

Jackson J. Cone, PhD
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Education

In Progress M.S. in Analytics, Georgia Institute of Technology
2014 Ph.D. in Neuroscience, University of Illinois, Chicago
2008 B.A. in Molecular and Cell Biology, University of California, Berkeley
Minor in Public Policy

Current Position

2022- Assistant Professor, Department of Psychology
Member, Hotchkiss Brain Institute
University of Calgary

Past Positions

2020-2022 Research Assistant Professor, Laboratory of John H.R. Maunsell, Ph.D.
University of Chicago
2015-2020 Postdoctoral Scholar, Laboratory of John H.R. Maunsell, Ph.D.
University of Chicago
2015-2019 Adjunct Instructor, Department of Liberal Arts
School of the Art Institute of Chicago
2009-2014 Graduate Student, Laboratory of Mitchell F. Roitman, Ph.D.
University of Illinois, Chicago
Thesis: *“The Hunger Hormone Ghrelin Dynamically Tunes Phasic Mesolimbic Signals Underlying Food-Directed Behaviors”*
2007-2009 Staff Research Associate, Laboratory of Patricia H. Janak, Ph.D.
University of California, San Francisco

Honors, Awards, and Fellowships

2023- Canada Research Chair (Tier II) in Computational Behavioural Neuroscience
2016-2019 Arnold and Mabel Beckman Foundation Postdoctoral Fellowship
2015 UIC Outstanding Thesis Award (Life Sciences)
2014 SSIB New Investigator Travel Award
2013-2014 UIC Dean’s Scholar Fellowship
2011-2013 Chicago Biomedical Consortium Scholar Award
2011-2013 UIC Center for Clinical and Translational Science Predoctoral Fellowship
2010-2011 Departmental T32 Training Grant in the Neuroscience of Mental Health
2009-2011 UIC Chancellor’s Supplemental Research Fellowship

University Teaching

2023- PSCH 503: Computational Neuroscience, Sole Instructor (Winter Semesters)
University of Calgary
2015-2019 Science 3460: Light and Vision, undergraduate, Sole Instructor (8 semesters)
School of the Art Institute of Chicago
2017-2019 Science 3565: Biotechnology and Society, undergraduate, (4 weeks/semester)
School of the Art Institute of Chicago
2014 PSCH 363: Laboratory in Behavioral Neuroscience, Sole Instructor (1 semester)
University of Illinois at Chicago

Publications (n = 23; First Author = 8.5; h-index = 17)

- Cone JJ**, Mitchell AO, Parker RK, Maunsell JHR. Temporal weighting of cortical and subcortical spikes reveals stimulus dependent differences in their contributions to behavior. *Under Review*. Preprint: <https://doi.org/10.1101/2023.08.23.554473>
- Duriez A, Bergerot C, **Cone JJ**, Roitman MF, Gutkin B. Homeostatic reinforcement theory accounts for sodium appetitive state- and taste- dependent dopamine responding. *Nutrients* (2023). PMID: 36839372
- Day-Cooney JR, **Cone JJ**, Maunsell JHR. Perceptual weighting of V1 spikes revealed with white noise optogenetic stimulation. *Journal of Neuroscience* (2022). PMID: 35232760
- Cone JJ**, Bade ML, Masse NY, Page, EA, Maunsell JHR. Mice preferentially use increases in cerebral cortex spiking to detect changes in visual stimuli. *Journal of Neuroscience* (2020). PMID: 32917791
- Ryczko D, Grätsch S, Alpert MH, **Cone JJ**, Kasemir J, Ruthe A, Beauséjour P-A, Auclair F, Alford S, Roitman MF, Dubuc R. Descending dopaminergic inputs to reticulospinal neurons promote locomotor movements. *Journal of Neuroscience* (2020). PMID: 32998974
- Cone JJ**, Scantlen MD, Histed MH, Maunsell JHR. Different inhibitory interneuron cell classes make distinct contributions to visual perception. *eNeuro* (2019). PMID: 30868104
- Cone JJ**, Ni AM, Ghose K, Maunsell JHR. Electrical Microstimulation of Visual Cerebral Cortex Elevates Psychophysical Detection Thresholds. *eNeuro* (2018). PMID: 30406199
- Cone JJ**, Fortin SM, McHenry JA, Stuber GD, McCutcheon JE, Roitman MR. Physiological state gates acquisition and expression of mesolimbic reward prediction errors. *Proceedings of the National Academy of Sciences* (2016). PMID: 26831116
- Ryczko D, **Cone JJ**, Alpert MH, Goetz L, Auclair F, Dubé C, Parent M, Roitman MF, Alford S, Dubuc R. Descending dopamine pathway conserved from vertebrates to mammals. *Proceedings of the National Academy of Sciences* (2016). PMID: 27071118
- Chase KA, **Cone JJ**, Rosen C, Sharma R. The value of Interleukin 6 as a peripheral diagnostic marker in schizophrenia. *BMC Psychiatry* (2016). PMID: 27206977
- Cone JJ**, Roitman JD, Roitman MF. Ghrelin regulates phasic mesolimbic signaling evoked by food-predictive stimuli. *Journal of Neurochemistry* (2015). PMID: 25708523
- Fortin SM, **Cone JJ**, Ng-Evans S, McCutcheon JE, Roitman MF. Sampling phasic dopamine signaling with fast-scan cyclic voltammetry in awake-behaving rats. *Current Protocols in Neuroscience* (2015). PMID: 25559005
- Mietlicki-Baase EG, Reiner DJ, **Cone JJ**, Olivos DR, McGrath LE, Zimmer DJ, Roitman MF, Hayes MR. Amylin modulates the mesolimbic dopamine system to control energy balance. *Neuropsychopharmacology* (2015). PMID: 25035079
- Cone JJ**, McCutcheon JE, Roitman MF. Ghrelin acts as an interface between physiological state and phasic dopamine signaling. *Journal of Neuroscience* (2014). PMID: 24695709
- Koranda J, **Cone JJ**, McGehee DS, Roitman MF, Beeler JA, Zhaung X. Nicotinic receptors regulate the dynamic range of dopamine release in vivo. *Journal of Neurophysiology* (2014). PMID: 24089398
- McCutcheon JE, **Cone JJ**, Sinon CG, Fortin SM, Katak PA, Witten IB, Deisseroth K, Stuber GD, Roitman MF. Optical suppression of drug-evoked phasic dopamine release. *Frontiers in Neural Circuits* (2014). PMID: 25278845
- Cone JJ**, Chartoff EH, Potter DN, Ebner SR, Roitman MF. Prolonged high-fat diet reduces dopamine reuptake without altering DAT gene expression. *PLoS One* (2013). PMID: 23516454

- Ryczko D, Grätsch S, Auclair F, Dubé C, Bergeron S, Alpert MH, **Cone JJ**, Roitman M, Alford S, Dubuc R. Forebrain dopamine neurons project down to a brainstem region controlling locomotion. *Proceedings of the National Academy of Sciences* (2013). PMID: 23918379
- Brown HD, McCutcheon JE, **Cone JJ**, Ragozzino ME, Roitman MF. Primary food reward and reward predictive stimuli evoke different patterns of phasic dopamine signaling throughout the striatum. *European Journal of Neuroscience* (2011). PMID: 22122410
- Tye KM*, **Cone JJ***, Schairer W, and Janak PH. Amygdala neural encoding of the absence of reward during extinction. *Journal of Neuroscience* (2010). PMID: 20053894 ***Co-first author.**
- Roitman MF, Wescott S, **Cone JJ**, McLane MP, Wolfe HR. Trodusquemine (MSI-1436) reduces acute food intake without affecting dopamine transporter activity. *Pharmacology, Biochemistry and Behavior* (2010). PMID: 20478327
- Tye KM, Tye LD, **Cone JJ**, Hekkelman EF, Janak PH, and Bonci AB. Methylphenidate facilitates learning-induced amygdala plasticity. *Nature Neuroscience* (2010). PMID: 20208527
- Chaudrhi N, Sahuque LL, **Cone JJ**, and Janak PH. Reinstated ethanol-seeking in rats is modulated by environmental context and requires the nucleus accumbens core. *European Journal of Neuroscience* (2008). PMID: 19046372

Invited Talks

- 2022 Neurosci 4S03 Undergraduate Honors Neuroscience Seminar, McMaster University
- 2023 Computational Neuroscience Seminar Series, University of Calgary
- 2023 University of Calgary Data Science Day

Conference Presentations

- 2018 University of Chicago T32 Training Grant Retreat
- 2014 Society for the Study of Ingestive Behavior **Awarded New Investigator Travel Award**
- 2013 Chicago Chapter of the Society for Neuroscience Annual Meeting
- 2010, 2011 Society for the Study of Ingestive Behavior

Ongoing Education

- 2021 *Leadership Excellence and Development (LEAD)*
University of Chicago myChoice and Booth School of Business mini-course
- 2020 *Neuropixels Training Course*
University College London Short Course
- 2016 *Imaging Structure and Function in the Nervous System*
Cold Spring Harbor Laboratory Summer Course

Supervision and Training of Laboratory Personnel

- 2023- Bert Kwon, MSc student in Psychology
- 2023- Kiana Kazeminejad, MSc student in Biomedical Engineering
- 2023- Amira Fadl, MSc student in Biomedical Engineering
- 2022- Faye Arellano, University of Calgary Directed Research Student (PSCH 504A.10)
Conducting Psychology honours research in the lab for 2023-2024 academic year
- 2022- Georgia Green, University of Chicago Research Technician
- 2021-2023 Autumn Mitchell, University of Chicago Research Technician
Currently Sociology PhD student at UC Berkeley
- 2020-2022 Rachel Parker, University of Chicago Research Technician
Currently Biomedical Science PhD Student at Rosalind Franklin University
- 2018-2021 Morgan Bade, University of Chicago Research Technician

- 2018 *Currently MSTP Student at Emory University*
Elizabeth Page, University of Chicago Research Technician
Currently Neurology Resident at The Cleveland Clinic (completed MD in 2022)
- 2017 Megan Scantlen, Northeastern University Undergraduate Co-Op
Currently Biomedical Sciences PhD Student at University of California, San Francisco

Other Activities

- 2021-2023 Board Member, West Suburban Temple Har Zion, Oak Park IL
- 2020 EZRA multi-service center food and hygiene pantry delivery during COVID-19 pandemic
- 2019-2021 Honeymoon Israel Alumni Leadership Council
- 2018 University of Chicago Neuroscience Cluster Retreat Planning Committee
- 2017-2022 Private Real Estate Investor
Purchased and rehabbed 2 historic properties in the Pullman neighborhood of Chicago

Ad Hoc Reviewer

Physiology and Behavior, Neuropharmacology, Transactions on Biomedical Engineering, eNeuro, Scientific Reports

Research Support

5/1/2021 – 4/30/2023 NIH R21 (NEI) Role: PI
“Probing the timescales of perception with white noise optogenetic inhibition”

The goal of this proposal is to use white noise optogenetic inhibition to determine the periods of activity in visual and visuomotor areas that casually contribute to perception and action. \$275,000 USD in direct costs over 2 years. No cost extension through 2024.

4/1/2022 – 3/31/2027 NSERC Discovery Grant Role: PI
“Parsing pathways of visual perception”

The goal of this proposal is to identify whether specific output pathways of the primary visual cortex are sufficient for generating percepts that can be used to guide behaviour. \$29,000 CAD/year in direct costs. Also received a Discovery Launch Supplement worth \$12,500 CAD.

2/3/2023 – 3/31/2026 Canadian Foundation for Innovation John R. Evans Leaders Fund Role: PI
“Signal readout and plasticity for perception and action”

The goal of this proposal is to support acquisition of advanced neuronal recording and perturbation technologies to examine how signals in sensory cerebral cortex support perception and action and how perceptual learning augments these processes. Total project cost = \$467,221 CAD.

Service

Psychology

- 2022-2023 Sakib Khan, MSc Thesis Committee
- 2023 Chantelle Magel, PhD Thesis Committee (Neutral Chair)
- 2023- Dept. of Psychology Performance Review Committee
- 2023 Mahtab Moshirour, PhD Thesis Committee (Neutral Chair)

Biomedical Engineering

- 2023 GAC Entrance and Killiam Awards Adjudicator

Updated: 230905

2023 Milton Camacho, MSc Thesis Committee (Neutral Chair)
2023 Hansol Ryu, PhD Thesis Committee (External Examiner)

Neuroscience

2023 GAC Entrance and Killiam Awards Adjudicator
2023 Neuroscience 500 Undergraduate Honours Program Oral Presentation Panelist

University

2023 GAC Awards Adjudicator
2023- Life and Environmental Sciences Animal Care Committee Member (LESACC)