ADRIAN GOPNIK BONDY
adrian.bondy@gmail.com

Princeton Neuroscience Institute   2562 Cedar St.
Washington Road   Philadelphia, PA 19125
Princeton, NJ 08540

CURRENT POSITION

Princeton University   Princeton, NJ
Postdoctoral research fellow; Advisor: Carlos Brody   2017 - present

EDUCATION

Brown University / NIH Graduate Partnership Program   Providence, RI & Bethesda, MD
PhD, Neuroscience   2016
Dissertation: *Decision-Related Feedback Influences the Structure of Correlated Variability in Visual Cortex*

McGill University   Montreal, Canada
B.A. and B.Sc., Cognitive Science   2010

RESEARCH EXPERIENCES

Princeton University   Princeton, NJ
Postdoctoral Research Associate; Advisor: Carlos Brody   2017 – present
Large-Scale Mapping of Striatal Dynamics during Perceptual Decision Making
- Developed and characterized a system that achieves highly stable, cost-effective, and parallel recordings from chronically implanted Neuropixels probes in freely moving rats. *See Luo*, **Bondy*** et al. (2020). eLife.*
- Performed a survey of encoding during an auditory evidence accumulation task across subregions and genetically-defined subpopulations of the rat striatum, combining Neuropixels recordings and optogenetic tagging. This revealed a hierarchy of evidence accumulation timescales along the striatal anteroposterior axis. *See **Bondy** et al. (2020). Cosyne Abstracts.*

National Institutes of Health   Bethesda, MD
Graduate Student; Advisor: Bruce Cumming   2011 – 2016
Top-Down Influences on Correlated Variability in Primary Visual Cortex
- Recorded population spiking activity in primary visual cortex using multi-electrode arrays (Plexon V-probes and Utah arrays) in monkeys performing an orientation discrimination task to reveal the profound influence of task on V1 spike-count correlation structure. *See **Bondy** et al. (20218). Nat. Neuro.*
- Used psychophysical reverse correlation to quantitatively measure the strong influence of prior task history on the task strategy employed by monkeys during orientation discrimination. *See **Bondy** et al. (2015). SfN Abstracts.*

Brown University   Providence, RI
Graduate Student; Advisor: Wilson Truccolo & John Donoghue   2010 – 2011
Fronto-parietal Interactions During Reach
- Developed a point-process model that allowed prediction of local field potential activity in one brain area from population spiking activity in another brain area. This was used to demonstrate functional input from monkey somatosensory area PE to primary motor cortex during reach in monkeys with multiple chronically implanted Utah arrays, demonstrating a pathway likely involved in the use of proprioceptive feedback to control arm movements. *See Menzer et al. (2014). J. Neurophys.*

PUBLICATIONS

Luo, T.*, **Bondy, A.***, Gupta, D., Elliott, V., Kopec, C., & Brody, C. D. (2020). An approach for long-term, multi-probe Neuropixels recordings in unrestrained rats. eLife. DOI: 10.7554/eLife.59716

Bondy, A. & Cumming, B. (2018). Decision-Related Feedback Determines the Structure of Correlated Variability in Visual Cortex. Nature Neuroscience, 21. DOI: 10.1038/s41593-018-0089-1

Bondy, A. & Cumming, B. (2015). Synchronous Spikes Are More Effective (but not for long). Neuron, 87 (4), 676-678. DOI: 10.106/j.neuron.2015.08.01

McFarland, J., **Bondy, A.**, Cumming, B., Saunders, R., & Butts, D. (2015). Saccadic modulation of stimulus processing in primary visual cortex. Nature communications, 6. DOI: 10.1038/ncomms9110

Menzer, D., Rao, N., **Bondy, A.**, Truccolo, W., & Donoghue, J. (2014). Population Interactions Between Parietal and Primary Motor Cortices During Reach. Journal of Neurophysiology, 112 (11), 2959-2984. DOI: 10.1152/jn.00851.2012

McFarland, J., **Bondy, A.**, Cumming, B., & Butts, D. (2014). High-resolution eye tracking using V1 neuron activity. Nature communications, 5. DOI: 10.1038/ncomms5605

* These authors contributed equally

SELECTED CONFERENCE PRESENTATIONS

Bondy, A., Luo, T.Z., Gupta, D., Elliott, V., Kopec, C., Brody, C.D. (2022). Auditory decision making requires multiple striatal pathways. Basal Ganglia Gordon Research Conference. Ventura, CA.

Yancy, G., Hart, E., **Bondy, A.**, Brody, C., Huk, A., Pillow, J., Keeley, S. (2022). Multi-region Poisson GPFA isolates shared and independent latent structure in sensorimotor tasks. Cosyne Abstracts 2022. Lisbon, Portugal.

Bondy, A., Luo, T.Z., Gupta, D., Brody, C.D. (2020). Anterior and posterior striatum play distinct roles in evidence accumulation. Cosyne Abstracts 2020, Denver, CO.

Bondy, A., Luo, T.Z., Brody, C.D. (2019). Anterior and posterior dorsal striatum play distinct roles in evidence accumulation. SfN Abstracts 2019.

Luo, T.Z., **Bondy, A.,** Brody, C.D. (2019). Chronic recording using Neuropixels probes in freely moving rats performing evidence accumulation. SfN Abstracts 2019.

Bondy, A., and Cumming, B. (2016). The Impact of Noise Correlations in Visual Cortex on Perceptual Performance Depends on their Origin. VSS Abstract 2016.

Lange, R., **Bondy, A.**, Cumming, B. and Haefner, R. (2016). On the neural basis of probabilistic inference during perceptual decision making. Cosyne Abstracts 2016, Salt Lake City, Utah.

Bondy, A., and Cumming, B. (2015). Monkeys behaving badly: probing macaques' internal task strategies with psychophysical reverse correlation. SfN Abstracts 2015.

Bondy, A., and Cumming, B. (2015). Choice-Related Activity in Macaque Primary Visual Cortex Reflects Feedback. NIH Graduate Student Research Symposium.

McFarland, J., **Bondy, A.**, Cumming, B. and Butts, D (2015). Saccadic modulation of stimulus processing in primary visual cortex. Cosyne Abstracts 2015, Salt Lake City, Utah.

Bondy, A., and Cumming, B. (2013). Top down signals influence the distribution of noise correlations amongst sensory neurons. SfN Abstracts 2013.

SKILLS

Development of devices for chronic implantation of neural probes in rodents (4 years experience)

Development and deployment of scalable high-yield electrophysiological data acquisition, processing, and analysis pipelines (10 years experience)
High-throughput automated rodent behavioral training systems (4 years experience)
Analysis and modeling of spike train and local field potential data (10 years experience)
Rodent and monkey stereotactic surgical technique (10 years experience)
Rodent and monkey behavioral design and training (10 years experience)
Rodent optogenetics (4 years experience)
Proficiency in Matlab, Python, Julia, MySQL and DataJoint

OPEN SOURCE SOFTWARE CONTRIBUTIONS

Kilosort2
JRClust

AWARDS & HONORS

NIMH Ruth Kirschstein Postdoctoral Individual NRSA 1F32MH123047-01A1, 2021 - 2023
Brown University International Affairs Travel Fund Award, 2011
McGill University Lorne Gales Scholar, 2003 - 2007

TALKS

Basal Ganglia Gordon Research Seminar 2022
Columbia University, 2016
NYU Center for Neural Science, 2016
University of Pennsylvania, Department of Psychology, 2015
Rochester University, Brain and Cognitive Sciences Department, 2015
Harvard Medical School Systems Journal Club, 2015
NYU Center for Neural Science, Noise Workshop, 2014
Society for Neuroscience, 2013

SOCIETY MEMBERSHIPS

Society of Neuroscience	2010 - present
Vision Sciences Society	2016

NEUROSCIENCE SUMMER SCHOOLS

Computational Neuroscience: Vision, Cold Spring Harbor	Cold Spring Harbor, NY, 2014
Computational Vision, Bernstein Center for Comp. Neuro.,	Tubingen, Germany, 2012
Computational and Cognitive Neuroscience, Cold Spring Harbor Asia	Suzhou, China, 2011
Computational Neuroscience Summer School, University of Ottawa	Ottawa, Canada, 2010

COMMUNITY INVOLVEMENT

Student Coordinator, Brown-NIH Graduate Partnership Program, 2013-2015
Reviewer: Cell, Neuron, Journal of Neuroscience, PNAS, Scientific Reports, PLOS Computational Biology, Frontiers in Ecology and Evolution,