

# DIEGO ARMANDO PACHECO PINEDO, PH.D.

## CONTACT INFORMATION

Harvard University  
Harvard Medical School, Neurobiology Department  
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## ACADEMIC EMPLOYMENT

<b>Harvard University</b> Postdoctoral Research Fellow Advisor: Rachel Wilson	July 2021-present
<b>Princeton University</b> Postdoctoral Research Fellow Advisor: Mala Murthy	Oct 2018- May 2021

## EDUCATION

<b>Princeton University</b> Ph.D. (Neuroscience) Thesis: Mapping courtship song representations throughout the central brain of <i>Drosophila melanogaster</i> Advisor: Mala Murthy Committee: David Tank, Andrew Leifer	2018
<b>Universidade de São Paulo</b> Latin American School in Computational Neuroscience	2010
<b>Cold Spring Harbor Labs</b> Biology of Memory course	2009
<b>Universidad Nacional de Córdoba</b> 5th Latin American IBRO/LARC-INMHA Annual School of Neurosciences	2008
<b>Universidad Nacional Mayor de San Marcos</b> Rank: 2/28 B.S., Biology Major: Genetics and Biotechnology Mentor: Walter Cabrera-Febola	2009

## GRANTS AND FELLOWSHIPS

- Howard Hughes Medical Institute Awardee of Life Sciences Research Foundation postdoctoral fellowship 2023-present
- 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

## PUBLICATIONS

- Bates AS, Phelps JS, Kim M, Yang HH, Matsliah A, Ajabi Z, Perlman E, Delgado KM, Osman MAM, Salmon CK, Gager J, Silverman B, Renauld S, Salman F, Patel J, Collie MF, Fan J, **Pacheco DA**, Zhao Y, Zhang W, Serratos Capdevila L, Roberts RJV, Munnely EJ, Griggs N, Langley H, Moya-Llamas B, Zhang Z, Maloney RT, Yu S, Sterling AR, Sorek M, Kruk K, Serafetinidis N, Dhawan S, Klemm F, Brooks P, Lesser E, Jones JM, Pierce-Lundgren SE, Lee S, Luo Y, Cook AP, McKim TH, Giakoumas DS, Gorko B, Kophs EC, Falt T, Negrón-Morales AM, Burke A, Hebditch J, Willie KP, Willie R, Popovych S, Kemnitz N, Ih D, Lee K, Lu R, Halageri A, Bae JA, Jourdan B, Schwartzman G, Demarest DD, Behnke E, Bland D, Kristiansen A, Skelton J, Stocks T, Garner D, Hernandez A, Kumar S, The BANC-FlyWire Consortium, Daly KC, Dorkenwald S, Collman F, Suer MP, Fenk LM, Pankratz MJ, Yao Z, Huston SJ, Stürner T, Jefferis GSXE, Eichler K, Seeds AM, Hampel S, Agrawal S, Okubo TS, Zandawala M, Macrina T, Adjavon DY, Funke J, Tuthill JC, Azevedo A, Seung HS, de Bivort BL, Murthy M, Drugowitsch J, Wilson RI, and Lee WA. 2025. "Distributed control circuits across a brain-and-cord connectome". *bioRxiv*. doi: 10.1101/2025.07.31.667571
- Brezovec B, Berger A, Hao Y, Lin A, Ahmed S, **Pacheco DA**, Thiberge S, Murthy M, and Clandinin T. 2024. "BIFROST: a method for registering diverse imaging datasets of the Drosophila brain". *Proc Natl Acad Sci USA* 121 (47): e2322687121. doi: 10.1073/pnas.2322687121
- Roemschied F, **Pacheco DA**, Aragon MJ, Ireland E, Li X, Thieringer K, Pang R, and Murthy M. 2023. "Flexible Circuit Mechanisms for Context-Dependent Song Sequencing". *Nature* 622: 794-801. doi: 10.1038/s41586-023-06632-1.
- Baker C, MacKellar C, Pang R, Nern A, Dorkenwald S, **Pacheco DA**, Eckstein N, Funke J, Dickson B, Murthy M. 2022. "Neural Network Organization for Courtship Song Feature Detection in Drosophila". *Current Biology* 32(15): 3317 - 3333.e7. doi: 10.1016/j.cub.2022.06.019.

- **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: 233–237. 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 USA** 109 (50): 20697-702. doi: 10.1073/pnas.1218246109.

#### SELECTED ORAL PRESENTATIONS

- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2023). Auditory Activity is Widespread Throughout the Central Brain of *Drosophila*. Francis Crick Institute Seminar, London (UK).
- **Pacheco DA**, Thiberge S, Pnevmatikakis E, and Murthy M. (2021). Auditory Activity is Widespread Throughout the Central Brain of *Drosophila*. University of North Carolina Neuroscience Seminar, North Carolina (US).
- **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:

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| • 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      |

Lecture delivered at Universidad Peruana Cayetano Heredia:

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| • Introduction to Neuroscience (summer). | 2010 |
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Lectures delivered at Universidad Nacional Mayor de San Marcos:

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

## SCIENTIFIC OUTREACH

- Participated at the Universidad Nacional 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 Post-Baccalaureate research project: Fernanda Contini, Neuroscience, Harvard Medical School, Harvard University, 2023-2025 cohort (Currently a graduate student at Yale University).
- Mentored an undergraduate summer research project: Marco A. Peña-Garcia, Biology, Universidad Nacional Mayor de San Marcos, class of 2019 (Currently a graduate student at Emory University).

- 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).