CONTACT   aaron.bornstein@uci.edu   http://aaron.bornstein.org/

POSITIONS

2019-	Assistant Professor, Department of Cognitive Sciences
	Fellow, Center for the Neurobiology of Learning and Memory
	Affiliate, Institute for Mathematical Behavioral Sciences
	Affiliate, Silvio O. Conte Center
	University of California, Irvine
2018	Associate Research Scholar, Princeton Neuroscience Institute
2013-2018	Postdoctoral Research Associate, Princeton Neuroscience Institute
2007-2013	PhD candidate, Cognition & Perception, New York University
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
2003	S.B., Mathematics (additional concentration in Economics)
	Massachusetts Institute of Technology

PUBLICATIONS   (∗ = *Equal contribution.*)

Preprints

PP3 **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

PP2 Hunter LE*, **Bornstein AM***, Hartley CA. A common deliberative process underlies model-based planning and patient intertemporal choice. *bioRxiv.*
doi:10.1101/499707

PP1 Rmus M, Ritz H, Hunter LE, **Bornstein AM**, Shenhav A. Individual differences in model-based planning are linked to the ability to infer latent structure. *bioRxiv.*
doi:10.1101/732072

Peer-reviewed journal articles

JP10 Rouhani N, Norman KA, Niv Y, **Bornstein AM** (2020). Reward prediction errors create event boundaries in memory. *Cognition*, 199:104269.
doi:10.1016/j.cognition.2020.104269

JP9 **Bornstein AM***, Pickard H* (2020). Chasing the first high: Memory sampling in drug choice. *Neuropsychopharmacology*, 45:907-915.
doi:10.1038/s41386-019-0594-2

JP8 Kane GA, **Bornstein AM**, Shenhav A, Wilson RC, Daw ND, Cohen JD (2019). Rats exhibit similar biases in foraging and intertemporal choice tasks. *eLife*, 8:e48429.
doi:10.7554/eLife.48429

JP7 Millner AJ, den Ouden HEM, Gershman SJ, Glenn CR, Kearns J, **Bornstein AM**, Marx BP, Keane TM, Nock MK (2019). Suicidal thoughts and behaviors are associated with an increased decision-making bias for active responses to escape aversive states. *Journal of Abnormal Psychology*, 128(2):106-118.
doi:10.1037/abn0000395

JP6 Hoskin AN, **Bornstein AM**, Norman KA, Cohen JD (2018). Refresh my memory: Episodic memory reinstatements intrude on working memory maintenance. *Cognitive, Affective, & Behavioral Neuroscience*, 19:338-354.
doi:10.3758/s13415-018-00674-z

JP5 **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

JP4 **Bornstein AM**, Norman KA (2017). Reinstated episodic context guides sampling-based decisions for reward. *Nature Neuroscience*, 20:997-1003.
doi:10.1038/nn.4573

JP3 **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

JP2 **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

JP1 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

CP2 Kane GA, **Bornstein AM**, Shenhav A, Wilson RC, Daw ND, Cohen JD (2017). Mechanisms of overharvesting in patch foraging. *Proceedings of the 39th Annual Conference of the Cognitive Science Society*, 637-642.

CP1 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

RP6 **Bornstein AM***, Constantino SM* (2017). Nudge back: Towards a taxonomy of scientific rationalities. *London Conference in Critical Thought.*

RP5 **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

RP4 **Bornstein AM** (2014). Functions of the hippocampal memory system in instrumental control (Doctoral dissertation).
Available from ProQuest Dissertations & Theses Global (3614853).

RP3 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

RP2 **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

RP1 **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)

CA14 Vlasceanu M, Morais MJ, Zhao Z, **Bornstein AM**, Tamir D, Norman K, Coman AC. Self-Other Similarity Modulates the Socially-Triggered Context-Based Prediction Error Effect on Memory. Cognitive Science Society Annual Meeting, Toronto, ON. Jul 2020.

CA13 **Bornstein AM**. "Chasing the First High": Memory sampling in drug choice. Society of Biological Psychiatry Annual Meeting, New York, NY. May 2020.

CA12 Rouhani N, Bakkour A, Boorman E, **Bornstein AM**. Don't forget about it! Mnemonic contributions to reinforcement learning and decision making. Winter Conference on the Neurobiology of Learning and Memory, Park City, UT. Jan 2020.

CA11 Rouhani N, Niv Y, Norman KA, **Bornstein AM**. Reward Prediction Errors Create Event Boundaries in Memory. Psychonomic Society Annual Meeting, Montreal, Quebec. November 2019.

CA10 Rmus M, Ritz H, Hunter LE, **Bornstein AM**, Shenhav A. Model-based decision making is associated with structure inference ability. Society for Neuroeconomics Annual Meeting, Philadelphia, PA. October 2018.

CA9 Hunter LE*, **Bornstein AM***, Hartley CA. Two paths to patience: Individual differences in deliberate, but not automatic, intertemporal choice predict model-based planning in humans. Society for Neuroeconomics Annual Meeting, Philadelphia, PA. October 2018.

CA8 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.

CA7 **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.

CA6 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.

CA5 **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]

CA4 **Bornstein AM**, Khaw MW, Daw ND. Episodic cues affect decisions for reward in humans. Society for Neuroeconomics Annual Meeting. Lausanne, Switzerland. September 2013.

CA3 Khaw MW, **Bornstein AM**, Daw ND. Evidence for decision by sampling in reinforcement learning. COSYNE. Salt Lake City, Utah. March 2013.

CA2 **Bornstein AM**, Geib TA, Daw ND. A hippocampal-cortical network underlies model-based planning in humans. COSYNE. Salt Lake City, Utah. February 2012.

CA1 **Bornstein AM**, Daw ND. Computational mechanisms of transition learning in unrewarded sequences. Society for Neuroscience Annual Meeting. Chicago, IL, October 2009.

INVITED TALKS
(SELECTED)

IT17	Aug 2020	University of California, Los Angeles
IT16	Jul 2020	Transcontinental Psychiatry Workshop
IT15	Mar 2020	Claremont Colleges
IT14	Feb 2020	University of California, Riverside

IT13	Sep 2019	Facebook Research Labs, Seattle
IT12	May 2019	University of California, Los Angeles
IT11	Apr 2019	Brown University
IT10	Jan 2019	National Institute of Drug Abuse Extramural, Behavioral and Cognitive Neuroscience
IT9	Jan 2019	National Institute of Drug Abuse Intramural, Behavioral Neuroscience Research Branch
IT8	Mar 2018	Cosyne workshop "Hippocampal computations and interactions supporting statistical learning and decision-making"
IT7	Dec 2017	Cognition and Brain Sciences Unit, Cambridge University
IT6	Oct 2017	Johns Hopkins University
IT5	Feb 2015	Mount Sinai School of Medicine
IT4	Jun 2014	Sackler Institute, Weill-Cornell Medical College
IT3	Mar 2014	Workshop on the Neurobiology of Prediction and Surprise, Rutgers University
IT2	Jan 2011	Parallel Distributed Processing meeting, Princeton University
IT1	Jan 2011	Kavli Institute, Harvard University

RESEARCH
FUNDING

2020-2021 NIMH/UCI Silvio O. Conte Center seed award
P50 MH096889-06A1; Direct costs: $29,637.13
2011-2013 NIMH Ruth Kirchstein Predoctoral fellowship
F31 MH095501; Direct costs: $69,790.

OTHER AWARDS
& HONORS
(SELECTED)

2020	Society of Biological Psychiatry travel award
2020	Association for Psychological Science "Rising Star" Award
2019,2020	UC Irvine School of Social Sciences Research & Travel awards
2014	Spotlight poster, Society for Neuroeconomics annual meeting
2013	Society for Neuroeconomics travel award
2012	COSYNE travel award
2010	Central European University summer scholarship
2009,10	NYU Dean's travel awards
2009-12	NYU Graduate Forum
2009	Advanced Course in Computational Neuroscience scholarship

2007-2012	NYU Opportunity fellowship
2005,6,8	Honorable mention, NSF Graduate Research Fellowship
2000	Runner up, MIT $50k Business Plan competition

FUNDING &
AWARDS TO
TRAINEES,
SPONSORED

2020-2023	National Defense Science & Engineering Graduate fellowship (Nora Harhen)
2019	UCI Summer Undergraduate Research Program (Brianna Sarcos)

TEACHING

University of California, Irvine   Irvine, CA USA

Spring 2020 Topics in Reinforcement Learning (Graduate; with Prof. Mimi Liljeholm)

Spring 2019, 2020   Research in Exp Psych (Undergraduate; with Prof. Nadia Chernyak)

Winter 2019, 2020   Advanced Experimental Psychology (Undergraduate)

New York University   New York, NY USA

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

Fall 2009   Cognitive Neuroscience, TA (Prof. Nathaniel D. Daw)

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

Spring 2008   Cognition, TA (Prof. Robert E. Rehder)

Massachusetts Institute of Technology   Cambridge, MA

Fall 1999 Introduction to Computers and Engineering Problem Solving, LA

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

OTHER
TEACHING

July 2018   Cold Spring Harbor Computational & Cognitive Neuroscience Summer School, Suzhou, China (Faculty, reinforcement learning module)

Fall 2016 – Fall 2018   Princeton Prison Teaching Initiative (Instructor, co-organizer; Highschool & College Algebra, Statistics, English Composition)

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

PROFESSIONAL ACTIVITIES	2020 Co-organizer (with Lulu Chen) Center for Neurobiology of Learning and Memory Spring Meeting
	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: Acta Psychologica; Attention, Perception, & Psychophysics; Biological Cybernetics; Biological Psychiatry; BMC Neuroscience; Cerebral Cortex; Cognition; Cognitive, Affective, and Behavioral Neuroscience; Cognitive Science; Cortex; COSYNE; eNeuro; European Journal of Neuroscience; European Neuropsychopharmacology; Frontiers in Behavioral Neuroscience; Human Brain Mapping; ICDL; Israel Science Foundation; Journal of Cognitive Neuroscience; Journal of Memory & Language; Journal of Neuroscience; Nature Communications; Nature Human Behavior; Neuroimage: Clinical; PLoS Computational Biology; PLoS ONE; PNAS; Reinforcement Learning & Decision-Making; Topics in Cognitive Science; 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