Alicia Garrido Peña, Ph.D.

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Personal details

Name	Alicia Garrido Peña
Current activity	PhD Candidate. Assistant Professor in Computer Engineering.
Nationality	Spain
Affiliation	Departamento de Ingeniería Informática. Universidad Autónoma de Madrid.

Academic Background

2014 – 2018	**Computer Science Engineering** University of Granada.
2018 – 2019	**M.Sc. Computer Science Engineering** UAM.
	M.Sc. Research and Development in Information Technologies. UAM.
2020 – 2024	**PhD in Computer Engineering and Telecomunications.** ***Cum laude*****. International mention** UAM.

Internacionalization

September - December, 2021	**Research Stay**, University of Sussex, Brighton, United Kingdom. Professor: Thomas Nowotny.

Skills

Electrophysiology	Experiments in dynamic clamp with intracellular (sharp electrodes) and extracellular recordings. Expertise experience in *Lymnaea stagnalis* preparation and recording, experience in *Carcinus maenas* STG recording.
Optical neurotechnology	Experience with Near Infrared Laser stimulation.
Computational neuroscience	Conductance-based models, single cells and small circuits. High experience implementing and simulating
Real-time and closed-loop	Experience performing and designing experiments with hard real time software technology combining living and model neurons.
Data analysis	High experience in data analysis with Python.
Coding	Python, C++, Java, SQL, XML/XSL, PHP, LaTeX
Languages	Strong reading, writing and speaking competencies for English and Spanish. Basic skills in German.
Dissemination and Science Communication	Experience in oral presentations in conferences. High interest in science communication and dissemination.

Research Publications

Journal Publications

1. L. Ellison, G. Raiser, A. Garrido-Peña, G. Kemenes, and T. Nowotny, "SSSort 2.0: A semi-automated spike detection and sorting system for single sensillum recordings," *Journal of Neuroscience Methods*, p. 110 351, Dec. 2024, ISSN: 0165-0270. DOI: 10.1016/j.jneumeth.2024.110351. (visited on 12/21/2024).

2. A. Garrido-Peña, P. Sanchez-Martin, M. Reyes-Sanchez, *et al.*, "Modulation of neuronal dynamics by sustained and activity-dependent continuous-wave near-infrared laser stimulation," *Neurophotonics*, vol. 11, no. 2, p. 024 308, May 2024, JCR Q1., ISSN: 2329-423X, 2329-4248. DOI: 10.1117/1.NPh.11.2.024308. (visited on 05/17/2024).

3. A. Garrido-Peña, I. Elices, and P. Varona, "Characterization of interval variability in the sequential activity of a central pattern generator model," *Neurocomputing*, vol. 461, pp. 667–678, Oct. 2021, JCR Q2., ISSN: 0925-2312. DOI: 10.1016/j.neucom.2020.08.093. (visited on 02/13/2024).

Conference Proceedings

1. A. Garrido-Peña, P. Sanchez-Martin, I. Elices, *et al.*, "Exploring the ability of biophysical models to reproduce the functional variability of neurons. 32nd Annual Computational Neuroscience Meeting: CNS*2023," en, in *Journal of Computational Neuroscience*, vol. 52, Oct. 2024, pp. 3–166. DOI: 10.1007/s10827-024-00871-5. (visited on 10/23/2024).

2. A. Garrido-Peña, P. Sanchez-Martin, M. Reyes-Sanchez, *et al.*, "Continuous-wave near-infrared laser stimulation non-invasively modulates neural dynamics in sustained and activity-dependent modalities," in *SFN*, SFN, Neuroscience 2024, 2024.

3. A. Garrido-Peña, P. Sanchez-Martin, M. Reyes-Sanchez, *et al.*, "Effective noninvasive neuronal waveform modulation with sustained and activity-dependent continuous-wave near-infrared laser stimulation," in *FENS*, Science Communications World Wide, 2024. DOI: 10.57736/6F07-365F. (visited on 07/09/2024).

4. A. Garrido-Peña, P. Sánchez-Martín, M. Reyes-Sanchez, *et al.*, "Activity-dependent infrared laser stimulation to assess its biophysical effects on single neurons. 31st Annual Computational Neuroscience Meeting: CNS*2022. F3. ORAL PRESENTATION.," in *Journal of Computational Neuroscience*, vol. 51, Jan. 2023, pp. 3–101. DOI: 10.1007/s10827-022-00841-9. (visited on 02/13/2024).

5. P. Sánchez-Martín, A. Garrido-Peña, B. Berbel, F. B. Rodriguez, R. Levi, and P. Varona, "Influence of electrical coupling in shaping time intervals and dynamical invariants of central pattern generator sequences. 31st Annual Computational Neuroscience Meeting: CNS*2022. P109.," in *Journal of Computational Neuroscience*, vol. 51, Jan. 2023, pp. 3–101. DOI: 10.1007/s10827-022-00841-9. (visited on 02/13/2024).

6. P. Soëtard, R. Amaducci, P. Sánchez-Martín, *et al.*, "Dynamical principles of functional neural sequences validated in hybrid robots built with living central pattern generators. 31st Annual Computational Neuroscience Meeting: CNS*2022. P110," in *Journal of Computational Neuroscience*, vol. 51, Jan. 2023, pp. 3–101. DOI: 10.1007/s10827-022-00841-9. (visited on 02/13/2024).

7. A. Garrido-Peña, P. Sanchez-Martin, R. Levi, J. Castilla, J. Tornero, and P. Varona, "Activity-dependent stimulation to assess the effect of infrared-laser stimulation in single neurons. Poster Presentation," in *FENS*, FENS forum 2022, Jun. 2022, S02–556. URL: https://kenesvm.azureedge.net/public/general/FENS2022.pdf.

8. R. Amaducci, I. Elices, M. Reyes-Sanchez, *et al.*, "Controlling robotic locomotion by a closed-loop interaction with living central pattern generators.," in *COSYNE*, Feb. 2021. URL: https://www.cosyne.org/s/Cosyne2021_program_book.pdf.

9 B. Berbel, A. Garrido-Peña, I. Elices, R. Latorre, and P. Varona, "Effect of Electrical Synapses in the Cycle-by-Cycle Period and Burst Duration of Central Pattern Generators," in *Advances in Computational Intelligence*, I. Rojas, G. Joya, and A. Català, Eds., ser. Lecture Notes in Computer Science, Springer International Publishing, 2021, pp. 81–92, ISBN: 978-3-030-85099-9. DOI: 10.1007/978-3-030-85099-9_7.

10 B. Berbel, A. Garrido-Peña, I. Elices, R. Latorre, and P. Varona, "Gap junctions shape the intervals that build robust sequences in a central pattern generator model. 30th Annual Computational Neuroscience Meeting: CNS*2021–Meeting Abstracts. P194.," in *Journal of Computational Neuroscience*, vol. 49, Dec. 2021, pp. 3–208. DOI: 10.1007/s10827-021-00801-9. (visited on 02/13/2024).

11 A. Garrido-Peña, I. Elices, R. Levi, F. B. Rodriguez, and P. Varona, "Universality of interval variability constraints in the sequential activity of motor circuits.," in *COSYNE*, Feb. 2021. URL: https://www.cosyne.org/s/Cosyne2021_program_book.pdf.

12 A. Garrido-Peña, R. Levi, J. Castilla, J. Tornero, and P. Varona, "Experimental and modeling study of near infrared-laser stimulation in single and electrically coupled neurons. Poster presentation.," in *SENC*, SENC meeting 2021, Nov. 2021. URL: https://kenesvm.azureedge.net/public/general/FENS2022.pdf.

13 A. Garrido-Peña, P. Sanchez-Martin, R. Levi, J. Castilla, J. Tornero, and P. Varona, "Effect of infrared laser stimulation in single neurons: Experimental and modeling study. 30th Annual Computational Neuroscience Meeting: CNS*2021–Meeting Abstracts. P193.," in *Journal of Computational Neuroscience*, vol. 49, Dec. 2021, pp. 3–208. DOI: 10.1007/s10827-021-00801-9. (visited on 02/13/2024).

14 P. Sanchez-Martin, I. Elices, A. Garrido-Peña, R. Levi, F. B. Rodriguez, and P. Varona, "Dynamic synchronization between electrically coupled cells of central pattern generators. 30th Annual Computational Neuroscience Meeting: CNS*2021–Meeting Abstracts. P195.," in *Journal of Computational Neuroscience*, vol. 49, Dec. 2021, pp. 3–208. DOI: 10.1007/s10827-021-00801-9. (visited on 02/13/2024).

15 R. Amaducci, I. Elices, M. Reyes-Sanchez, *et al.*, "Hybrid robot driven by a closed-loop interaction with a living central pattern generator with online feedback. 29th Annual Computational Neuroscience Meeting: CNS*2020. P207.," in *BMC Neuroscience*, vol. 21, Dec. 2020, p. 54. DOI: 10.1186/s12868-020-00593-1. (visited on 02/13/2024).

16 A. Garrido-Peña, I. Elices, R. Levi, F. B. Rodriguez, and P. Varona, "Experimental and computational characterization of interval variability in the sequential activity of the Lymnaea feeding CPG. 29th Annual Computational Neuroscience Meeting: CNS*2020. O11. ORAL PRESENTATION," in *BMC Neuroscience*, vol. 21, Dec. 2020, p. 54. DOI: 10.1186/s12868-020-00593-1. (visited on 02/13/2024).

Books and Chapters

1 A. Garrido-Peña, *TFM 2019/20. Máster en Ingeniería Informática*. TFM, Mar. 2022. URL: https://libros.uam.es/tfm/catalog/book/1143 (visited on 11/24/2023).

2 A. Garrido-Peña, *TFM 2019/20.Máster en Investigación e Innovación en Tecnologías de la Información y las Comunicaciones*. TFM, Mar. 2022. URL: https://libros.uam.es/tfm/catalog/book/1146 (visited on 11/24/2023).

Courses and activities

Neuroscience

February 2024 — **fMRi Postpfrocessing Course: Resting State & FSL**, Organized by the Center for Clinical Neuroscience. Hospital los Madroños. **Hours**: 12 hours.

October 2021 — **Hackathon Brain Code Games**, Organized by the Spanish Society of Neuroscience (SENC) and the Universidad Autónoma de Madrid (UAM). **Hours**: 60 hours.

October 2020 — **First Neutouch Summer School: Touch for Prosthetics**, Online. Organizer: Neutouch.

April 2020 — **BCI & Neurotechnology Spring School 2020**, Online. Organizer: g.tec.

June 18, 2019 — **Biological Risk (4h)**, Madrid. Organizer: Prevention of Risks Service, Universidad Autónoma de Madrid (UAM).

July 4, 2019 — **Security on Chemicals Handling (4h)**, Madrid. Organizer: Prevention of Risks Service, Universidad Autónoma de Madrid (UAM).

Science disemination and interdisciplinarity

March 4,11, 2024 — **Organizationa and Conduction of course titled: "Free Software for Research Carreer"**, Universidad Autónoma de Madrid (UAM).

January 25, 2023 — **Conference "Open Science in the Spanish University and its Impact on Research Development and Evaluation"**, Interuniversity Institute INAECU.

May 2021 — **#HiloTesis Dissemination Contest**, Organized by CRUE.

October 2020 to February 2021 — **Interdisciplinary Views in Scientific Research (5 ECTS)**, Madrid. Organizer: EDUAM, Universidad Autónoma de Madrid (UAM).

February to June 2018 — **Scientific Entertainer Course at Science Museum (100h; 4 ECTS)**, Granada. Organizer: Parque de las Ciencias; University of Granada (UGR).

Women in Science and STEM

June 2024 — **AI Workshop for campus "I want to be an woman engineer"**, Universidad Autónoma de Madrid (UAM).

February 2024 — **Gender-Perspective Science Communication Course**, Science Culture Unit, Universidad Autónoma de Madrid (UAM).

Courses and activities (continued)

June 2022 — **Participation in the Roundtable "Studying STEM"**, Project: "I Want to Be an Engineer - UAM", Organized by the School of Engineering. Universidad Autónoma de Madrid (UAM).

Grants and other merits

June 2022 — **Thesis in 3 minutes Competition (honorable mention)**, Universidad Autónoma de Madrid, Alcalá de Henares, Politécnica de Madrid, Rey Juan Carlos, and Universidad Complutense.

2018-2019 — **Competitive grant for master studies in Universidad Autonoma de Madrid**, Master research program. Universidad Autónoma de Madrid.

2016-2017 — **Erasmus+**, University of Granada.

2016 — **Best Academic Certificate Award from E.T.S. de Ingenierías Informática y de Telecomunicación**, University of Granada.