

# Shreesh P. Mysore, PhD

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Psychological and Brain Sciences, Johns Hopkins University,  
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## Positions

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- 2013.09 on **Assistant Professor**, Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD  
2013.09-11 **Visiting Scholar**, Neurobiology, Stanford University, Palo Alto, CA  
2011-2013 **Basic Life Science Research Associate**, Neurobiology, Stanford University (Supervisor: Dr. Eric Knudsen).  
2006-2011 **Postdoctoral Scholar**, Neurobiology, Stanford University, Palo Alto, CA (Supervisor: Dr. Eric Knudsen).

## Education

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- 2007 **Ph.D.**, Control & Dynamical Systems (Minor: Neurobiology), California Institute of Technology.  
(Supervisors: Dr. Erin M. Schuman and Dr. Steven R. Quartz)  
2000 **M.A.**, Mathematics, Pennsylvania State University, State College.  
(Supervisor: Dr. Ya Pesin)  
1999 **M.S.**, Industrial Engineering, Pennsylvania State University, State College.  
(Supervisors: Dr. Soundar R.T. Kumara and Dr. C.R. Rao)  
1997 **B.Tech.**, Mechanical Engineering, Indian Institute of Technology, Madras.  
(Supervisor: Dr. V. Radhakrishnan)

## Advanced Coursework

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- 2011 Short course in optogenetics, Stanford University.  
2003 Mathematical Modeling in Neuroscience Workshop, Santa Fe Institute.  
2003 NEURON Simulation Course, UCSD.  
2003 FSL/Freesurfer course for fMRI data analysis, Los Angeles.

## Honors & Awards

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- 2012 Finalist, Sammy Kuo award for postdoctoral research excellence, Stanford Neuroscience Institute (SINTN).  
2009 1<sup>st</sup> place poster, Stanford Institute for Neuro-Innovation & Translational Neurosciences (SINTN) retreat.  
2008, 2009 Dean's Postdoctoral Fellowship, Stanford University School of Medicine.  
2008 Postdoctoral fellow travel award, Society for Neuroscience (administered by C-WIN).  
2006 Tenure-track faculty position, School of Industrial Engineering, Purdue University (declined).  
2006 Science and Technology Council Postdoctoral Fellowship, Princeton University (declined).  
2005 Finalist, Harvard Society of Fellows Junior Fellowship (2006-2009).  
2005 Travel grant for Intl Joint Conference on Neural Networks, IEEE Computational Intelligence Soc.  
2005 1<sup>st</sup> place poster (shared), 12th Joint Symposium on Neural Computation.  
2003 Travel award, Mathematical Modeling Workshop, Santa Fe Institute.  
2003 Travel award, Workshop on Theoretical Neuroscience, Cold Spring Harbor Lab.  
2000-2001 Engineering and Applied Sciences Fellowship, California Institute of Technology.  
1999 Award for research contribution during internship, GE Transportation Systems.  
1997 *Scholarships for study abroad*: JN Tata Endowment, and KC Mahindra Education Trust.

## Invited Talks

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- 2014 Janelia Farm Research Campus (Ashburn, Virginia), Workshop on *Neural population dynamics underlying sensorimotor integration*.  
Janelia Farm Research Campus (Ashburn, Virginia), Conference on *How to read a map – Understanding structure-function relationships in the brain*.  
2013 California Institute of Technology (Pasadena), Division of Biology.  
Indian Institute of Science (Bengaluru, India), Center for Neuroscience.  
Computational and Systems Neuroscience (CoSyNe) Workshop (Snowbird, Utah).  
University of Michigan (Ann Arbor), Department of Psychology.  
2012 Johns Hopkins University (Baltimore, Maryland), Department of Psychological and Brain Sciences.  
Cornell University (Ithaca, New York), Department of Psychology.  
2011 Friedrich Miescher Institute (Basel, Switzerland), Symposium on Neurocircuits and Behavior.  
Max Planck Institute for Brain Research (Frankfurt, Germany).  
Bangalore Science Forum (Bengaluru, India).

## Publications

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- [18] **Mysore SP**, Knudsen EI (under review). Mechanisms by which descending influences control neural bias and selectivity for the highest priority stimulus in a spatial attention network.
- [17] Goddard CA, **Mysore SP**, Bryant AS, Huguenard JR, Knudsen EI (2014, *in press*). Spatially reciprocal inhibition of inhibition within a stimulus selection network in the avian midbrain, *PLoS One*.
- [16] **Mysore SP**, Knudsen EI (2013). A shared inhibitory circuit for both exogenous and endogenous control of stimulus selection. *Nat Neurosci* 6(4):473-8. [[Previewed in Nat. Rev. Neurosci](#)]
- [15] **Mysore SP**, Knudsen EI (2012). Reciprocal inhibition of inhibition: A circuit motif for flexible categorization in stimulus selection. *Neuron* 73: 193-205. [[Previewed in Neuron](#)] [[Faculty of 1000 pick](#)]
- [14] **Mysore SP**, Knudsen EI (2011). The role of a midbrain network in competitive stimulus selection. *Curr Opin Neurobiol* 21(4): 653-60.
- [13] **Mysore SP**, Knudsen EI (2011). Flexible categorization of relative stimulus strength by the optic tectum. *J Neurosci* 31:7745-52.
- [12] Asadollahi A, **Mysore SP**, Knudsen EI (2011) Rules of competitive stimulus selection in a cholinergic isthmus nucleus of the owl midbrain. *J Neurosci* 31: 6088-6097.
- [11] **Mysore SP**, Asadollahi A, Knudsen EI (2011) Signaling of the strongest stimulus in the owl optic tectum. *J Neurosci* 31: 5186-5196 [[Cover article](#)][[Covered in Nature News](#)].
- [10] Asadollahi A, **Mysore SP**, Knudsen EI (2010) Stimulus-driven competition in a cholinergic midbrain nucleus. *Nat Neurosci* 13: 889-895.
- [9] **Mysore SP\***, Asadollahi A\*, Knudsen EI (2010). Global inhibition and stimulus competition in the owl optic tectum. *J Neurosci* 30: 1727-1738. (\* co-authorship)
- [8] **Mysore SP**, Tai C-Y, Schuman EM (2008). N-cadherin, spine dynamics, and synaptic function, *Frontiers in Neuroscience*, 2: 168-175.
- [7] **Mysore SP**, Tai C-Y, Schuman EM (2007). Effects of N-cadherin disruption on spine morphological dynamics, *Frontiers in Cellular Neuroscience*, 1: 1-14.
- [6] Tai C-Y, **Mysore SP**, Chiu C, Schuman EM (2007). Activity-regulated N-cadherin endocytosis, *Neuron*, 54(5):771-785.
- [5] Shultz TR, **Mysore SP**, Quartz SR (2007). Why let networks grow?, in *Constructing Cognition: How the Brain Develops Representations Vol II. Perspectives and Prospects*, 65-98, Oxford University Press.
- [4] **Mysore SP**, Quartz SR (2005). Modeling structural plasticity in the barn owl auditory localization system with a spike-time dependent Hebbian learning rule, *Proc. Intl. Joint Conf. on Neural Networks, Montreal*, 5: 2766-2771.
- [3] Goebel K, **Mysore SP** (2002). Factoring in a-priori classifier performance into decision fusion, *Proc. SPIE, Sensor Fusion: Architectures, Algorithms, and Applications VI*, 10-21.
- [2] Goebel K, **Mysore SP** (2001). Taking advantage of misclassifications to boost classification rate in decision fusion, *Proc. SPIE, Sensor Fusion: Architectures, Algorithms, and Applications V*, 11-20.
- [1] Kumara SRT, Suh J, **Mysore SP** (1999). Machinery fault diagnosis and prognosis: application of advanced signal processing techniques, *CIRP Annals*, Vol. 48/1, 317-320.

## Software

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**Mysore SP**, Schuman EM (2005). Immunofluorescence analysis of 3D images (IMFLAN3D):  
<http://mysorelab.johnshopkins.edu/software/IMFLAN3D>

**Mysore SP**, Schuman EM (2007). Time-lapse analysis of dendritic spine motility (SpineZap),  
<http://mysorelab.johnshopkins.edu/software/SpineZap>

## Teaching & Related

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2014. **Instructor**. AS. 200.318. "Quantitative methods for the brain sciences", Psych. & Brain Sciences, JHU  
 Spring **Co-instructor**. AS. 200.654. "Core A". Psych & Brain Sciences, JHU
2010. **Attendee**, "Science and Engineering Course Design", Center for Teaching and Learning, Stanford  
 Winter University.  
 • Designed the course "Quantitative Methods for Neuroscientists" aimed at 1<sup>st</sup> year graduate students. Studied learning-centered approach to teaching, and course design driven by deep learning objectives.
2006. **Lecturer**, "Cellular Dynamics: Advanced Topics in Cell Biology of Neurons & Nonneuronal Cells" offered  
 Spring by Dr. E. Schuman and Dr. K. Zinn, Dept. of Biology, Caltech.  
*Level*: Graduate students. *Topic*: Prepared material and lectured on "Actin cytoskeleton and motility".
2002. **Teaching Assistant**, "Principles of Feedback and Control" offered by Dr. Richard Murray, Control and  
 Fall Dynamical Systems, Caltech.  
*Level*: Juniors, seniors and 1<sup>st</sup> year graduate students. *Duties*: Office hours, grading, and answering "mud-card" questions.
2002. **Teaching Assistant**, "The Neural Basis of Consciousness" offered by Dr. Christof Koch, Computation and  
 Spring Neural Systems, Caltech.  
*Level*: Seniors and 1<sup>st</sup> year graduate students. *Duties*: Office hours, grading, design and maintenance of class website.

## Professional Activities

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- 2011 – Invited Reviewer, Journal of Neurophysiology.  
 2007 – Review Editor, Frontiers in Neural Circuits.  
 2004 – Ad-hoc reviewer for various journals (J. Neurosci., Neuron, etc)

## Abstracts, Posters and Conference Presentations

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- 2013 **Mysore SP** and Knudsen EI, Endogenous influences shape midbrain stimulus selection signals, *Society for Neuroscience Annual Meeting*, San Diego.
- 2012 **Mysore SP** and Knudsen EI, Shared neural mechanisms for bottom-up and top-down control of spatial attention, *Society for Neuroscience Annual Meeting*, New Orleans.
- 2011 **Mysore SP** and Knudsen EI, Categorical representation of stimulus priority in the owl optic tectum, *Society for Neuroscience Annual Meeting*, Washington, DC.
- 2010 **Mysore SP** and Knudsen EI, Top-down modulation of bottom-up stimulus competition in the owl optic tectum, *Society for Neuroscience Annual Meeting*, San Diego.
- 2010 Devarajan S, **Mysore SP** and Knudsen EI, Encoding of salient stimuli by gamma oscillations in the barn owl optic tectum, *Society for Neuroscience Annual Meeting*, San Diego.
- 2009 **Mysore SP**, Asadollahi A and Knudsen EI, Competitive selection of salient stimuli in the owl optic tectum, *Society for Neuroscience Annual Meeting*, Chicago.
- 2008 **Mysore SP** and Knudsen EI, Stimulus competition in the GABA-ergic isthmic nucleus (Imc) in the barn owl midbrain, *Society for Neuroscience Annual Meeting*, Washington, DC.
- 2007 **Mysore SP** and Knudsen EI, Functional properties of the nucleus isthmi pars magnocellularis (Imc) in the barn owl midbrain, *Society for Neuroscience Annual Meeting*, San Diego.
- 2006 **Mysore SP**, Sutton MA and Schuman EM, Regulation of spine morphological dynamics by miniature synaptic events, *Society for Neuroscience Annual Meeting*, Atlanta.
- 2005 **Mysore SP** and Quartz SR, Modeling structural plasticity in the barn owl auditory localization system with a spike time-dependent Hebbian learning rule, *Intl Joint Conference on Neural Networks*, Montreal.
- 2005 **Mysore SP**, Tai C-Y and Schuman EM, Regulation of spine dynamics and synaptic structure by N-cadherin, *Society for Neuroscience Annual Meeting*, Washington DC.
- 2005 **Mysore SP** and Quartz SR, Plasticity in the barn owl auditory localization system: A spiking neuronal model, *12th Joint Symposium on Neural Computation*, UCLA, Los Angeles.
- 2004 **Mysore SP**, Sutton MA and Schuman EM, Large scale analysis dendritic spine motility, *Society for Neuroscience Annual Meeting*, San Diego.
- 2004 **Mysore SP** and Quartz SR, Structural plasticity and auditory localization in barn owls - A firing rate model, *Computational and Systems Neuroscience (CoSyNe)*, Cold Spring Harbor Laboratory.