Jeremy D. Cohen, PhD

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EMPLOYMENT and EDUCATION

Research Scientist

Janelia Research Campus, Howard Hughes Medical Institute

- Principal Investigator: Dr. Adam Hantman, PhD
- Project: Long-range inputs to Primary Motor Cortex controlling the command of skilled movements
- Project: Roll of corollary discharges in the Pontine Nuclei during successful performance of a fine motor skill

Research Scientist 2015-2016

Janelia Research Campus, Howard Hughes Medical Institute

- Principal Investigator: Dr. Albert K. Lee, PhD
- Project: Experience-dependent shaping of hippocampal CA1 intracellular activity in novel and familiar virtual environments

Post-doctoral Research Associate 2009-2014

Janelia Research Campus, Howard Hughes Medical Institute

- Principal Investigator: Dr. Albert K. Lee, PhD
- Project: Membrane potential dynamics of dorsal hippocampal neurons during exploration of familiar and novel virtual environments
- Custom designed and built a head-fixed behavioral treadmill apparatus and a visual-based virtual reality system

Post-doctoral Research Associate 2008-2009

Drexel University College of Medicine

- Principal Investigator: Dr. Manuel A. Castro-Alamancos, PhD

Doctoral Program, Neuroscience 2002-2008

Drexel University College of Medicine

- Principal Investigator: Dr. Manuel A. Castro-Alamancos, PhD
- Project: Early sensory pathways for detection of fearful conditioned stimuli: tectal and thalamic relays

Bachelor of Kinesiology, summa cum laude 1998-2002

McMaster University

- Minor degrees: Psychology, Music
- Principal Investigators: Dr. Ron J. Racine, PhD
- Project: Cooperativity of layer II/III horizontal connections: A theoretical analysis of primary motor cortex circuitry and neural plasticity

SCHOLARSHIPS AND AWARDS

Goldberger/Boyne/Levine Endowment – Annual Graduate Student Award 2006-2007
Drexel University College of Medicine, Dept. of Neurobiology
- ($500)

Natural Science and Engineering Research Council (NSERC) PGSA, 2002-2004
- ($17,400/year, 2 years) – Offered,
- Declined to work with Dr. Manuel A. Castro-Alamancos in the USA

Ontario Graduate Scholarship (OGS), 2002-2003
- ($15,000) – Offered,
- Declined to work with Dr. Manuel A. Castro-Alamancos in the USA

McMaster University Exchange Student Bursary Award 2000-2001
- ($800)

McMaster University Senate Scholarship 2000-2001
- ($1,000)

Marauder Scholar for Academic and Athletic Achievement 1999-2000

Ontario University Athletics (OUA) Academic Achievement Award 1999-2000

McMaster University Varsity Tennis Team 1999-2000
- OUA Champions/National Champions

McMaster University Dean's Honour List 1998-2002
- Graduated ***summa cum laude***

MEMBERSHIPS

Society for Neuroscience 2003-Present

RELEVENT EMPLOYMENT HISTORY

Drexel University College of Medicine Apr. 1 – Jun. 1, 2003-2006
- Teaching assistant. Medical Neuroscience - Year 1.
- Medical school core curriculum tutor for 3 years.
- One-on-One and group teaching sessions. ~ 10-15 hrs/week.

McMaster University May 2002 - Sept. 2002, Full-Time
Department of Psychology

- Research assistant under the supervision of Dr. Ron J. Racine, PhD.
- Conducted experiments investigating thalamocortical-corticocortical cooperativity in rat motor cortex: chronic electrophysiological recordings in freely behaving rats

GRADUATE COURSES

Electronics for Neuroscientists, Advanced Cellular and Systems Neurophysiology, Integrative Neuroscience, Graduate Neuropharmacology, Graduate Physiology, Biochemistry, Molecular Genetics, Molecular Biology, Immunology, Cellular Structure and Function, Cellular Pharmacology and Physiology, Signal Transduction, Cell Cycle, Integration of Biological Functions on Organ Systems, Medical Neuroscience, Biostatistics, Searching Medical Literature

PUBLICATIONS AND ABSTRACTS

Cohen JD, Bolstad MA & Lee AK. (2017). Experience-dependent shaping of hippocampal CA1 intracellular activity in novel and familiar environments. eLife; 6:e23040

Singer AC, Franzesi GT, …, Cohen JD, Lee AK, … Boyden ES (2017). Mesoscale activated states gate spiking in the awake brain. *J.Neurophysiol.* 118:2, 1270-1291

Cohen JD, Bolstad MA & Lee AK. (2016). Experience-dependent shaping of hippocampal CA1 intracellular activity in novel and familiar environments. *Society for Neuroscience,* Poster Presentation.

Cohen JD, Bolstad MA & Lee AK. (2016). Experience-dependent changes in hippocampal CA1 intracellular activity in novel and familiar environments. *Howard Hughes Medical Institute International Conference at Janelia Research Campus.*

Cohen JD, Bolstad MA & Lee AK. (2015). Intracellular features of hippocampal CA1 activity during the exploration of novel and familiar virtual environments. *Howard Hughes Medical Institute International Conference at Janelia Research Campus.*

Cohen JD & Lee AK. (2014). Membrane potential dynamics of dorsal CA1 neurons during exploration of familiar and novel virtual environments. *Society for Neuroscience,* Poster Presentation.

Cohen JD & Lee AK. (2014). A scalable system for large spherical treadmills. *Published Online,* http://www.flintbox.com/public/project/26501/
Cohen JD & Lee AK. (2014). A scalable system for large spherical treadmills. *Society for Neuroscience,* Poster Presentation.

Sofroniew NJ, Cohen JD, Lee AK & Svoboda K. (2014). Natural whisker-guided behavior by head-fixed mice in tactile virtual reality. *J. Neurosci.* 34(29): 9537-50.

Cohen JD & Castro-Alamancos, MA. (2010). Behavioral state dependency of neural activity and sensory (whisker) responses in superior colliculus. *J. Neurophysiol.* 104(3): 1661-72.

Cohen JD & Castro-Alamancos, MA. (2010). Neural correlates of active avoidance behavior in superior colliculus. *J. Neurosci.* 30(25): 8502-11.

Cohen JD & Castro-Alamancos, MA. (2010). Detection of low salience whisker stimuli requires synergy of tectal and thalamic sensory relays. *J. Neurosci.* 30(6): 2245-56.

Cohen JD & Castro-Alamancos, MA. (2008). Vibrissa sensation in superior colliculus: wide-field sensitivity and state-dependent cortical feedback. *J. Neurosci.* 28(44): 11205-11220.

Cohen JD & Castro-Alamancos, MA. (2007). Early sensory pathways for detection of fearful conditioned stimuli: tectal and thalamic relays. *J. Neurosci.* 27(29): 7762-7776.

Cohen JD & Castro-Alamancos, MA. (2007). Whisker-evoked response properties of superior colliculus neurons and the contribution of barrel cortex. *Society for Neuroscience,* Poster Presentation.

Cohen JD & Castro-Alamancos, MA. (2006). Thalamus and superior colliculus are alternative pathways for sensory signal detection during performance in a fear-motivated instrumental conditioning task. *Society for Neuroscience,* Poster Presentation.

Cohen JD & Castro-Alamancos, MA. (2005). Is transmission of the conditioned stimulus through the thalamus required for successful performance in a fear-motivated instrumental conditioning task? *Society for Neuroscience,* Poster Presentation.

Cohen, JD and Castro-Alamancos, MA. (2005). Skilled motor learning does not enhance long-term depression in the motor cortex in vivo. *J. Neurophysiol*. 93: 1486-1497

Cohen JD & Castro-Alamancos, MA. (2004). Food deprivation, but not motor skill learning, enhances long-term depression in horizontal connections of primary motor cortex. *Society for Neuroscience,* Poster Presentation.

Cohen JD & Castro-Alamancos, MA. (2003). Motor skill learning does not produce measurable changes in the efficacy of population responses in horizontal connections of primary motor cortex. *Society for Neuroscience,* Poster Presentation.

LECTURES AND SEMINARS

Guest lecturer: Matlab for Neuroscience, 2-Day bootcamp for Johns Hopkins Yr. 1 Graduate Students. (Fall, 2017). Course managers/instructors: Erik Snapp, Albert Lee and Karel Svoboda; HHMI, Janelia Research Campus.

Course designer: *Principles and Techniques of Electrical Engineering.* (Fall, 2010, 2012). Course managers/instructors: Steve Sawtelle, Gus Lott. Janelia Research Campus, HHMI.

Guest lecturer and seminar supervisor: *Neural correlates of attention and decision making.* Course manager: Dr. Birgit Neugebauer, *Topics in Neurobiology.* (Jan-Feb, 2008, 5 week seminar series). Drexel University College of Medicine.

Guest lecturer: Fundamentals of Electrophysiology. Course manager: Dr. Birgit Neugebauer, *Topics in Neurobiology.* (Feb, 2007-2009). Drexel University College of Medicine.

Guest lecturer: *The Neurobiology of fear conditioning.* Course manager/instructor: Dr. Manuel Castro-Alamancos, *Advanced Systems and Cellular Neurophysiology*. (Dec, 2007). Drexel University College of Medicine.

Guest lecturer: *Neurophysiological correlates of fear-based learning.* Course instructor: Dr. Manuel Castro-Alamancos, *Advanced Systems and Cellular Neurophysiology* (May, 2007). Drexel University College of Medicine.

Guest lecturer: *Early sensory pathways for detection of fearful conditioned stimuli.* Graduate student lecture series (Dec, 2006). Drexel University College of Medicine

Guest lecturer: *Electrophysiology of rat brain: techniques and interpretations.* Course instructor: Dr. Hong-Jin Sun, *Neuroscience Laboratory* (March, 2002). McMaster University.

REFERENCES

Dr. Adam Hantman, Janelia Research Campus, Howard Hughes Medical Institute, Ashburn, VA, 20147, USA; hantmana@janelia.hhmi.org

Dr. Albert K. Lee, Janelia Research Campus, Howard Hughes Medical Institute, Ashburn, VA, 20147, USA; leea@janelia.hhmi.org

Dr. Manuel A. Castro-Alamancos, Drexel University College of Medicine, Dept. of Neurobiology, Philadelphia, PA, 19144, USA; mcastro@drexelmed.edu

Dr. Karel Svoboda, Janelia Research Campus, Howard Hughes Medical Institute, Ashburn, VA, 20147, USA; svobodak@janelia.hhmi.org

Dr. Steven Sawtelle, Janelia Research Campus, Howard Hughes Medical Institute, Ashburn, VA, 20147, USA; sawtelles@janelia.hhmi.org