

**James R. Hinman**  
Department of Psychology  
University of Illinois Urbana-Champaign  
603 East Daniel St. Champaign, IL 61820

email: [jhinman@illinois.edu](mailto:jhinman@illinois.edu)  
website: [hinmanlab.org](http://hinmanlab.org)  
twitter: [@jake\\_hinman](https://twitter.com/jake_hinman)

---

## Academic Positions

---

2019 – Assistant Professor, Department of Psychology, University of Illinois at Urbana-Champaign

---

## Education

---

2006 – 2012 **Ph.D., M.A.**  
Behavioral Neuroscience Division  
Department of Psychological Sciences  
University of Connecticut, Storrs, CT

2004 – 2006 **B.A.**  
University of Connecticut  
Major: Psychology; Minors: Neuroscience, Philosophy  
*Summa Cum Laude*

1999 – 2000 Skidmore College, Saratoga Springs, NY

---

## Research Experience

---

2012 – 2019 Postdoctoral Research Associate  
Center for Systems Neuroscience  
Center for Memory and Brain  
Department of Psychological and Brain Sciences  
Boston University, Boston, MA  
Mentor: **Dr. Michael E. Hasselmo**

2006 – 2012 Behavioral Neuroscience Graduate Student  
Department of Psychological Sciences  
University of Connecticut, Storrs, CT  
Mentor: **Dr. James J. Chrobak**

Summer 2006 Research Assistant  
Department of Psychological Sciences  
University of Connecticut, Storrs, CT  
Mentor: **Dr. Heather L. Read**

2004 – 2006 Undergraduate Research Assistant  
Department of Psychological Sciences  
University of Connecticut, Storrs, CT  
Mentor: **Dr. Etan J. Markus**

---

### Journal Articles

#### Preprints:

1. Alexander AS, Carstensen L, **Hinman JR**, Raudies F, Chapman GW, Hasselmo ME (2019) Egocentric boundary vector tuning of the retrosplenial cortex. *bioRxiv* doi:https://doi.org/10.1101/702712.

#### Peer reviewed:

20. **Hinman JR**, Chapman GW, Hasselmo ME (2019) Neuronal representation of environmental boundaries in egocentric coordinates. *Nat Commun* 10: 2772.

\*Selected as a *Nature Communications* Editor's Highlight in From Brain to Behavior

\*News coverage [[Altmetric](#)]

19. **Hinman JR**, Dannenberg H, Alexander AS, Hasselmo ME (2018) Neural mechanisms of navigation involving interactions of cortical and subcortical structures. *J Neurophysiol* 119: 2007 – 2029.
18. Hasselmo ME, **Hinman JR**, Dannenberg H, Stern C (2017) Models of spatial and temporal dimensions of memory. *Curr Opin Behav Sci* 17: 27 – 33.
17. Dannenberg H, **Hinman JR**, Hasselmo ME (2016) Potential roles of cholinergic modulation in the neural coding of location and movement speed. *J Physiol Paris* 110: 52 – 64.
16. **Hinman JR**, Brandon MP, Chapman GW, Climer JR, Hasselmo ME (2016) Multiple running speed signals in medial entorhinal cortex. *Neuron* 91: 666 – 679.  
  
\*Featured in Hayman R, Burgess N (2016) Disrupting the grid cells' need for speed. *Neuron* 91: 502 – 503.  
\*Featured in Gonzalez-Sulser A, Nolan MF (2017) Grid cells' need for speed. *Nat Neurosci* 20: 1 – 2.
15. Raudies F, **Hinman JR**, Hasselmo ME (2016) Modelling potential sensory influences on grid cells. *J Physiol* 594: 6513 – 6526.
14. Jacobson TK, Schmidt B, **Hinman JR**, Escabí MA, Markus EJ (2015) Age-related decrease in theta and gamma coherence across dorsal CA1 pyramidal and radiatum layers. *Hippocampus* 25: 1327 – 1335.
13. Long LL, **Hinman JR**, Chen C-M, Stevenson IH, Read HL, Escabí MA, Chrobak JJ (2014) Novel acoustic stimuli can alter locomotor speed to hippocampal theta relationship. *Hippocampus* 24: 1053 – 1058.
12. Long LL, **Hinman JR**, Chen C-M, Escabí MA, Chrobak JJ (2014) Theta dynamics in rat: speed and acceleration across the septotemporal axis. *PLoS One* 9:e97987.
11. Penley SC, **Hinman JR**, Long LL, Markus EJ, Escabí MA, Chrobak JJ (2013) Novel space alters theta and gamma local field potentials across the septotemporal axis of the rodent hippocampus. *Front Syst Neurosci* 7: 20.
10. Schmidt B, **Hinman JR**, Jacobson T, Szkudlarek E, Argraves M, Escabí MA, Markus EJ (2013) Dissociation between dorsal and ventral theta oscillations during a place and response task. *J Neurosci* 33: 6212 – 6224.

9. Jacobson T, Howe MD, Schmidt B, **Hinman JR**, Escabí MA, Markus EJ (2013) Hippocampal theta, gamma and theta-gamma coupling: Effects of aging, environmental change and cholinergic activation. *J Neurophysiol* 109: 1852 – 1865.
8. **Hinman JR**, Penley SC, Escabí MA, Chrobak JJ (2013) Ketamine disrupts theta synchrony across the septotemporal axis of the CA1 region of hippocampus. *J Neurophysiol* 109: 570 – 579.
7. Penley SC, **Hinman JR**, Sabolek HR, Escabí MA, Markus EJ, Chrobak JJ (2012) Theta and gamma coherence across the septotemporal axis during distinct behavioral states. *Hippocampus* 22: 1164 – 1175.
6. Collins-Praino LE, Paul NE, Rychalsky K, **Hinman JR**, Chrobak JJ, Senatus PB and Salamone JD (2011). Pharmacological and physiological characterization of the tremulous jaw movement model, a rodent model of parkinsonian tremor: Potential insights into the pathophysiology of tremor. *Front Syst Neurosci* 5: 49.
5. **Hinman JR**, Penley SC, Long LL, Escabí MA, Chrobak JJ (2011) Septotemporal variation in dynamics of theta: speed and habituation. *J Neurophysiol* 105: 2675 – 2686.
4. Szalkowski CE, **Hinman JR**, Threlkeld SW, Wang Y, LePack A, Rosen GD, Chrobak JJ, LoTurco JJ, Fitch RH (2011) Persistent spatial working memory deficits in rats following *in utero* RNAi of *Dyx1c1*. *Genes, Brain and Behavior* 10: 244 – 252.
3. Collins LE, Galtieri DJ, Brennum LT, Sager TN, Hockemeyer J, Müller CE, **Hinman JR**, Chrobak JJ, Salamone JD (2010) Oral tremor induced by the muscarinic agonist pilocarpine is suppressed by the adenosine A2A antagonist MSX-3 and SCH58261, but not the adenosine A1 antagonist DPCPX. *Pharmacol Biochem Behav* 94: 561 – 569.
2. Sabolek HR, Penley SC, **Hinman JR**, Bunce JG, Markus EJ, Escabí MA, Chrobak JJ (2009) Theta and gamma coherence along the septotemporal axis of the hippocampus. *J Neurophysiol* 101:1192 – 1200.
1. Chrobak JJ, **Hinman JR**, Sabolek HR (2008) Revealing past memories: proactive interference and ketamine-induced memory deficits. *J Neurosci* 28: 4512 – 4520.

### **Book Chapters**

3. Hasselmo ME, **Hinman JR** (2017) Marr’s influence on the standard model of hippocampus and the need for more theoretical advances. In: Vaina L, Passingham R (eds.) *Computational Theories and their Implementation in the Brain: The Legacy of David Marr*. Oxford University Press: Oxford, pp. 133 – 158.
2. Hasselmo ME, **Hinman JR** (2016) Computational Neuroscience: Hippocampus. In: Pfaff D, Volkow N (eds.) *Neuroscience in the 21<sup>st</sup> century*. Springer: New York, pp. 3081 – 3095.
1. Schultheiss NW, **Hinman JR**, Hasselmo ME (2015) Models and theoretical frameworks for hippocampal and entorhinal cortex function in memory and navigation. In: Masami, T (ed.) *Analysis and Modeling of coordinated multi-neuronal activity*. Springer: New York, pp. 247-268.

## Conference Abstracts

34. Alexander AS, Carstensen LC, Chapman GW, Raudies F, **Hinman JR**, Hasselmo ME (2019) Egocentric boundary vector tuning of the retrosplenial cortex. *Soc. Neurosci. Abstr.*
33. **Hinman JR**, Chapman GW, Hasselmo ME (2018) Neuronal representation of environmental boundaries in egocentric coordinates. *Soc. Neurosci. Abstr.*
32. Carstensen L, Alexander AS, **Hinman JR**, Hasselmo ME (2018) Spatial correlates of the retrosplenial cortex during free exploration. *Soc. Neurosci. Abstr.*
31. **Hinman JR**, Chapman GW, Hasselmo ME (2018) Egocentric representation of environmental boundaries in the striatum. *iNav*.  
\* awarded prize for “Best Poster”
30. Alexander AS, Carstensen L, **Hinman JR**, Hasselmo ME (2018) Spatial correlates of the retrosplenial cortex during free exploration. *iNav*.
29. Rozeske RR, Wilson EK, Ajabi Z, **Hinman JR**, Brandon MP (2018) Egocentric boundary cell representation in the mouse dorsal medial striatum. *iNav*.
28. **Hinman JR**, Chapman GW, Hasselmo ME (2017) Egocentric representation of environmental boundaries in the striatum. *Soc. Neurosci. Abstr.*710.23.
27. **Hinman JR**, Chapman GW, Hasselmo ME (2016) Representation of environmental boundaries within an egocentric reference frame. *Soc. Neurosci. Abstr.*359.13.
26. **Hinman JR**, Climer JR, Chapman GW, Hasselmo ME (2015) A novel slow (1-3 Hz) oscillatory cell type in the lateral septum. *Soc. Neurosci. Abstr.* 85.01.
25. Climer JR, DiTullio R, **Hinman JR**, Hasselmo ME, Eden U (2015) Examining rhythmicity in extracellular recordings. *Statistical Analysis of Neuronal Data 7*.
24. Climer JR, DiTullio R, **Hinman JR**, Chapman GW, Brandon MP, Hasselmo ME, Eden U (2014) Addressing theta rhythmicity in extracellularly recorded neurons in rat and bat. *Soc. Neurosci. Abstr.* 465.06.
23. Long LL, Norris AA, **Hinman JR**, Chen C-M, Stevenson IH, Read HL, Escabí MA, Chrobak JJ (2014) Novel acoustic stimuli can alter locomotor speed-theta relationship across the septotemporal axis of the hippocampus. *Soc. Neurosci. Abstr.* 751.08.
22. **Hinman JR**, Brandon MP, Chapman IV GW, Hasselmo ME (2013) Speed modulation of medial entorhinal cortical neurons during medial septal inactivation. *Soc. Neurosci. Abstr.* 769.01.
21. **Hinman JR**, Long LL, Escabí MA, Chrobak JJ (2012) Theta dynamics: the relationship between theta frequency and locomotor speed in familiar and novel environments. *Soc. Neurosci. Abstr.* 918.17.

- 20 Chrobak JJ, Long LL, Escabí MA, **Hinman JR** (2012) Theta dynamics: septotemporal differences in response to habituation, spatial novelty and the absence of expected reward. *Soc. Neurosci. Abstr.* 918.18.
19. Long LL, **Hinman JR**, Escabí MA, Chrobak JJ (2012) Theta dynamics: speed, velocity acceleration and contribution to cognition. *Soc. Neurosci. Abstr.* 918.17.
18. **Hinman JR**, Penley SC, Escabí MA, Chrobak JJ (2011) Ketamine induced disruption in global theta coherence across the septotemporal axis of the hippocampus. *Soc. Neurosci. Abstr.* 938.15.
17. Long LL, **Hinman JR**, Penley SC, Escabí MA, Chrobak JJ (2011) Septotemporal variations in hippocampal theta and other oscillations during REM sleep. *Soc. Neurosci. Abstr.* 938.14.
16. Corriveau JA, **Hinman JR**, Larossa C, Salamone J, Chrobak JJ (2011) “Episodic” memory in the rat: the “short” and “long” retention of a trial-unique, delayed conditional discrimination following NMDA antagonist treatment. *Soc. Neurosci. Abstr.* 938.13.
15. Schmidt B, Argraves M, Szkudlarek E, **Hinman JR**, Jacobson TK, Escabí MA, Markus EJ (2011) Theta-gamma modulation along the septotemporal axis during a place and response task. *Soc. Neurosci. Abstr.* 938.10.
14. Jacobson TK, Howe MD, Schmidt B, **Hinman JR**, Bohannon S, Mastro K, Escabí MA, Markus EJ (2011) Hippocampal oscillations in young and aged rats: Response to altered environments. *Soc. Neurosci. Abstr.* 938.20.
13. **Hinman JR**, Penley SC, Long LL, Escabí MA, Chrobak JJ (2010) Septotemporal variation in the effects of speed on the theta rhythm. *Soc. Neurosci. Abstr.* 203.2.
12. Long LL, **Hinman JR**, Penley SC, Escabí MA, Chrobak JJ (2010) Theta/gamma cross frequency coupling across the septotemporal axis of the hippocampus and the effects of ketamine. *Soc. Neurosci. Abstr.* 203.1.
11. **Hinman JR**, Penley SC, Escabí MA, Chrobak JJ (2009) Septotemporal variation in the speed modulation of theta power. *Winter Conf Neurobiol Learn Mem*
10. Penley SC, **Hinman JR**, Escabí MA, Markus EJ, Chrobak JJ (2009) Saliency of environmental novelty: Theta power, frequency and coherence within the hippocampus and entorhinal cortex. *Soc. Neurosci. Abstr.* 192.28.
9. **Hinman JR**, Penley SC, Escabí MA, Chrobak JJ (2008) Theta/Gamma synchronization: the effects of the NMDA antagonist ketamine. *Soc. Neurosci. Abstr.* 879.2.
8. Penley SC, **Hinman JR**, Escabí MA, Markus EJ, Chrobak JJ (2008) The effects of novelty and aging on the coherence of theta and gamma in the hippocampus and entorhinal cortex. *Soc. Neurosci. Abstr.* 879.3.
7. Chrobak JJ, **Hinman JR** (2008) Episodic memory, proactive interference and ketamine induced cognitive deficits in the rat. *Soc. Neurosci. Abstr.* 879.1.

6. Schmidt B, **Hinman JR**, Penley SC, Jacobson TK, Ciurylo E, Zhang E, Escabí MA, Markus EJ (2008) Local field potentials in the hippocampus, striatum and nucleus accumbens during a place and response task. *Soc. Neurosci. Abstr.* 389.3.
5. Cleary CE, **Hinman JR**, DiPinto K, Malloy D, Threlkeld SW, Wang Y, Rosen GD, Chrobak JJ, Fitch RH (2008) Assessment of episodic memory performance following early interference with a dyslexia risk gene (Dyx1c1) in male Sprague-Dawley rats. *Soc. Neurosci. Abstr.* 249.3.
4. **Hinman JR**, Sabolek HR, Chrobak JJ (2007) Ketamine induced proactive interference between working and episodic memories in the rat: relation to hippocampal theta. *Soc. Neurosci. Abstr.* 305.8.
3. Schmidt B, Penley SC, **Hinman JR**, Jacobson TK, Fairchild J, Gruenbaum B, Escabí MA, Markus EJ (2007) Oscillations of local field potentials in the rat dorsal hippocampus, dorsal striatum, and nucleus accumbens: Comparing place and response trials. *Soc. Neurosci. Abstr.* 640.7.
2. **Hinman JR**, Brandon MP, Sava S, Markus EJ (2006) Examining the orthogonality of hippocampal place cells across environments. *Soc. Neurosci. Abstr.* 371.2.
1. Sabolek HR, Bunce JG, Penley SC, **Hinman JR**, Chrobak JJ (2006) Ketamine alters synchrony throughout the hippocampal formation. *Soc. Neurosci. Abstr.* 751.12.

---

## Presentations

---

- 2019 University of Illinois Urbana-Champaign, Cognitive Neuroscience Brown Bag
- 2019 Spring Hippocampal Research Conference, Taormina, Sicily
- 2019 University of Wisconsin-Milwaukee, Department of Psychology
- 2019 University of Illinois Urbana-Champaign, Department of Psychology
- 2019 Kent State University, Department of Psychological Sciences
- 2018 University of Connecticut, Department of Psychological Sciences
- 2016 Brandeis University, Computational Neuroscience Journal Club
- 2016 McGill University, Douglas Mental Health Research Center
- 2015 Boston University, Brain, Behavior and Cognition Program
- 2011 University of California, Los Angeles, Department of Psychology
- 2011 University of Washington, Department of Psychology
- 2011 University of Lethbridge, Department of Brain Dynamics
- 2011 University of Minnesota, Department of Neuroscience
- 2011 Miami University, Psychology Department
- 2011 University of Delaware, Department of Psychology
- 2011 Johns Hopkins University, Department of Neuroscience
- 2011 SUNY Downstate, Department of Cell Biology

---

## Ad Hoc Reviewer

---

Current Biology  
eNeuro

Frontiers in Behavioral Neuroscience  
Frontiers in Systems Neuroscience

Hippocampus  
IEEE Trans Cog & Dev Systems  
Journal of Chemical Neuroanatomy  
Journal of Neurophysiology  
Neural Networks

Neurobiology of Learning and Memory  
Neuroscience and Biobehavioral reviews  
PLOS Computational Biology  
PLOS One  
Psychopharmacology

---

### Teaching Experience

---

2019 Introduction to Behavioral Neuroscience (PSYC 210)  
2015 – 2018 Cellular and Systems Neuroscience  
2006 – 2010 Introduction to Psychology Laboratory  
2005, '07, '08 UConn Mentor Connection - Summer program that brings high school students into the lab

---

### Service and Membership

---

2019 Psychology Department Admissions Committee, University of Illinois Urbana-Champaign  
2019 Neuroscience Program Admissions Committee, University of Illinois Urbana-Champaign  
2008 – 2009 Graduate Student Advisory Committee, Department of Psychology, University of Connecticut  
2006 – pres. Society for Neuroscience  
2006 Phi Beta Kappa National Honor Society

---

### Awards and Honors

---

2018 Interdisciplinary Navigation Symposium Best Poster award  
2011 Doctoral Dissertation Fellowship, University of Connecticut  
2011 Graduate Summer Research Award, University of Connecticut  
2008 – 2010 Neuroscience Fellowship, University of Connecticut  
2005, 2006 New England Scholar, University of Connecticut