Ella K Say

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RESEARCH INTERESTS

My current career goal is to pursue a PhD to investigate how the brain flexibly encodes and updates new information. I am equally interested in the mechanisms underlying certain neuropsychiatric disorders and how disruptions to an individual's internal state may perturb this system using computational and systems neuroscience approaches.

EDUCATION

B.S. Biology with Specialization in Bioinformatics June 2024

Minor: Computer Science University of California, San Diego

RESEARCH EXPERIENCE

Giocomo Lab, Stanford University | *Life Science Research Professional I* August 2024 - Present

- Researching how the hippocampus flexibly encodes features of **spatial memory** and **navigation**.
- Leveraging **2-photon imaging** techniques and **virtual reality** to gain a better understanding of how the brain navigates novel environments.

Tye Lab, Salk Institute for Biological Studies | *Undergraduate Researcher* Mar 2023 - June 2024

- Investigating the neural mechanisms underlying the **overlap between social and physical pain.**
- Developing **novel machine learning pipelines** to analyze naturalistic behavioral data.
- Using **in-vivo cellular resolution imaging** to understand how an abstract negative experience is represented in the brain.

McVicker Lab, Salk Institute for Biological Studies | *Undergraduate Researcher* Sep 2022 - Mar 2023

- Designed **ATAC-seq pipelines** to track **chromatin accessibility**.
- Updated the **WASP2 pipeline** to facilitate pinpointing regulatory elements that contribute to complex human disease.

HONORS & ACCOLADES

Travel Award | *ABRCMS Conference* Nov 2025

Oral Presentation Award | *Louis Stokes CAMP Symposium* Feb 2024

Best Poster Award | *SACNAS National Diversity in STEM Conference* Nov 2023

Travel Award | *SACNAS National Diversity in STEM Conference* Nov 2023

California Alliance for Minority Participation Scholarship | *UC San Diego* June 2023

- NSF-funded scholarship to conduct full-time research during Summer 2023.

Provost Honors | *UC San Diego* Sep 2020-June 2024

PUBLICATIONS

Manuscripts

1. C. Jia, A. Tran, F. Aloboudi, **E. Say**, N. Thao, C. R. Lee, K. Batra, A. Nguyen, A. Bal, N. N. Nono, J. Delahanty, M. G. Chan, L. R. Keyes, R. R. Patel, R. Wichmann, F. Taschbach, Y. Li, M. Benna, T. D. Pereira, H. Li, K. Tye, "Social Exclusion Amplifies Behavioral Responses to Physical Pain via Insular Neuromodulation," *In revision* 2025.

2. M. H. Plitt, K. Kaganovsky, **E. Say***, M. Sosa, T. C. Südhof, L. M. Giocomo, "Hippocampal place code plasticity in CA1 requires postsynaptic membrane fusion," *In revision*, 2025.

3. C. Jia, A. Tran, F. Aloboudi, **E. Say**, N. Thao, C. R. Lee, K. Batra, A. Nguyen, A. Bal, N. N. Nono, J. Delahanty, M. G. Chan, L. R. Keyes, R. R. Patel, R. Wichmann, F. Taschbach, Y. Li, M. Benna, T. D. Pereira, H. Li, K. Tye, "Social Exclusion Amplifies Behavioral Responses to Physical Pain via Insular Neuromodulation," *bioRxiv* May 13, 2025.

Conferences

1. **E. Say***, C. Dong, L. Giocomo, "Investigating hippocampal coding of spatial and social features through a head-fixed setup," *ABRCMS*, November 2025.

2. M. H. Plitt, K. Kaganovsky, **E. Say***, M. Sosa, T. C. Südhof, L. M. Giocomo, "Hippocampal place code plasticity in CA1 requires postsynaptic membrane fusion," *Society for Neuroscience*, November 2025.

3. C. Jia, A. Tran, F. Aloboudi, **E. Say**, N. Thao, C. R. Lee, K. Batra, A. Nguyen, A. Bal, N. N. Nono, J. Delahanty, M. G. Chan, L. R. Keyes, R. R. Patel, R. Wichmann, F. Taschbach, Y. Li, M. Benna, T. D. Pereira, H. Li, K. Tye, "Social Exclusion Amplifies Behavioral Responses to Physical Pain via Insular Neuromodulation," *Computational and Systems Neuroscience (COSYNE)*, April 2025.

4. C. Jia, A. Tran, F. Aloboudi, **E. Say**, N. Thao, C. R. Lee, K. Batra, A. Nguyen, A. Bal, N. N. Nono, J. Delahanty, M. G. Chan, L. R. Keyes, R. R. Patel, R. Wichmann, F. Taschbach, Y. Li, M. Benna, T. D. Pereira, H. Li, K. Tye, "Social Exclusion Modifies the Neural Response to Physical Pain," *Society for Neuroscience*, November 2023.

5. **E. Say***, C. Jia, A. Tran, N. Thao, K. M. Tye, "Social Exclusion Modifies the Behavioral Response to Physical Pain," *National Diversity in STEM Conference*, November 2023.

6. C. Jia, A. Tran, F. Aloboudi, **E. Say**, N. Thao, C. R. Lee, K. Batra, A. Nguyen, A. Bal, J. Delahanty, M. G. Chan, L. R. Keyes, R. R. Patel, R. Wichmann, F. Taschbach, Y. Li, M. Benna, T. D. Pereira, H. Li, K. Tye, "Social Exclusion Modifies the Neural Response to Physical Pain," *Gordon Research Conference: Modulation of Neural Circuits and Behavior*, May 2023.

RESEARCH SKILLS

Programming:

- Advanced: Python, MATLAB, Unix/Bash
- Intermediate: C++, Java
- Beginner: R, Perl

Machine learning: tensorflow, CUDA, SLEAP, DeepLabCut, keypoint-MoSeq, B-SOID

Calcium Imaging: Inscopix scopes, 2-photon imaging, Suite2P, Cellular resolution calcium imaging processing (CNMFE)

Behavior: head-fixation, virtual reality paradigm, social behavioral assays, pain behavioral assays, tube testing, IACUC-certified animal handler

Histology: Microtome + cryostat slicing, Confocal + episcope imaging, perfusion and brain extraction

RELEVANT COURSEWORK

Bioinformatics: Bioinformatics Algorithms, Applied Genomic Technologies, Advanced Bioinformatics Lab, Bioinformatics Statistics, Linear Algebra.

Computer Science: Design and Analysis of Algorithms, Advanced Data Structures, Object Oriented Design.

Neuroscience: Computational Models in Neuroscience, Structural Biochemistry, Molecular Biology, Neurobiology of Cognition.

REFERENCES

Lisa Giocomo *Giocomo Lab - Primary Investigator*
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Stanford University
290 Jane Stanford Way, Stanford, CA 94305
Kay Tye *Tye Lab - Primary Investigator*
tye@salk.edu
Salk Institute for Biological Studies
10010 N Torrey Pines Rd, La Jolla, CA 92037
Graham McVicker *McVicker Lab - Primary Investigator*
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10010 N Torrey Pines Rd, La Jolla, CA 92037

LEADERSHIP AND INVOLVEMENT

East Palo Alto Academy Foundation | *Volunteer Tutor* 2025-Present
Stanford Club Triathlon | *Member* 2024-Present
Alto Velo Cycling Team | *Cyclist* 2024-Present
UCSD Club Triathlon | *Executive Board Member* 2022-2024

- Club Collegiate Nationals: Draft Legal, Olympic, Mixed Team Relay
- Honolulu Marathon

Undergraduate Bioinformatics Club | *Member* 2022-2024

The Guardian | *Copy Editor* 2021-2024

KSDT Campus Radio | *Host* 2021-2024

- Discussed current events, campus happenings and music on my show "Oh You Would Love It!"

Betty Boarder's Surf Collective | *Executive Board Member* 2020-2024

LEGO Brand Retail | *Brick Specialist* 2020-2022

- Built LEGO display sets for the UTC LEGO Store

UCSD Club Model UN | *Delegate* 2020-2022

- Best Delegate at UCSB Model UN (2021)
- Best Delegate at Harvard Model UN (2019)

National Speech and Debate | *Congressional Debate + National Extemporaneous Speech* 2016-2020

- Semi-Finalist at NSDA Championships (2019)
- Semi-Finalist at California State Championships (2019)