Thiago Mosqueiro, PhD

Curriculum Vitæ

Contact information

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Work experience

2016 Sept – current	Lecturer at Rady School of Management, UCSD, USA Course: Collecting and Analyzing Financial Data
2015 Oct – current	Postdoctoral researcher at BioCircuits Institute, UCSD, USA Supervisors: Dr. Ramon Huerta & Dr. Noa Pinter-Wollman
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

August, 2015	**PhD in Physics**, *University of São Paulo*, São Carlos, Brazil Thesis: "Information processing in sensory neural networks" Advisor: Dr. Leonardo P Maia
March 2015	**Research internship** , *University of California San Diego*, La Jolla, USA Advisor: Dr. Ramon Huerta
February 2011	**Masters in Physics**, *University of São Paulo*, São Carlos, Brazil Thesis: "Optical transitions in Zincblende semiconductors heterostructures" Advisor: Dr. Esmerindo Bernardes
December 2008	**Bachelor of Physics**, *University of São Paulo*, São Carlos, Brazil

Grants and awards

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 for best Teaching assistant
2012 – 2013	USP PAE fellowship (teaching assistant)
2009	Best article award (The LateX Community)

Peer-reviewed publications

Papers in refereed journals

1. Thiago Mosqueiro , Martin Strube-Bloss, Brian Smith, and Ramon Huerta, "Solving divergent-convergent synaptic architectures to accelerate stable recognition in multilayered sensory systems**," *In submission***, 2016.
2. 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.
3. Ramon Huerta, Thiago Mosqueiro , Jordi Fonollosab, Nikolai F Rulkova, and Irene Rodriguez-Lujan, "Online decorrelation of humidity and temperature in chemical sensors for continuous monitoring**," *Chemometrics and Intelligent Laboratory Systems***, vol. 157, pp. 169–176, 2016. doi: 10.1016/j.chemolab.2016.07.004.
4. Rafael F. Guariento, Thiago Mosqueiro , Paulo Matias, Vinicius B. Cesarino, Lirio O. B. Almeida, Jan F. W. Slaets, Leonardo P. Maia, and Reynaldo D. Pinto, "Automated pulse discrimination of two freely-swimming weakly electric fish and analysis of their electrical behavior during a dominance contest**," *Submitted.***, 2016.
5. Jose Maria Amigo, Thiago 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.
6. 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.
7. 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.
8. Thiago Mosqueiro and Ramon 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.
9. Thiago Mosqueiro and Leonardo 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.

Conference papers & Talks (peer reviewed)

1. Thiago Mosqueiro , Martin Strube-Bloss, Rafael Tuma Guariento, Reynaldo Pinto, Brian 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.
2. 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.
3. Rafael T Guariento, Thiago Mosqueiro , Angel A Caputi, and Reynaldo Pinto, "A simple model for eletrocommunication: "refractoriness avoidance response"?," Suppl 1, vol. 15, 2014, P68. doi: 10.1186/1471-2202-15-S1-P68.
4. Leonardo Maia and Thiago Mosqueiro , "Structural features beneath neuronal avalanches," Suppl 1, vol. 14, 2013, O18. doi: 10.1186/1471-2202-14-S1-O18.
5. Thiago Mosqueiro , Camilo Akimushkin, and Leonardo 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.

Invited talks

2016	UAM, Madrid (Spain)	Stable discrimination in accentuated divergent-convergent neural networks using data from electronic noses
2016	Elche (Spain)	Insect olfaction and multimodal processing of information
2016	HALO, Austin (USA)	Fast and stable discrimination in divergent-convergent neural networks: from Deep Learning back to Neuroscience
2016	SfN, San Diego (USA)	Fast and stable discrimination in accentuated divergent-convergent synaptic connectivities
2016	CISS, 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)	LaTeXfor thesis and dissertations

Other professional activities

Reviewed for	PLOS Computational Biology, Neural Computation, Journal of the Royal Society Interface, Sensors and Actuator B, NIPS.

2016	Ad hoc reviewer for **National Science Foundation**
2015	Participant of Brasil-USP iGEM team (gold badge)
2013, 2015	Judge during the **IYPT** (finals in Brazil)
2009 – 2015	Developed open LATEX thesis class for IFSC
2012	Developed JAQue (Joomla Academic Queries, closed source)

Teaching experience

2016 (Fall)	Lecturer for MGTF 415 Collecting & Analyzing Financial Data, Rady School, UCSD
2015 (Fall)	Invited lecture in Collecting & Analyzing Financial Data – Dr. Ramon Huerta, Rady School, 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

Outreach

2016	Advisor for a brazilian iGEM team (silver badge)
2016	Volunteer at Building With Biology Festival (Reuben Fleet Science Center, San Diego, CA USA)
2015	Conducted a large poll on Participation of Women in Brazilian Science, which was part of the 2015 iGEM project (gold badge). Results are publicly available
2014	Volunteer in Mozilla Software Carpentry bootcamp (Dr. Andrea Zonca), hosted by the San Diego Super Computer Center, UCSD
Since 2015	Interaction with PyLadies Brazil, a group focused on balancing gender inequalities in Computer Science areas

2012 Contributed in the solutions to problems from IYPT for the brazilian team

Publicly available datasets

2016 Recordings from two electric fish swimming freely. To be published soon.
2016 Gas sensors for home activity monitoring Data Set. Published at the UCI Machine Learning Repository
2015 pVeg promoter in E. Coli (iGEM 2015). Published in FigShare.
2015 GFP recordings from three different promoters from the Anderson Library (2015 Interlab Experiment). Published in FigShare.

Other information

Languages

Native	Brazilian Portuguese
Fluent	(American) English
Intermediary	Italian, German and Japanese

Programming languages and Computer Skills

Fluent	C, C++, Fortran, Python, GAWK, and Unix bash shell
High-level languages	Matlab, R, Maple
Version control	Git, Mercurial, Fossial, GitHub
Web oriented	PHP, HTML, Javascript, Jekyll, Bootstrap
Databases	SQL, MySQL, Postgree, Apache Hadoop framework

Abstracts in conferences

1. Thiago Mosqueiro , Martin Strube-Bloss, Brian Smith, and Ramon Huerta, *Fast and stable discrimination in accentuated divergent-convergent synaptic connectivities*, in *Society for Neuroscience Annual Meeting (San Diego, CA, USA)*, 2016.
2. Rafael T Guariento, Thiago Mosqueiro , Paulo Matias, Lirio OB Almeida, and Reynaldo D Pinto, *Dynamics of electrical behavior of gymnotus carapo electric fish during dominance contest*, in *Society for Neuroscience Annual Meeting (San Diego, CA, USA)*, 2016.
3. Thiago Mosqueiro , Martin Strube-Bloss, Brian Smith, and Ramon Huerta, *Accelerated information transmission with stable sparse code in strongly divergent-convergent feedforward networks*, in *Twelvth International Neural Coding Workshop (Cologne, Germany)*, 2016.
4. Thiago Mosqueiro , Martin Strube-Bloss, Brian Smith, and Ramon Huerta, *Divergent-convergent synaptic connectivities accelerate coding in multilayered sensory systems*, in *25th Annual Computational Neuroscience Meeting – CNS 2016 (Jeju, South Korea)*, 2016.
5. Thiago Mosqueiro , Martin Strube-Bloss Martin, Rafael Tuma Guariento, Reynaldo Reynaldo Pinto, Brian Smith, and Ramon Huerta, *Non-parametric change point detection for spike trains*, in *2016 Workshop on Information Theory and Applications, San Diego (ITA)*, 2016.
6. 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.

7. Thiago Mosqueiro and Leonardo Maia, *Information dynamics in the kinouchi-copeli model*, in *School on Biological Complex Networks (Natal, Brazil)*, 2013.
8. Thiago Mosqueiro and Leonardo Maia, *Optimal channel efficiency in a sensory network*, in *Criticality in Neural Systems Symposium, Bethesda (NIH, US)*, 2012.
9. Thiago Mosqueiro and Leonardo Maia, *Information flow in a network of excitable units*, in *Granada Seminar (Granada, Spain)*, 2012.
10. Thiago Mosqueiro and Leonardo Maia, *Information dynamics in the kinouchi-copeli model*, in *Experimental Chaos and Complexity Conference (Michigan, US)*, 2012.