Aaron M. Bornstein **Updated: January 23, 2018**

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CITIZENSHIP USA

POSITIONS

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

EDUCATION

2013 Ph.D., Cognition & Perception
New York University
Advisor: Nathaniel D. Daw
Thesis: "Functions of the hippocampal memory system in instrumental control."

2003 S.B., Mathematics (additional concentration in Economics)
Massachusetts Institute of Technology

AWARDS & HONORS (SELECTED)

2012	COSYNE travel award
2011-13	NIH/NIMH Predoctoral fellowship (NRSA)
2007-12	NYU Opportunity fellowship
2005,6,8	Honorable mention, NSF Graduate Research Fellowship

WORKING PAPERS

Bornstein AM, Aly M, Feng SF, Turk-Browne NB, Norman KA, Cohen JD. Perceptual decisions result from the continuous accumulation of memory and sensory evidence. *bioRxiv*. doi:10.1101/186817

Hoskin AN, **Bornstein AM**, Norman KA, Cohen JD. Episodic memory reinstatements intrude on working memory maintenance. *bioRxiv*. doi:10.1101/170720

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*, 20:997-1003. doi:10.1038/nn.4573

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

Bornstein AM, Daw ND (2012). Dissociating hippocampal and striatal contributions 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 (2017). Mechanisms of overharvesting in patch foraging in rodents. *Proceedings 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*, Constantino SM* (2017). Nudge back: Towards a taxonomy of scientific rationalities. *London Conference in Critical Thought.*

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)

Hoskin AN, **Bornstein AM**, Norman KA, Cohen JD. Refresh my memory: Context information from episodic memory affects working memory maintenance. Society for Neuroscience Annual Meeting. Washington, DC. November 2017.

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. San Diego, CA. November 2016.

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.

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)

Mar 2018 Cosyne workshop "Hippocampal computations and interactions supporting statistical learning and decision-making"

Dec 2017 Cognition and Brain Sciences Unit, Cambridge University

Oct 2017 Johns Hopkins University

Feb 2015 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

Feb 2013 Functional Imaging Lab, University College London

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, organizer; High school & College Algebra, English Composition)

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

Professional activities

2018 Co-organizer (with Ahmed El Hady) Princeton Neuroscience Institute "Inside-Out" seminar series.

2018 Co-editor (with Richard Morris & Amitai Shenhav), "Goal-Directed Decision Making: Computations and Circuits" *Elsevier*.

2015 Co-organizer (with G. Elliott Wimmer), COSYNE 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; Cortex; 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; PNAS; Visual Cognition

Other activities

2011-2012 New York University Graduate Forum (Moderator)
Spr 2012 Advanced science writing workshop, Prof. Stephen Hall
2009-2011 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