

Gorur Shandilya Srinivas

SURNAME

FIRST NAME

The Hall of Graduate Studies
 Yale University
 New Haven, CT
<http://srinivas.gs>

ACADEMIC PROFILE

- Graduated from St. Stephen's College, Delhi, India, after completing a three-year B.Sc in Physical Sciences. I scored a three-year cumulative of 77.9%, placing me 2nd at the University of Delhi.
- Read Neuroscience at the International Max Planck Research School at Göttingen, Germany, in a Programme leading to a M.Sc. in Neuroscience.
- As part of my M.Sc. in Neuroscience, I worked at the Max Planck Institute for Dynamics and Self Organisation, Göttingen, on my M.Sc thesis in Prof. Dr. Marc Timme's Network Dynamics Group. The thesis is titled 'Relating Topology and Dynamics in Neuronal Networks' and can be downloaded here.
- Having completed my M.Sc., I worked at the Max Planck Institute for Dynamics and Self Organisation for four more months, supported by a research grant from the Max Planck Society.
- I'm presently at Yale University, where I'm part of the BBS Programme in Neuroscience.
- I have been funded by highly competitive scholarships since I finished high school: first by the exclusive KVPY Scholarship (2004-08) from the Indian Institute of Science, Bangalore, that funded me through St. Stephen's College, and then by a stipend of the Excellence Foundation for the Promotion of the Max Planck Society (2008-09), that funded my M.Sc at the Georg-August-Universität Göttingen, Germany, and then by a grant from the Max Planck Society.

PUBLICATIONS

- Srinivas Gorur Shandilya and Marc Timme. Inferring Network Topology from Complex Dynamics. *New Journal of Physics* 2011 **13**(013004). Available online at <http://srinivas.gs/publications/>
- Srinivas Gorur Shandilya, Raoul-Martin Memmesheimer and Marc Timme. Topology and Dynamics in the Lobster STG. In preparation.

RESEARCH EXPERIENCE

in PROF. DR. DR. DETLEV SCHILD's laboratory at the *Centre for Molecular Physiology of the Brain, University of Göttingen, Germany.* *May–June 2009*

Over two months, I carried out experiments on the olfactory epithelium of *Xenopus laevis*, using fast confocal imaging to identify and quantify responses of olfactory receptor neurons to applications of mixtures of odours.

under PROF. DR. MARC TIMME's supervision at the *Max Planck Institute for Dynamics and Self-Organisation, Göttingen, Germany* *March–April 2009*

In this theoretical project, I built a model based on Haim Sompolinsky and Carl van Vreeswijk's seminal paper on the Balanced State. I showed that the original binary model of Sompolinsky and van Vreeswijk could also demonstrate irregular behaviour that was stable to minimal perturbations, bridging the conceptual divide with the theory of 'stable irregularity' being studied in-house. This project will soon be written up for publication. A project report can be found here.

Résumé

under PROF. DR. FRED WOLF's supervision at the
Max Planck Institute for Dynamics and Self-Organisation, Göttingen, Germany *January–February 2009*

Using recordings of neuronal cultures from multi-electrode arrays (MEAs), I compared the efficiency and precision of spike sorting algorithms, and characterised neuronal avalanches as the culture matured.

in PROF. DR. SANJAY SANE's laboratory at the
National Centre for Biological Sciences, Bangalore, India *July–September 2008*

Using a new model organism, the Solider fly, for behavioural assays on insect flight, I designed a novel experimental paradigm to determine the attention these flies pay to visual cues while landing.

under DR. MUKUND THATTAI's supervision at the
National Centre for Biological Sciences, Bangalore, India *July–September 2008*

I implemented an algorithm in the MATLAB language to find, characterise and group 'rafts' and 'nano-clusters' on a cell surface using graph theoretical approaches to find areas of enhanced local connectivity.

in PROF. DR. SANDHYA KOUSHIKA's laboratory at the
National Centre for Biological Sciences, Bangalore, India *May–July 2007*

I persuaded the lab that studying distributions of mitochondria along axons, not merely numbers, is essential to understand the mechanism of their transport. To this end, I developed an algorithm using the MATLAB language to analyse epifluorescent pictures of axons in *C. elegans* and to estimate mitochondrial distributions.

in PROF. DR. VIJAY KUMAR SHARMA's laboratory at the
Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India *May–July 2006*

Using behavioural experiments testing the photo-phobic behaviour in *Drosophila*, I studied the effects of distinct genes on the central 'clock' in the fly brain, and thus on their circadian activity.

ADDITIONAL SKILLS

- Model systems: I've worked with *Xenopus* tadpoles, *Drosophila*, and *C. elegans*.
- Advanced microscopy, including confocal line scanning microscopy and live imaging of neurons.
- I'm comfortable with the MATLAB language as scripting interface, for system modelling, advanced image analysis and as a statistical tool.
- I attended extracurricular courses in Dynamical Systems Theory and Synchronisation in Biological Systems, and a seminar on Information in Biological Systems. All three took place at the Max Planck Institute for Dynamics and Self-Organisation, Göttingen.

PHOTOGRAPHY

Over three years at St. Stephen's College, I've worked for, headed and revitalised its Photographic Society. Among others, my work has been awarded First Place by renowned photographer Raghu Rai. I've been awarded the Shri Kulwant Rai Memorial Prize by St. Stephen's College for the best photographs exhibited in College (2005-06). Selected photographs are available at <http://srinivas.gs/photography/>

WRITING

Several pieces of fiction and non fiction have been published in College and University Journals. At St. Stephen's College, I single-handedly revived, edited and wrote for *Kooler Talk*, the official satirical magazine. A piece I wrote was commended by the Royal Commonwealth Society in their Commonwealth Essay Competition. Another was published in the *Tehelka*, a critically acclaimed national publication. A few essays are available online at <http://srinivas.gs/essays/>