

**Lisa M Giocomo, PhD**  
**Assistant Professor, Department of Neurobiology**  
**Stanford University School of Medicine**  
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## EDUCATION

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2004 – 2008 Boston University, Ph.D. in Neuroscience  
2003 – 2004 Boston University, M.A. in Psychology  
1999 – 2002 Baylor University, B.A. in Psychology

## POSITIONS

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2013 - Present Assistant Professor, Neurobiology, Stanford University School of Medicine  
2011 – 2012 Group Leader, Kavli Institute for Systems Neuroscience, NTNU  
2009 – 2011 Postdoctoral Fellow, Kavli Institute for Systems Neuroscience, NTNU  
*Research Advisors: Dr. Edvard Moser and Dr. May-Britt Moser*  
2008 – 2009 Postdoctoral Fellow, Center for Memory and Brain, Boston University  
*Research Advisor: Dr. Michael Hasselmo*  
2004 - 2008 Graduate Student, Center for Memory and Brain, Boston University  
*Research Advisor: Dr. Michael Hasselmo*  
2003 – 2004 Research Assistant, Center for Memory and Brain, Boston University  
*Supervisors: Dr. Norbert Fortin and Dr. Howard Eichenbaum*

## AWARDS AND ACTIVITIES

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2016 – 2022 James S McDonnell Foundation Scholar  
2016 Baylor University Meritorious Achievement Award, Contribution to the Professions: Research 2015 –  
2019 Robertson Neuroscience Investigator – New York Stem Cell Foundation  
2014 – 2017 Next Generation Leaders Council – Allen Institute for Brain Science  
2014 – 2017 Klingenstein-Simons Fellowship Award in the Neurosciences  
2013 – 2015 Sloan Fellow, Alfred P. Sloan Foundation  
2013 Gabilan Fellowship  
2012 Peter and Patricia Gruber International Research Award  
2011 – 2012 Research Council of Norway Fellowship  
2009 – 2011 Marie Curie Incoming International Fellowship  
2009 Human Frontier Science Program Fellowship (declined due to Marie Curie Fellowship)  
2008 CELEST award for Experimental Neuroscience of Brain and Behavior  
2005 – 2008 Research Assistantship, Boston University  
2005 Honorable Mention, NSF Graduate Research Fellowship  
1999 – 2002 Presidential Scholarship, Baylor University

## PUBLICATIONS

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### Peer-Reviewed Research Articles

Hardcastle K, Maheswaranathan N, Ganguli S, **Giocomo LM** (2017). A multiplexed, heterogeneous, and adaptive code for navigation in medial entorhinal cortex. *Neuron*. 94:375-387.

Hardcastle K, Ganguli S, **Giocomo LM** (2015). Environmental boundaries as an error correction mechanism for grid cells. *Neuron*. 86:827-839.

*Preview by R Hayman & N Burgess in Neuron, 86:607-609*

Eggink H, Mertens P, Storm E, **Giocomo LM** (2014). HCN1 independent grid cell phase precession in mice. *Hippocampus*, 24(3): 249-256.

**Giocomo LM**, Stensola T, Bonnevie T, Moser MB, Moser EI\* (2014). Topography of head direction cells in medial entorhinal cortex. *Current Biology*, 24(3): 252-62.  
*Preview by K Jeffery in Current Biology*, 24(3):R113-4

Navratilova Z, **Giocomo LM**, Fellous JM, Hasselmo ME, McNaughton BL (2012). Phase precession and variable spatial scaling in a periodic attractor map model for medial entorhinal grid cells with realistic after-spike dynamics. *Hippocampus*, 22(4): 772-89.

**Giocomo LM**, Hussaini SA, Zheng F, Kandel ER, Moser MB, Moser EI (2011). Increased spatial scale in grid cells of HCN1 knockout mice. *Cell*, 147(5): 1159-1170.  
*Preview by M Mehta in Cell*, 147(5), 968-70  
*Research Highlight in Nature Reviews Neuroscience* 13(1), 4-5

Yoshida M, **Giocomo LM**, Boardman I, Hasselmo ME (2011). Frequency of subthreshold oscillations at different membrane potential voltages in neurons at different anatomical positions on the dorso-ventral axis in the rat medial entorhinal cortex. *Journal of Neuroscience*, 31: 12683-94.

Heys JG, **Giocomo LM**, Hasselmo ME (2010). Cholinergic modulation of the resonance properties of stellate cells in layer II of medial entorhinal cortex. *Journal of Neurophysiology*, 104: 258-70.

Zilli EA, Yoshida M, Tahvildari B, **Giocomo LM**, Hasselmo ME (2010). Evaluation of the oscillatory interference model of grid cell spatial firing through simulation, analysis, and experimentally measured variability of some biological oscillators. *PLoS Computational Biology*, 5:e1000573.

**Giocomo LM**, Hasselmo ME (2009). Knockout of HCN1 subunit flattens dorsal-ventral frequency gradient of medial entorhinal neurons in adult mice. *Journal of Neuroscience*, 29: 7625-30.

**Giocomo LM**, Hasselmo ME (2008). Computation by oscillations: Implications of experimental data for theoretical models of grid cells. *Hippocampus*, 18:1186-1199.

**Giocomo LM**, Hasselmo ME (2008). Time constants of h current in layer II stellate cells differ along the dorsal to ventral axis of medial entorhinal cortex. *Journal of Neuroscience*, 28: 921-25.

**Giocomo LM**, Zilli EA, Fransen E, Hasselmo ME (2007). Temporal frequency of subthreshold oscillations scales with entorhinal grid cell field spacing. *Science*, 315: 1719-1722.

Hasselmo ME, **Giocomo LM**, Zilli EA (2007). Interference of membrane potential oscillations in single neurons: Grid cells, theta rhythm and episodic memory. *Hippocampus*, 17: 1252-71.

**Giocomo LM**, Hasselmo ME (2006). Difference in time course of modulation of synaptic transmission for Group II versus Group III metabotropic glutamate receptors. *Hippocampus*, 16: 1004-16.

Kremin T, Gerber D, **Giocomo LM**, Huang SY, Tonegawa S, Hasselmo ME (2006). Muscarinic suppression in stratum radiatum of CA1 is dependent on both M1 and M2 receptors and is not dependent on effects at GABAB receptors. *Neurobiology of Learning and Memory*, 85: 153-63.

**Giocomo LM**, Hasselmo ME (2005). Nicotinic modulation of glutamatergic synaptic transmission in region CA3 of the hippocampus. *European Journal of Neuroscience*, 22: 1349-1356.

### Reviews and Commentaries

**Giocomo LM**. Environmental boundaries as a mechanism for correcting and anchoring spatial maps. *Journal of Physiology*, 594:6501-6511.

Clandinin TR, **Giocomo LM** (2015). An internal compass puts flies in their place. *Nature*, 521: 165-166.

**Giocomo LM** (2015). Spatial Representation: maps of fragmented space. *Current Biology*, 25: R362-R363.

- Giocomo LM** (2015). Imagine a journey through time and space. *Nature Neuroscience*, 18: 163-164.
- Giocomo LM** (2015). Computational diversity in the hippocampus: a matter of components. *Journal of Physiology*, 593: 1525-1526.
- Giocomo LM** (2014). Large scale in vivo recordings to study neuronal biophysics. *Curr Opin Neurobiol*, 4(32): 1-7.
- Giocomo LM**, Roudi Y (2012). The neural encoding of space in parahippocampal cortices. *Frontiers in Neural Circuits*, 6: 53.
- Giocomo LM**, Moser EI (2011). Spatial Representation: Maps in a temporal void. *Current Biology*, 21: R962-4.
- Giocomo LM**, Moser MB, Moser EI (2011). Computational models of grid cells. *Neuron*, 71: 589-603.
- Hasselmo ME, **Giocomo LM**, Yoshida M (2010). Cellular dynamical mechanisms for encoding the time and place of events along spatiotemporal trajectories in episodic memory. *Behavioural Brain Research*, 215: 261-74.
- Hasselmo ME, Brandon MP, Yoshida M, **Giocomo LM**, Heys JG, Fransen E, Newman EL, Zilli EA (2009). A phase code for memory could arise from circuit mechanisms in entorhinal cortex. *Neural Networks*, 22: 1129-38.
- Giocomo LM**, Hasselmo ME (2007). Neuromodulation can change circuit dynamics by regulating the relative influence of afferent input and excitatory feedback. *Molecular Neurobiology*, 36: 184-200.
- Hasselmo ME, **Giocomo LM** (2007). Cholinergic modulation of cortical function. *Journal of Molecular Neuroscience*, 30: 133-6.

## INVITED LECTURES AND PRESENTATIONS

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- Klingenstein-Simons Conference, New York, NY (May 2017)  
Neural basis of active sensation and navigation, Janelia Farm/HHMI (March 2017)  
Massachusetts Institute of Technology, Boston, MA (Feb 2017)  
Boston University, Boston, MA (Feb 2017)  
California Institute of Technology Caltech, Pasadena, CA (Nov 2016)  
University of California Los Angeles, Los Angeles, CA (Oct 2016)  
Columbia University Center for Theoretical Neuroscience, New York, NY (Oct 2016)  
Simons Global Collaboration on the Brain Workshop, New York, NY (Sept 2016)  
AREADNE Research in Encoding and Decoding of Neural Ensembles (June 2016)  
Hippocampal-Entorhinal Complexities, Janelia Farm/HHMI (Lecture and Organizer - November 2015)  
Simons Global Collaboration on the Brain Workshop, New York, NY (Sept 2015)  
Stanford Bio-X Undergraduate Summer Research Program, Stanford University, CA (July 2015)  
CNC Program Annual Symposium, Stanford University, CA (June 2015)  
New York Stem Cell Foundation, Montauk, NY (May 2015, 2016)  
University of College London (April 2015)  
British Neuroscience Association Festival of Neuroscience Symposium, Edinburgh, Scotland (April 2015)  
COSYNE workshop, Snowbird, UT (Mar 2015)  
Baylor University School of Medicine, Houston, TX (Jan 2015)  
Advanced Instrumentation Seminar at SLAC National Accelerator Laboratory, CA (Oct 2014)  
Allen Institute for Brain Science Showcase, Seattle, WA (Sept 2014)  
Neural Computation Workshop: Decoding Population Responses, Dartmouth College, NH (Aug 2014)  
Forum of European Neurosciences Symposium, Milan, Italy (July 2014)  
The Kavli Institute for Theoretical Physics at UCSB, CA (Feb 2014)  
The MBC IGERT Graduate Training Seminar Series, Stanford University, CA (Feb 2014)  
Information Theory Forum, Stanford University, CA (Nov 2013)  
University of Oregon, Eugene, OR (Oct 2013)  
HP Labs World Voices Series, Palo Alto, CA (May 2013)  
Mathematical Biosciences Institute Workshop, Ohio State University, Columbus, OH (Mar 2013)  
Swedish Epilepsy Society, Lund University (November 2012)  
Bernstein Center for Computational Neuroscience, Berlin, Germany (Nov 2012)  
Finnish Graduate School of Neuroscience, Universities of Helsinki, Finland (Sept 2012)  
Nordita Program 'Biology and Physics of Information Processing', Stockholm, Sweden (May 2012)  
10<sup>th</sup> Molecular and Cellular Cognition Society meeting, Washington DC (Nov 2011)

3<sup>rd</sup> meeting of the BMBF Neuroscience Groups, Jena, Germany (Nov 2011)  
8<sup>th</sup> Norwegian Psychology Congress, Oslo, Norway (Sept 2011)  
International Society for Neurochemistry Satellite 'The Synapse: from physiology to pathology', Stresa, Italy (Sept 2011)  
Scandinavian Physiological Society Annual Meeting Symposium, Bergen, Norway (Chair and Speaker - Aug 2011)  
Spring Hippocampal Research Conference, Verona, Italy (May 2011)  
Cold Spring Harbor Laboratory Meeting 'Synapses: From Molecules to Circuits and Behavior', NY (April 2011)  
Boston University, Boston, MA (April 2011)  
University of Colorado in Boulder, Boulder, CO (November 2010)  
Gatsby Grid Cell Workshop, London, UK (July 2010)  
University of Oslo, Oslo, Norway (March 2010)  
CMBN Annual Meeting, Geilo, Norway (March 2010)  
Spring Hippocampal Research Conference, Verona, Italy (June 2009)  
Forum of European Neurosciences Symposium, Geneva, Switzerland (July 2008)  
The Kavli Institute for Systems Neuroscience at NTNU, Trondheim, Norway (Jan2008)  
COSYNE workshop, Snowbird, UT (Feb 2007)

## **SERVICE**

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Allen Institute for Brain Science Next Generation Leader (2014 – 2017)  
Sammy Kou postdoctoral awards committee (2014 – Present)  
Bio-X Leadership Council (2014 – Present)  
Stanford University Neuroscience graduate program Curriculum Committee (2014 – Present)  
European Research Council Starting Grants remote referee (2016)  
Stanford University Neuroscience Institute faculty search committee (2015)  
Stanford University Neurobiology faculty search committee (2015, 2016)  
Brain Initiative (009) Brain Research through Advancing Innovative Neurotechnologies study section member (2014)  
Guest Editor: *Frontiers in Neural Circuits*, Special Issue 'The Neural Circuit for Spatial Representation' (2012)  
F1000 Associate Faculty Member with Edvard Moser (2010-2012)  
Ad-hoc Reviewer for *Nature*, *Science*, *Nature Neuroscience*, *Current Biology*, *Cerebral Cortex*, *Journal of Neuroscience*,  
*Journal of Physiology*, *Journal of Neurophysiology*, *Hippocampus*