

# Thiago Mosqueiro, PhD

## Curriculum Vitæ

### Contact information

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### Work experience

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2015 – current	Postdoctoral researcher at BioCircuits Institute, UCSD, USA Supervisor: Dr. Ramon Huerta
2015 Jan - March	Junior specialist at Rady School of Management, UCSD, USA Supervisor: Dr. Ramon Huerta
2010 – 2013	Teaching assistant at Institute of Physics of São Carlos, USP, Brazil Worked with Prof. Francisco Alcaraz, Prof. Leonardo Maia, Prof. Rodrigo Pereira, Prof. José Abel Hoyos & Prof. Luis Nunes Disciplines: Statistical Physics, Physics 102 and Computational Physics.

### Education

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August, 2015	<b>PhD in Physics</b> , <i>University of São Paulo</i> , São Carlos, Brazil Thesis: “Information processing in sensory neural networks” Advisor: Prof. Leonardo P Maia
March 2015	<b>Research internship</b> , <i>University of California San Diego</i> , La Jolla, USA Advisor: Prof. Ramon Huerta
February 2011	<b>Masters in Physics</b> , <i>University of São Paulo</i> , São Carlos, Brazil Thesis: “Optical transitions in Zincblende semiconductors heterostructures” Advisor: Prof. Esmerindo Bernardes
December 2008	<b>Undergraduate Degree in Physics</b> , <i>University of São Paulo</i> , São Carlos, Brazil

### Grants and awards

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2015 – 2016	Microsoft Azure Research grant (MS-AZR-0036P)
2015 – present	CNPq PDE fellowship
2014 – 2015	CAPES PSDE fellowship
2014	Selected IOP paper for novelty & impact
2013	Yvone Mascarenhas award <b>for best Teaching assistant</b>
2012 – 2013	USP PAE fellowship (teaching assistant)
2009	Best article award (The LaTeX Community)

## Peer-reviewed publications

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For a complete list with links to slides and posters: [thmosqueiro.vandroiy.com](http://thmosqueiro.vandroiy.com)

### Papers in refereed journals

1. Thiago Mosqueiro, Chelsea Cook, Ramon Huerta, Jurgen Gadau, Brian Smith, and Noa Pinter-Wollman, "Behavioral persistence and task participation synergistically influence collective foraging by honey bee colonies," **In submission**, 2016.
2. Thiago Mosqueiro, Martin Strube-Bloss, Brian H. Smith, and Ramon Huerta, "Solving divergent-convergent synaptic architectures to accelerate stable recognition in multilayered sensory systems," **In submission**, 2016.
3. Jacob ZBeal, Traci Haddock-Angelli, Markus Gershater, Kim de Mora, Meagan Lizarazo, Jim Hollenhorst, Randy Rettberg, and iGEM Collaboration, "Reproducibility of Fluorescent Expression from Engineered Biological Constructs in *E. coli*," **PLOS ONE**, vol. 11, no. 3, e0150182, 2016. doi: [10.1371/journal.pone.0150182](https://doi.org/10.1371/journal.pone.0150182).
4. Jose Maria Amigo, Thiago S. Mosqueiro, and Ramon Huerta, "Predicting Synchronization of Three Mutually Inhibiting Groups of Oscillators with Strong Resetting," **Journal of Applied Mathematics and Information Science**, vol. 9, no. 5, pp. 2245–2256, 2015. doi: [10.12785/amis/090505](https://doi.org/10.12785/amis/090505).
5. Thiago Mosqueiro, Luis de Lecea, and Ramon Huerta, "Control of sleep-to-wake transitions via fast amino acid and slow neuropeptide transmission," **New Journal of Physics**, vol. 16, no. 11, p. 115 010, 2014. doi: [10.1088/1367-2630/16/11/115010](https://doi.org/10.1088/1367-2630/16/11/115010).
6. Thiago S Mosqueiro and Ramón Huerta, "Computational models to understand decision making and pattern recognition in the insect brain," **Current Opinion in Insect Science**, vol. 6, no. i, pp. 80–85, 2014. doi: [10.1016/j.cois.2014.10.005](https://doi.org/10.1016/j.cois.2014.10.005).
7. Thiago S. Mosqueiro and Leonardo P. Maia, "Optimal channel efficiency in a sensory network," **Physical Review E**, vol. 88, no. 1, p. 12 712, 2013. doi: [10.1103/PhysRevE.88.012712](https://doi.org/10.1103/PhysRevE.88.012712).

### Conference papers & Talks

1. Jaqueline J Brito, Thiago Mosqueiro, Ricardo R Ciferri, and Cristina DA Ciferri, "Faster cloud Star Joins with reduced disk spill and network communication," in *2016 International Conference on Computational Science (ICCS)*, Procedia of Computational Science, 2016. doi: [10.1016/j.procs.2016.05.299](https://doi.org/10.1016/j.procs.2016.05.299).
2. Thiago Mosqueiro, Martin Strube-Bloss, Rafael Tuma, Reynaldo Pinto, Brian H. Smith, and Ramon Huerta, "Non-parametric change point detection for spike trains," in *2016 Annual Conference on Information Science and Systems (CISS)*, IEEE, 2016, pp. 545–550, isbn: 978-1-4673-9457-4. doi: [10.1109/CISS.2016.7460561](https://doi.org/10.1109/CISS.2016.7460561).
3. Rafael T Guariento, Thiago S Mosqueiro, Angel A Caputi, and Reynaldo D Pinto, "A simple model for eletrocommunication: "refractoriness avoidance response"?," Suppl 1, vol. 15, 2014, P68. doi: [10.1186/1471-2202-15-S1-P68](https://doi.org/10.1186/1471-2202-15-S1-P68).
4. Leonardo P Maia and Thiago S Mosqueiro, "Structural features beneath neuronal avalanches," Suppl 1, vol. 14, 2013, O18. doi: [10.1186/1471-2202-14-S1-O18](https://doi.org/10.1186/1471-2202-14-S1-O18).
5. T S Mosqueiro, C Akimushkin, and L P Maia, "Dynamical aspects of Kinouchi-Copelli model: emergence of avalanches at criticality," in *DINCON*, vol. 1, Águas de Lindoia, 2011, pp. 251–254. doi: [10.5540/DINCON.2011.001.1.0064](https://doi.org/10.5540/DINCON.2011.001.1.0064).

### Abstracts in conferences

1. Thiago Mosqueiro, Luis de Lecea, and Ramon Huerta, *Employing different time scales in the control of sleep-to-wake transitions*, in *2016 MURI Winter School, San Diego (UCSD)*, 2016.
2. Thiago Mosqueiro, Martin Strube-Bloss, Rafael Tuma, Reynaldo Pinto, Brian H. Smith, and Ramon Huerta, *Non-parametric change point detection for spike trains*, in *2016 Workshop on Information Theory and Applications, San Diego (ITA)*, 2016.
3. Thiago Mosqueiro and Leonardo Paulo Maia, *Information dynamics in the kinouchi-copeli model*, in *School on Biological Complex Networks (Natal, Brazil)*, 2013.

4. —, *Information dynamics in the kinouchi-copeli model*, in *Experimental Chaos and Complexity Conference* (Michigan, US), 2012.
5. —, *Information flow in a network of excitable units*, in *Granada Seminar* (Granada, Spain), 2012.
6. —, *Optimal channel efficiency in a sensory network*, in *Criticality in Neural Systems Symposium*, Bethesda (NIH, US), 2012.

## Teaching experience

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2015 (Fall)	Invited lecture in Collecting & Analyzing Financial Data – Dr. Ramon Huerta, Rady School, UCSD
2014	Volunteer in Mozilla Software Carpentry bootcamp – Dr. Andrea Zonca, UCSD
2015 (Winter)	Helped teaching Collecting & Analyzing Financial Data – Dr. Ramon Huerta, Rady School, UCSD
2010 – 2013	TA for Statistical Mechanics – with Dr. Francisco Alcaraz, IFSC, USP
2012	TA for Physics 102 – with Drs. PL Maia, JA Hoyos & L Nunes, IFSC, USP
2013	TA for Computational Physics – Dr. Francisco Alcaraz, IFSC, USP

## Other professional activities

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2016 – present	Reviewer for <b>Journal of the Royal Society Interface</b>
2015 – present	Reviewer for <b>PLOS Computational Biology</b>
2015	Participant of Brasil-USP iGEM team (gold badge)
2013, 2015	Judge during the <b>IYPT</b> (fnals in Brazil)
2009 – 2015	Developed open LATEX thesis class for IFSC
2012	Developed JAQue (Joomla Academic Queries, closed source)

## Invited talks

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2016	Princeton (USA)	Non-parametric change point detection for spike trains
2015	UFABC (Brazil)	Learning in insects: fan-in/fan-out structures
2015	ICMC - USP (Brazil)	On critical phenomena and power laws
2012	IFSC - USP (Brazil)	$\LaTeX$ for thesis and dissertations