Lisa M Giocomo, PhD
Assistant Professor, Department of Neurobiology
Stanford University School of Medicine
giocomo@stanford.edu

EDUCATION

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

POSITIONS

2019 – Present	Associate Professor, Neurobiology, Stanford University School of Medicine
2013 – 2019	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

2019	Vallee Scholar Award
2018	Society for Neuroscience Young Investigator Award
2018 – 2021	Young Investigator Award, Office of Naval Research
2017 – 2021	Co-Director, NIDA Research Center of Excellence
2016 – 2020	James S McDonnell Foundation Scholar
2016	Baylor University Meritorious Achievement Award, Contribution to the Professions: Research
2015 – 2022	Simons Collaboration on the Global Brain Investigator
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)
2005 – 2008	Research Assistantship, Boston University
2005	Honorable Mention, NSF Graduate Research Fellowship
1999 – 2002	Presidential Scholarship, Baylor University

PUBLICATIONS

Research Articles

Butler WN, Hardcastle K, **Giocomo LM** (2019). Remembered reward locations restructure entorhinal spatial maps. *Science.* 363:1447-1452
Preview by RQ Quiroga in Science, 363:1388-1389
Highlighted in Nature Reviews Neuroscience

Campbell MG, Ocko S, Mallory CS, Low I, Ganguli S, **Giocomo LM** (2018). Principles of self-motion and landmark integration in entorhinal cortex. *Nature Neuroscience.* 21:1096-1106.
Highlighted in Nature, News Feature 'The Mouse in the Video Game' by L Drew, 567:158-160

Mallory CM, Hardcastle K, Bant JS, **Giocomo LM** (2018). Grid scale drives the scale and long-term stability of place maps. *Nature Neuroscience.* 49: 270-282.

Ocko S, Hardcastle K, **Giocomo LM**, Ganguli S (2018). Emergent elasticity in the neural code for space. *PNAS.* E11798-E11806.

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.

Submitted Research Articles

Bant JS, Hardcastle K, Ocko S, **Giocomo LM.** Topography in the bursting dynamics of entorhinal neurons. *Cell Press Sneak Peak,* doi.org/10.2139/ssrn.3413100

Ferro MD, Proctor CM, Gonzalez A, Zhao E, Slezia A, Pas J, Dijk G, Donahue M, Williamson A, Malliaras G, **Giocomo LM**, Melosh NA (2018). The NeuroRoots, a bio-inspired, seamless BMI device for long-term recording. *BioRxiv,* doi.org/10.1101/460949.

Munn RGK, Mallory CS, Hardcastle K, Chetkovich DM, **Giocomo LM** (2019). Entorhinal velocity signals reflect environmental geometry. *BioRxiv,* dio.org/10.1101/671222

Reviews and Commentaries

Hardcastle K, **Giocomo LM** (2019). The shifting sands of cortical divisions. *Neuron.* 102: 8-11.

Campbell MG, **Giocomo LM** (2018). Self-motion processing in visual and entorhinal cortices: Inputs, integration, and implications for position coding. *Journal of Neurophysiology,* 120: 2091-2106.

Mallory CS, **Giocomo LM** (2018). Heterogeneity in hippocampal place coding. *Current Opinion in Neurobiology,* 49: 158-167.

Mallory CS, **Giocomo LM** (2018). Spatial Cognition: From entorhinal neural codes to navigation. *Nature Neuroscience,* 21: 7-8.

Hardcastle K, Ganguli S, **Giocomo LM** (2017). Cell types for our sense of location: where we are and where we are going. *Nature Neuroscience,* 20: 1474-1482.

Giocomo LM (2016)**.** 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. *Current Opinion in Neurobiology,* 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

Office of Naval Research Computational Meeting (June 2019)
Ecole Normale Superieure, Paris, France (May 2019)
Max Planck Institute of Biochemistry, Munich, Germany (May 2019)
University of Colorado, Anschutz Medical Campus, Denver, CO (March 2019)
University of California, Davis, CA (February 2019)
University of California, Irvine, CA (February 2019)
University of Arizona, Tuscon, AZ (January 2019)
University of California San Diego, San Diego, CA (December 2018)
Janelia Farm/HHMI Planning Workshop on Mechanistic Cognition, Washington DC (December 2018)
Simons Foundation Plasticity and Aging Workshop, New York, NY (October 2018)
Simons Global Collaboration on the Brain Workshop, New York, NY (September 2018, 2019)
2nd Interdisciplinary Navigation Symposium, Mont Tremblant, Canada (June 2018)
The International Conference on Learning and Memory, University of California Irvine, Irvine, CA (April 2018)
Janelia Farm/HHMI, Washington DC (October 2017)
Harvard University, Boston, MA (October 2017)
San Jose State University, San Jose, CA (September 2017)
Klingenstein-Simons Conference, New York, NY (May 2017)
Neural basis of active sensation and navigation, Janelia Farm/HHMI, Washington DC (March 2017)
Massachusetts Institute of Technology, Boston, MA (Feb 2017)
Boston University, Boston, MA (Feb 2017)
Stanford Mind, Brain and Computation lecture (Dec 2016)
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, 2017, 2018)
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 Helskinki, Finland (Sept 2012)
Nordita Program 'Biology and Physics of Information Processing', Stockholm, Sweden (May 2012)
10th Molecular and Cellular Cognition Society meeting, Washington DC (Nov 2011)
3rd meeting of the BMBF Neuroscience Groups, Jena, Germany (Nov 2011)
8th 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

Associate Director of the Stanford University Neuroscience Graduate Program, Curriculum (2019 – Present)
Stanford University Mind, Brain and Computation (MBC) committee (2018 – Present)
Wu Tsai Neuroscience Institute Cabinet member (2017 – Present)
Faculty Senate, Stanford University School of Medicine (2017 – Present)
Neuroscience Graduate Program admissions reader (2017 – Present)
Bio-X Leadership Council (2014 – Present)
Sammy Kou postdoctoral awards committee (2014 – 2019)
Stanford University Neuroscience Graduate Program Curriculum Committee (2014 – 2019)
MSTP MD-PhD admissions readership committee (2018)
Stanford University Neurobiology faculty search committee (2015, 2016, 2018, 2019)
Allen Institute for Brain Science Next Generation Leader (2014 – 2017)
European Research Council Starting Grants remote referee (2016)
Stanford University Neuroscience Institute faculty search committee (2015)
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*