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

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

- Awarded an Oral Presentation Award for my talk titled *Social Exclusion Modifies the Behavioral Response to Physical Pain*.

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

- Awarded a Poster Presentation Award for my poster titled *Social Exclusion Modifies the Behavioral Response to Physical Pain*.

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

- Awarded a Travel Award to fully fund attendance to NDiSTEM 2023.

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

- Granted the NSF-funded scholarship to conduct full-time research for the summer 2023.
- Presented findings at the CAMP Statewide Symposium and UCSD Summer Research Conference.

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

PUBLICATIONS

Manuscripts

1. Caroline Jia, Andrea Tran, Faith Aloboudi, **Ella Say**, Nick Thao, Kanha Batra, Christopher R. Lee, Aneesh Bal, Amanda Nguyen, Jeremy Delahanty, May Chan, Reesha R. Patel, Romy Wichmann, Laurel R. Keyes, Felix Taschbach, Yulong Li, Marcus K. Benna, Talmo Pereria, Hao Li, Kay M. Tye. Social Exclusion Modifies the Neural Response to Physical Pain. *In prep.*

Conferences

1. Caroline Jia, Andrea Tran, Christopher Lee, Faith Aloboudi, **Ella Say**, Nick Thao, Kanha Batra, Aneesh Bal, Amanda Nguyen, Jeremy Delahanty, May Chan, Reesha Patel, Romy Wichmann, Laurel Keyes, Felix Taschbach, Yulong Li, Marcus Benna, Talmo Pereira, Hao Li, Kay Tye. Social Exclusion Modifies the Behavioral Response and the Insular Representation of Physical Pain. *Computational and Systems Neuroscience (COSYNE), 2025.*

2. Caroline Jia, Andrea Tran, Faith Aloboudi, **Ella Say**, Nick Thao, Kanha Batra, Christopher R. Lee, Aneesh Bal, Amanda Nguyen, Jeremy Delahanty, May Chan, Reesha R. Patel, Romy Wichmann, Laurel R. Keyes, Felix Taschbach, Yulong Li, Marcus K. Benna, Talmo Pereria, Hao Li, Kay M. Tye. Social Exclusion Modifies the Neural Response to Physical Pain. *Society for Neuroscience, 2023.*

3. **Ella Say**, Caroline Jia, Andrea Tran, Nick Thao, Kay M. Tye. Social Exclusion Modifies the Behavioral Response to Physical Pain. *National Diversity in STEM Conference, 2023.*

4. Caroline Jia, Andrea Tran, Faith Aloboudi, **Ella Say**, Nick Thao, Kanha Batra, Christopher R. Lee, Aneesh Bal, Amanda Nguyen, Jeremy Delahanty, May Chan, Reesha R. Patel, Romy Wichmann, Laurel R. Keyes, Felix Taschbach, Yulong Li, Marcus K. Benna, Talmo Pereria, Hao Li, Kay M. Tye. Social Exclusion Modifies the Neural Response to Physical Pain. *Gordon Research Conference: Modulation of Neural Circuits and Behavior, 2023.*

RESEARCH SKILLS

Programming:

- Advanced: Python, MATLAB, Java
- Intermediate: C, Unix/Bash
- 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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Kay Tye *Tye Lab - Primary Investigator*
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