Ella K Say

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RESEARCH INTERESTS

My career goal is to pursue a PhD investigating how the brain flexibly encodes and updates new information. I am also interested in how disruptions to internal states contribute to neuropsychiatric disorders, and I aim to study these processes through computational and systems neuroscience approaches.

EDUCATION

University of California, San Diego Sep 2020 - June 2024

B.S. Biology with Specialization in Bioinformatics, Minor in Computer Science

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**.
- Designed and implemented **virtual reality** paradigms combined with ***in vivo* 2-photon calcium imaging**.

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.**
- Built **novel machine learning pipelines** to analyze naturalistic social behavioral data.

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

- Developed **ATAC-seq pipelines** to track **chromatin accessibility**.
- Optimized 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. **E. Say**, C. Dong, L. Giocomo, "Investigating hippocampal coding of spatial and social features through a head-fixed setup," *Society for Neuroscience*, November 2025.

3. 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.

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 Amplifies Behavioral Responses to Physical Pain via Insular Neuromodulation," *Computational and Systems Neuroscience (COSYNE)*, April 2025.

5. 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.

6. **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.

7. 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.

* indicates equal contribution, ** indicates presenter

RESEARCH SKILLS

Programming:

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

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*
gmcvicker@salk.edu
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10010 N Torrey Pines Rd, La Jolla, CA 92037

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience | *Member* Nov 2024-Present
SACNAS | *Member* Nov 2023-Present

LEADERSHIP AND INVOLVEMENT

East Palo Alto Academy Foundation | *Volunteer Tutor* 2025-Present
Alto Velo Racing Team | *Cyclist* 2025-Present
Stanford Club Triathlon | *Member* 2024-Present
UCSD Club Triathlon | *Executive Board Member* 2022-2024
The Guardian | *Copy Editor* 2021-2024
KSDT Campus Radio | *Host* 2021-2024
Betty Boarder's Surf Collective | *Executive Board Member* 2020-2024
LEGO Brand Retail | *Brick Specialist* 2020-2022
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)