14631-14632. doi:10.1523/jneurosci.2945-13.2013

Bornstein AM, Nylen EL, Steele SA (2011). Unblocking the neural substrates of model-based value. *Journal of Neuroscience*, 31(28):10117-10118. doi:10.1523/jneurosci.1883-11.2011

Bornstein AM, Daw ND (2011). Multiplicity of control in the basal ganglia: computational roles of striatal subregions. *Current Opinion in Neurobiology*, 21(3):374-380. doi:10.1016/j.conb.2011.02.009

ABSTRACTS IN
CONFERENCE
PROCEEDINGS
(SELECTED)

Morris RW*, Shenhav A*, **Bornstein AM**, Collins AGE, Gershman SJ, Gillan CM, Liljeholm M. Minisymposium: Understanding goal-directed decision-making in humans: computations and circuits. Society for Neuroscience Annual Meeting. Chicago, IL. October 2015.

Novick AS, **Bornstein AM**, Norman KA, Cohen JD. Refresh my memory: Context information from episodic memory affects working memory maintenance. Society for Neuroscience Annual Meeting. Chicago, IL. October 2015.

Bornstein AM, Aly M, Feng SF, Turk-Browne NB, Norman KA, Cohen JD. Memory-guided perception: Sampling from past experience during perceptual inference. Society for Neuroscience Annual Meeting. Chicago, IL. October 2015.

Bornstein AM, Norman KA. Context of recalled choice events affects subsequent decisions for reward. Society for Neuroeconomics Annual Meeting. Miami, FL. September 2014. [Spotlight poster]

Bornstein AM, Khaw MW, Daw ND. Episodic cues affect decisions for reward in humans. Society for Neuroeconomics Annual Meeting. Lausanne, Switzerland. September 2013.

Khaw MW, **Bornstein AM**, Daw ND. Evidence for decision by sampling in reinforcement learning. COSYNE. Salt Lake City, Utah. March 2013.

Bornstein AM, Geib TA, Daw ND. A hippocampal-cortical network underlies model-based planning in humans. COSYNE. Salt Lake City, Utah. February 2012.

Bornstein AM, Daw ND. Computational mechanisms of transition learning in unrewarded sequences. Society for Neuroscience Annual Meeting. Chicago, IL, October 2009.

INVITED TALKS
(SELECTED)

Feb 2015 Mood & Anxiety Disorders group, Mount Sinai School of Medicine

Jun 2014 Sackler Institute, Weill-Cornell Medical College

Mar 2014 Workshop on the Neurobiology of Prediction and Surprise, Rutgers University

Jan 2011 Parallel Distributed Processing meeting, Princeton University

Jan 2011 Kavli Institute, Harvard University

TEACHING

New York University New York, NY USA

Fall 2011 Machine Learning (Graduate), Prof. Yann Lecun

Fall 2009 Cognitive Neuroscience, Prof. Nathaniel D. Daw

Fall 2008 Lab in Perception, Dr. Shani Offen, Prof. David J. Heeger

Spring 2008 Cognition, Prof. Robert E. Rehder

Massachusetts Institute of Technology

Cambridge, MA

Spr 1999 6.823 Computer System Architecture (Graduate), Prof. Arvind

Fall 1999 1.00 Introduction to Computers and Engineering Problem Solving

OTHER TEACHING

Fall 2016 – Present Princeton Prison Teaching Initiative (Instructor; High school & College Algebra)

Summer 2007, 2008 Middle East Education through Technology (MEET), Jerusalem. (Lead instructor; Software development)

PROFESSIONAL ACTIVITIES

(forthcoming) Co-editor (with Richard Morris & Amitai Shenhav), “Goal-Directed Decision Making: Computations and Circuits” *Elsevier*.

2015 Co-organizer (with G. Elliott Wimmer), COSYNE 2015 Workshop “Memory in action: The role(s) of the hippocampus in decisions for reward.”

2010–Present Ad-hoc reviewer: Attention, Perception, & Psychophysics; Biological Cybernetics; Cerebral Cortex; Cognitive, Affective, and Behavioral Neuroscience; Cognitive Science; COSYNE; European Journal of Neuroscience; European Neuropsychopharmacology; Frontiers in Behavioral Neuroscience; Human Brain Mapping; ICDL; Journal of Cognitive Neuroscience; Neuroimage; Clinical; PLoS Computational Biology; PLoS ONE; Visual Cognition

OTHER ACTIVITIES

Fall 2011 – Spr 2012 New York University Graduate Forum (Moderator)

Spr 2012 Advanced science writing workshop, Prof. Stephen Hall

Fall 2009 – Spr 2011 New York University Graduate Forum (Member)

Fall 2010 Science writing workshop, Prof. Stephen Hall

Jul 2010 CEU Summer School on “Probabilistic models of cognitive systems.”
Budapest, Hungary

Aug 2009 Advanced Course in Computational Neuroscience.
Freiburg, Germany

REJECTIONS AND FAILURES

Publications

Bornstein & Norman (2017), *Nature Neuroscience*: Rejected once

Bornstein, Khaw, Shohamy & Daw (2017) *Nature Communications*: Rejected twice

Bornstein & Shvartsman (unpublished): Rejected *J. Neuro* “journal club” submission

Bornstein & Daw (2013), *PLoS Computational Biology*: Rejected three times

Bornstein & Constantino (unpublished): Rejected *J. Neuro* “journal club” submission

Bornstein & Daw (2012), *European Journal of Neuroscience*: Rejected twice

Conference abstracts

COSYNE (2015)

Grants and fellowships

K99/R00 (NIDA, 2015 June)

NRSA (NIDA, 2015 August)

Scientific Research Center on Decision Neuroscience and Aging (2011)

SfN Greater NYC Chapter Travel Awards to Neuroscience (2010)

National Science Foundation Graduate Research Fellowship (2007)

School applications

Graduate (2007): Three (Caltech, Stanford Neuroscience, UCSF)

Undergraduate (1998): Three (Columbia, SUNY Binghamton, UPenn)

Faculty job applications

2015: 14 applications, 0 interviews.

Other

COSYNE workshop proposal (2014)

NeuWrite (2013)