DIEGO ARMANDO PACHECO PINEDO, PH.D.

CONTACT INFORMATION

Harvard University
Harvard Medical School, Neurobiology Department
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ACADEMIC EMPLOYMENT

Harvard University
Postdoctoral Research Fellow — July 2021-present
Advisor: Rachel Wilson

Princeton University
Postdoctoral Research Fellow — Oct 2018- May 2021
Advisor: Mala Murthy

EDUCATION

Princeton University
Ph.D. (Neuroscience) — 2018
Thesis: Mapping courtship song representations throughout the central brain of *Drosophila melanogaster*
Advisor: Mala Murthy
Committee: David Tank, Andrew Leifer

Cold Spring Harbor Labs
Biology of Memory course — 2010

Universidade de São Paulo
Latin American School in Computational Neuroscience — 2010

Universidad Nacional Mayor de San Marcos
Rank: 2/28
B.S., Biology — 2009
Major: Genetics and Biotechnology
Mentor: Walter Cabrera-Febola

GRANTS AND FELLOWSHIPS

- Contributed data to the following successful grant applications:
  - R35 (1R35NS111580-01), Murthy (Uncovering the Neural Mechanisms that Flexibly Link Sensory Processing to Behavior) 2019
  - BRAIN R01 (RFA-NS-18-009), Murthy, Clandinin, Scott, and Ganguli (Population Neural Activity Mediating Sensory Perception Across Modalities) 2018
  - BRAIN R01 (RFA-NS-17-014), Murthy, Shaevitz, Pillow, and Bialek (Dissecting Sensorimotor Pathways Underlying Social Interactions: Models, Circuits, and Behavior) 2018
- NIMH T32 training grant in Quantitative Neuroscience 2011-2016

- Peruvian National Council for Research, Technology and Technological Innovation travel grant, Latin American School in Computational Neuroscience, Universidade de São Paulo 2010
- Travel grant, Biology of Memory Course, Cold Spring Harbor Laboratory 2009
- Travel grant, Annual School of Neurosciences**,** Universidad Nacional de Córdoba 2008

AWARDS AND HONORS

- Poster presentation award, Princeton Neuroscience Institute retreat 2018
- Best Undergraduate Research prize, National Congress of Students of Genetics and Biotechnology 2009

MANUSCRIPTS IN PREPARATION

- **Pacheco DA***, Brezovec L*, Ahmed S, Clandinin T, and Murthy M. Methods for comparing *in vivo* brain-wide activity.

PUBLICATIONS

- Roemschied F, **Pacheco DA**, Ireland E, Li X, Aragon MJ, Pang R, and Murthy M. 2021. "Flexible Circuit Mechanisms for Context-Dependent Song Sequencing". **bioRxiv**. doi: https://doi.org/10.1101/2021.11.01.466727.
- Baker C, MacKellar C, Nern A, Dorkenwald S, **Pacheco DA**, Pang R, Eckstein N, Funke J, Dickson B, Murthy M. 2021. "Neural Network Organization for Courtship Song Feature Detection in Drosophila". **bioRxiv**. doi: https://doi.org/10.1101/2020.10.08.332148.
- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. 2021. "Auditory Activity Is Diverse and Widespread Throughout the Central Brain of Drosophila." **Nature Neuroscience** 24, 93-104. Doi: https://doi.org/10.1038/s41593-020-00743-y.
- Deutsch D, **Pacheco DA**, Encarnacion-Rivera L, Pereira T, Fathy R, Calhoun A, Ireland E, Burke A, Dorkenwald S, McKellar C, Macrina T, Lu R, Lee K, Kemnitz N, Ih D, Castro M, Halageri A, Jordan C, Silversmith W, Wu J, Seung S, and Murthy M. 2020. "The Neural Basis for a Persistent Internal State in Drosophila Females". **eLife** 9:e59502. doi: 10.7554/eLife.59502.
- Clemens J, Coen P, Roemschied F, Pereira T, Mazumder D, Aldarondo D, **Pacheco DA**, and Murthy M. 2018. "Discovery of a New Song Mode in Drosophila Reveals Hidden Structure in the Sensory and Neural Drivers of Behavior." **Current Biology** CB 28 (15): 2400–2412.e6. doi: 10.1016/j.cub.2018.06.011.
- Coen P, Clemens J, Weinstein A, **Pacheco DA**, Deng Y, and Murthy M. 2014. "Dynamic Sensory Cues Shape Song Structure in Drosophila." **Nature** 507 (7491): 233–37. doi: 10.1038/nature13131.
- Sun X, Badura A, **Pacheco DA**, Lynch L, Schneider E, Taylor M, Hogue I, Enquist L, Murthy M, and Wang S. 2013. "Fast GCaMPs for Improved Tracking of Neuronal Activity." **Nature Communications** 4: 2170. doi:10.1038/ncomms3170.
- Tayler T, **Pacheco DA**, Hergarden A, Murthy M, and Anderson D. 2012. "A Neuropeptide Circuit That Coordinates Sperm Transfer and Copulation Duration in Drosophila." **Proc Natl Acad Sci U S A** 109 (50): 20697-702. doi: 10.1073/pnas.1218246109.

SELECTED ORAL PRESENTATIONS

- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2019). Auditory Activity is Widespread Throughout the Central Brain of *Drosophila*. Kavli Workshop on the Neural Circuits and Behavior of *Drosophila*, Crete (Greece).
- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2019). Auditory Activity is Widespread Throughout the Central Brain of *Drosophila*. Princeton Neuroscience Institute in-house seminar series, New Jersey (US).
- **Pacheco DA**, and Murthy M. (2016). Anatomical and functional characterization of the song circuit in Drosophila melanogaster. Princeton Neuroscience Institute retreat, New Jersey (US).
- **Pacheco DA**, and Murthy M. (2015). Characterizing neural activity in the song motor circuit of *Drosophila*. Princeton Neuroscience Institute in-house seminar series, New Jersey (US).
- **Pacheco DA**, and Murthy M. (2015). Characterizing neural activity in the song motor circuit of *Drosophila*. Princeton Molecular Biology Department retreat, New Jersey (US).

SELECTED POSTER PRESENTATIONS

- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2020) Auditory Activity is Widespread Throughout the Central Brain of *Drosophila*. COSYNE, Denver (US).
- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2018) Mapping auditory activity throughout the central brain of *Drosophila* males and females. SFN meeting, San Diego (US).
- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2017) Volumetric imaging of courtship song representations throughout the central brain of *Drosophila*. CSHL neurobiology of drosophila meeting, New York (US).
- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2016) Characterizing neural activity in the song motor circuit of *Drosophila*. SFN meeting, San Diego (US).
- **Pacheco DA**, and Murthy M. (2014) Characterizing the dynamics of the song motor circuit in *Drosophila*. Flies, worms and robots: combining perspective on minibrains and behavior, Sant Feliu de Guixols (Spain).
- **Pacheco DA**, and Murthy M. (2013) Characterizing the dynamics of the song motor circuit in *Drosophila*. CSHL neurobiology of *drosophila* meeting, New York (US).

TEACHING EXPERIENCE

Teaching Assistant for four courses at Princeton University:

- Neurotechnologies for Analysis of Neural Dynamics summer course. 2015-2017
- Biophysics and computation in neurons and networks summer course. 2012-2013
- Neuroscience and Everyday life, NEU 101 (spring). 2011
- Neuroscience: From Molecules to Systems to Behavior, NEU 501B (fall). 2011

Lectures delivered at Universidad Nacional Mayor de San Marcos:

- Developmental Biology (spring). 2009
- Genomic aspects of Evolution (fall). 2009
- Introduction to Biomathematics (fall). 2009

SCIENTIFIC OUTREACH

- Participated at the Universidad Mayor de San Marcos in-house seminar at the Biology department (2013) giving a presentation on Acoustic communication in *Drosophila melanogaster*.

- Participated at the Princeton Science and Engineering Expo (2012) setting up a booth on *Drosophila melanogaster* acoustic communication.

MENTORING

- Mentored a Princeton University senior thesis student: Tina Quynh-Huong Doan, Molecular Biology, Princeton University, class of 2016 (Currently a research Study Assistant at Memorial Sloan Kettering Cancer Center).