Srinivas Gorur-Shandilya

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Education

2017	Ph.D. in Neuroscience Yale University, USA
2010	M.Sc. in Neuroscience Georg-August-Universität Göttingen, Germany
2008	B.Sc. in Physics, Chemistry and Mathematics St. Stephen's College, University of Delhi, India

Research Positions

2018–	NRSA Postdoctoral Fellow, Brandeis University, USA Advisor: Eve Marder
2017–2018	Postdoctoral Associate, Brandeis University, USA Advisor: Eve Marder
2010–2017	Doctoral student at Yale University, USA Advisor: Thierry Emonet
2009–2010	Research Fellow at the Max Planck Institute for Nonlinear Dynamics and Self-Organisation, Göttingen, Germany Advisor: Marc Timme

Professional Activities and Awards

ad-hoc reviewer for: *Scientific Reports, New Journal of Physics,*
                       Brain Sciences and *Europhysics Letters*

2019	Accepted into the Junior Scientist Workshop on Theoretical Neuroscience, Howard Hughes Medical Institute, USA
2018	Named Distinguished Referee by the European Physical Society
2016	Presenters' Travel Grant, Cosyne, USA
2015	Conference Travel Fellowship, Graduate Student Assembly, Yale University, USA
2011–2013	Anne S. And William H. Macmillan Fellowship, Yale University, USA
2012	Editor's selection in "Highlights of 2011" for first-author paper in *New Journal of Physics*
2009–2010	Research Fellowship, Max Plank Society, Germany
2008–2009	Fellowship from the Excellence Foundation for the Promotion of the Max Planck Society, Max Plank Society. *Tuition and living expenses at the University of Göttingen, Germany. One of 10 Fellows selected by worldwide competition.*
2005–2008	KVPY Fellowship, The Department of Science and Technology, India. *One of 89 Fellows selected by nationwide competition out of ~100,000 applicants.*

Peer-reviewed Publications

2021	Powell, D.†, Haddad, S.†, **Gorur-Shandilya, S.**†, & Marder E. Coupling between fast and slow oscillator circuits in *Cancer borealis* is temperature compensated. *eLife* 10: e60454. († = equal contribution)
2020	**Gorur-Shandilya, S.**, Marder, E. & O'Leary, T. (2020). Activity-dependent compensation of cell size is vulnerable to targeted deletion of ion channels. *Scientific Reports* 10**,** 15989
2019	**Gorur-Shandilya**, S., Martelli, C., Demir, M., & Emonet, T. Controlling and measuring dynamic odorant stimuli in the laboratory. *Journal of Experimental Biology*, 222(23), 207787

2018	**Gorur-Shandilya, S.**[†], Hoyland, A.[†], & Marder, E. Xolotl: an intuitive and approachable neuron and network simulator for research and teaching. *Frontiers in neuroinformatics*, 12(87) ([†] = equal contribution)
2018	Bronk, P., Kuklin, E. A., **Gorur-Shandilya, S.**, Liu, C., Wiggin, T. D., Reed, M. L., Marder, E. & Griffith, L. C. Regulation of EAG by Ca2+/calmodulin controls presynaptic excitability in *Drosophila*. *Journal of neurophysiology*, 119(5):1665-1680.
2017	**Gorur-Shandilya, S**[†], Demir, M.[†], Long, J., Clark, D. A., & Emonet, T. Olfactory receptor neurons use gain control and complementary kinetics to encode intermittent odorant stimuli. *eLife*, *6*, e27670 ([†] = equal contribution)
2016	Raccuglia, D., McCurdy, L. Y., Demir, M., **Gorur-Shandilya, S.**, Kunst, M., Emonet, T., & Nitabach, M. N. Presynaptic GABA receptors mediate temporal contrast enhancement in *Drosophila* olfactory sensory neurons and modulate odor-driven behavioral kinetics. *ENeuro*, 3(4)
2014 150+ citations	Koh, T. W., He, Z., **Gorur-Shandilya, S.,** Menuz, K., Larter, N. K., Stewart, S., & Carlson, J. R. The *Drosophila* IR20a clade of ionotropic receptors are candidate taste and pheromone receptors. *Neuron*, 83(4):850-865
2011 150+ citations	**Shandilya, S. G.**, & Timme, M. Inferring network topology from complex dynamics. *New Journal of Physics*, 13(1), 013004

Extramural Talks and Lectures

2020	"Mapping the structure of circuit dynamics during function and dysfunction". Annual meeting of the Stomatogastric Ganglion.
2020	"Mapping the structure of circuit dynamics during function and dysfunction". Accepted talk at the Simons Collaboration on the Global Brain, Boston, USA.
2019	"The self-tuning neuron: how homeostasis can compensate for size changes". Invited talk at the Physics of Living Systems Seminar Series, MIT, USA.
2019	"Homeostasis in neuron models and implications for size compensation". Invited seminar at the Allen Center for Discovery, Tufts University, USA.
2016	"Sequential gain control in *Drosophila* olfactory receptor neurons." Accepted talk at Sense2Synapse, New York, USA.
2015	"Topology Predicts Dynamics; Dynamics Constrain Topology." Invited talk at SIAM Conference on Applications of Dynamical Systems (DS15), Snowbird, USA.
2013	"Why is anything the way it is?" Accepted lightning talk at the 30th Chaos Communication Congress (30C3), Hamburg, Germany.

Additional Training

2018	1 of 20 accepted into the Quantitative Approaches to Behavior Summer School under the Cajal Advanced Neuroscience Training Program, Lisbon, Portugal
2019	Accepted into the Junior Scientist Workshop on Theoretical Neuroscience, Howard Hughes Medical Institute, USA

Teaching and Mentorship

TEACHING

2021	Instructor at the Brandeis Quantitative Biology Research Community
	designed curriculum and software for a 12-week research program for undergraduates and taught 3-hr classes a week. Mentored four undergraduates.
	brandeis.edu/qbrec/
2020	Visual Display of Quantitative Information Workshop, Brandeis University
	created and ran a workshop on best practices in the visual display of data
	brandeis.edu/science-communications-lab/workshops
2020	Developed custom pedagogical software for NBIO140, Brandeis University, together with Prof. Steven van Hooser
2019-	Fellow at the Scientific Communication Laboratory, Brandeis University.
	Train scientists (at all stages: undergraduate - faculty) in one-on-one sessions to improve written and oral presentations.
	brandeis.edu/science-communications-lab/commlab-fellows
2019	Guest lecturer, NBIO 148, Brandeis University, for Prof. Sacha Nelson
	created custom software for students to interactively manipulate neurons and taught a class on the principles of the Hodgkin-Huxley model in neuroscience
2015	Organized and taught a workshop on encryption and cryptography at the Center for Engineering Innovation and Design, Yale University.
2014	Teaching Fellow for Dynamical Systems in Biology (MCDB 361) at Yale University, taught by Profs. Emonet, Clark and Howard.
2010	Teaching Fellow for Neurobiology (MCDB 320a) at Yale University, taught by Profs. Keshishian and Forscher.

MENTORSHIP

2019–2020	Robert Tromm, B.Sc. student, Brandeis University.
2017–2018	Alec Hoyland, M.Sc. student, Brandeis University.

Selected Projects & Code

OPEN SOURCE SOFTWARE

`xolotl`	a fast and easy-to-use neuron and network simulator
	github.com/sg-s/xolotl
`crabsort`	a general-purpose multi-channel extracellular spike sorter that uses neural nets to classify spikes and active learning to update predictions
	github.com/sg-s/crabsort
`condalab`	transparent interface to use Anaconda from within MATLAB
	github.com/sg-s/condalab
`cpplab`	toolbox that allows C++ classes to be natively used in MATLAB
	github.com/sg-s/cpplab
`puppeteer`	MATLAB class to interactively manipulate functions and classes
	github.com/sg-s/puppeteer

PROGRAMMING LANGUAGES

MATLAB	15+ years, 68,000+ lines of code
C++	10+ years, 19,000+ lines of code
Python	7+ years, 11,000+ lines of code
Swift	1+ year, 1000+ lines of code

Other projects and code available at github.com/sg-s/

References

Eve Marder, PhD

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Thierry Emonet, PhD

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Damon A. Clark, PhD

damon.clark@yale.edu