

# Lily Gebhart

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## Education

### Stanford University

Neurosciences PhD Student

Rotation Advisors: Manish Saggar (Fall), Andrea Goldstein-Piekarski (Winter)

Palo Alto, CA

Sept. 2025 - Present

### Occidental College

B.A. in Cognitive Science, Mathematics

Graduated summa cum laude

Minors in Neuroscience, Computer Science

Los Angeles, CA

Aug. 2021 - May 2025

## Awards and Honors

May 2025 Mathematics Department Excellence Award

May 2025 Cognitive Science Outstanding TA/ Peer Mentor Award

Sept. 2024 Phi Beta Kappa Honor Society Member: One of ten early inductees from the 2025 graduating class.

Mar. 2024 Barry Goldwater Scholarship: Prestigious \$7,500 national scholarship for excellence in the sciences.

Apr. 2022 General Chemistry Award: Award for Excellence in Foundations of General Chemistry

Fall 2021 Margaret Bundy Scott Scholarship: A \$120,000 Merit Scholarship for study at Occidental College

## Research Experience

### Integrated Mechanisms for Modeling Long-Term Memory Retrieval

Occidental College, CA

Mentor: Justin Li (Occidental College, Computer Science & Cognitive Science)

Feb. 2022 - Jul. 2025

- Designed computational experiments to assess the relationship between two factors that impact long-term memory retrieval (co-occurrence and semantics).

### Neuroimaging-Informed Multilevel Modeling with Applications to Working Memory

University of Missouri, MO

Mentors: Satish Nair (University of Missouri, Electrical Engineering), Walt Omelyusik (PhD Candidate)

May 2024 - Jun. 2025

- Synthesized recent work in mathematical and biophysical multi-level neural modeling for a review paper, and developed open-access python implementations of two biophysical models: the Synaptic Source Mixing Model and Dynamic Causal Model.

### The Effect of Love on Durational Time Perception

Occidental College, CA

Mentors: Carmel Levitan (Occidental College, Cognitive Science), Aysha Motala (University of Stirling, Psychology)

Dec. 2022 - Aug. 2025

- Proposed, designed, collected human participants data for and analyzed two psychophysics experiments to assess the effects of strong, positive emotions on short duration time perception. Facilitated an international research team, and mentored six research assistants at Occidental and Stirling to assist with data collection.

### Adjustments for Kurtosis and Continuity on the Prentice Test

Rutgers University, NJ

Mentor: John Kolassa (Rutgers University, Statistics)

May 2023 - Jul. 2023

- Developed and implemented improved approximations to the Prentice test and related tests for kurtosis and continuity via simulations in R.

### Simulated Muography for Detection of Dynamic Border Tunnels

Occidental College, CA

Mentor: Daniel Snowden-Ifft (Occidental College, Physics)

May 2022 - Aug. 2022

- Produced evidence for the feasibility of the detection of underground tunnels with particle (muon) borehole detectors via dynamic simulations in R.

## Publications

Gebhart, L. C., Marks, A. L., Demayo, C., Clarke, J. L., Paulsen, K., Taylor, J. W., & Chang, S. (2025). Milton Marks Neuro-Oncology Family Camp (MMFC): 10 Years of Community Building and Support for Families with a Parent Diagnosed with Brain Cancer. *Society for Neuro-Oncology Annual Meeting Proceedings*.

Gebhart, L. C., Levitan, C. A., & Motala, A. (2025). A User-Friendly Framework for Short Duration Visual Time Perception. *PsychArXiv*.

Gebhart, L. & Li, J. (2025). Integrated Co-Occurrent and Semantic Mechanisms for Long Term Memory Retrieval. *International Conference for Cognitive Modeling 2025*.

Omelyusik, V., Gebhart, L., & Nair, S. (2025). Communication in Brain Circuits and Systems: A Primer. *IEEE International Symposium on Circuits and Systems 2025*.

Gebhart, L. & Kolassa, J. (2024). Adjustments for Kurtosis and Continuity on the Prentice Test. *Advances in Pure Mathematics*, 14(2), 101-117.

**Gebhart, L.** & Snowden-Ifft, D. (2023). Muon Tomography for Detection of Dynamic Border Tunnels, *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 1053, 168383.

## Presentations

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- [1] **Gebhart, L.** (July 2025) Integrated Co-occurrent and Semantic Mechanisms for Modeling Long Term Memory Retrieval [Oral conference presentation]. International Conference on Cognitive Modeling. Ohio State University, Columbus, OH, United States.
- [2] **Gebhart, L.** (May 2025) Communication in Brain Circuits and Systems: A Primer [Poster conference presentation]. IEEE International Symposium on Circuits and Systems. London, England.
- [3] **Gebhart, L.** (Nov. 2024) Integrated Co-occurrent and Semantic Mechanisms for Modeling Long Term Memory Retrieval [Poster conference presentation]. 2024 Southern California Conference for Undergraduate Research. California State University San Bernadino, San Bernadino, CA, United States.
- [4] **Gebhart, L.** (Aug. 2024) Integrated Co-occurrent and Semantic Mechanisms for Modeling Long Term Memory Retrieval [Poster conference presentation]. 2024 Summer Research Program Conference. Occidental College, Los Angeles, CA, United States.
- [5] **Gebhart, L.** (Apr. 2024) Adjustments for Kurtosis and Continuity on the Prentice Test [Poster conference presentation]. National Conference for Undergraduate Research. California State University Long Beach, Long Beach, CA, United States.
- [6] **Gebhart, L.** (Apr. 2024) The Effect of Love on Durational Time Perception [Oral campus presentation]. Occidental College Cognitive Science Department Advanced Research Talks. Occidental College, Los Angeles, CA, United States.
- [7] **Gebhart, L.** (Jan. 2024) Adjustments for Kurtosis and Continuity on the Prentice Test [Oral conference presentation]. National Conference for Undergraduate Women in Mathematics. University of Nebraska - Lincoln, Lincoln, NE, United States.
- [8] **Gebhart, L.** (Nov. 2023) Adjustments for Kurtosis and Continuity on the Prentice Test [Oral conference presentation]. 2023 Southern California Conference for Undergraduate Research. California State University Fullerton, Fullerton, CA, United States.
- [9] **Gebhart, L.** (Nov. 2023) Adjustments for Kurtosis and Continuity on the Prentice Test [Oral campus presentation]. Occidental College Math Department Student REU Talks. Occidental College, Los Angeles, CA, United States.
- [10] **Gebhart, L.** (Jul. 2023) Adjustments for Kurtosis and Continuity on the Prentice Test [Oral conference presentation]. 2023 Discrete Mathematics and Theoretical Computer Science (DIMACS) NSF REU Program Conference. Rutgers University, Piscataway, NJ, United States.
- [11] **Gebhart, L.** (Nov. 2022) Simulated Muography for Detection of Dynamic Border Tunnels [Oral conference presentation]. 2022 Southern California Conference for Undergraduate Research. Pepperdine University, Malibu, CA, United States.
- [12] **Gebhart, L.** (Aug. 2022) Simulated Muography for Detection of Dynamic Border Tunnels [Oral conference presentation]. 2022 Summer Research Program Conference. Occidental College, Los Angeles, CA, United States.

## Fellowships and Grants

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### Missouri Neuroscience Research Experience for Undergraduates (REU)

*University of Missouri, MO*

Supported by NSF Grant CNS-1950787

May 2024 - Present

Funding by the National Science Foundation for a 7 month part-time remote research fellowship at the University of Missouri-Columbia, MO.

### Science Scholars Fellowship

*Occidental College, CA*

Supported by the Fletcher-Jones Foundation

Jan. 2024 - Present

A selective \$15,000 scholarship grant supporting 15 months of research during the Spring 2024, Fall 2024, and Spring 2025 semesters and participation in the Occidental College Summer Research Program for the project, "Integrated Mechanisms for Long Term Memory Retrieval".

### Discrete Mathematics and Theoretical Computer Science NSF REU

*Rutgers University, NJ*

Supported by NSF Grant CNS-2150186

May 2023 - Jul. 2023

Funding by the National Science Foundation for a 3 month full-time summer research fellowship at Rutgers University, NJ.

### Academic Student Project Travel Grants

*Occidental College, CA*

Supported by the Occidental College Undergraduate Research Center

Dec. 2023, Mar. 2024

Funding for travel and registration expenses related to my attendance of the 2024 National Conference for Undergraduate Women in Mathematics at the University of Nebraska-Lincoln, NE and the 2024 National Conference for Undergraduate Research in Long Beach, CA.

### Student Research Assistantship Program Fellowships

*Occidental College, CA*

Supported by the Undergraduate Research Center Funds at Occidental College

Spring, Fall 2023

A \$750 research grant supporting 50 hours of research during the semester for the projects, "The Effect of Love on Durational Time Perception" (Fall 2023) and "Integrated Mechanisms for Long Term Memory Retrieval" (Spring 2023).

### Academic Student Project Grants

*Occidental College, CA*

Supported by the Occidental College Undergraduate Research Center

Aug. 2023, Jan. 2024

Two \$300 grants for funding participant compensation for the project, "The Effect of Love on Durational Time Perception".

## **Research Early Access Program**

Supported by the Sherman Fairchild Foundation

Funding for a 3 month full-time summer research fellowship at Occidental College, CA.

*Occidental College, CA*

May 2022 - Aug. 2022

## **Teaching & Professional Experience** ---

### **RDS Consultant**

Stanford Research Data Services (RDS)

- Conduct data science consultations with Stanford students, postdoctoral scholars, and staff.

*Stanford University*

Oct. 2025 - Present

### **Research Assistant**

Synaptic Insights Consulting (Steven Michael Crane)

- Assist in data visualization, analytics, communication, and dissemination for human flourishing and social connection research projects.

*Remote*

Sept. 2025 - Present

### **Program Co-Coordinator and Mathematics Tutor**

Scientific Scholars Achievement Program

- Oversaw, interviewed, hired, and trained a body of 20 tutors serving students in introductory courses in seven STEM disciplines.
- Introduced initiatives to increase attendance and boost SSAP's campus presence by hosting beginning of semester welcome events, introducing attendance tracking measures, redesigning training, and developing targeted advertising initiatives.
- Assisted students with homework and exam preparation of introductory and advanced undergraduate mathematics courses twice weekly.

*Occidental College, CA*

Nov. 2022 - May 2025

### **Teaching Assistant**

Occidental College

- Computational Neuroscience (Spring 2024, Spring 2025)
- Fundamentals of Computer Science (Spring 2023)
- Data Structures (Spring 2023)
- Ordinary Differential Equations Grader (Fall 2021)

*Occidental College, CA*

Jan. 2023 - May 2025

### **Curriculum Assistant**

Boundless Brilliance

- Restructured and updated the organization's body of 300+ experiments and activities for presentations to students in grades K-6.
- Illustrated a STEM coloring book, and developed 12 summer STEM packets and workshop series for college chapters.

*Remote*

Jun. 2023 - Aug. 2023

## **Activities & Leadership** ---

### **Leadership Team Member**

Stanford Neuroscience Application Assistance Program (SNAAP)

*Stanford, CA*

Sep. 2025 - Present

- Assist with organizing events for prospective graduate students, including Q&A panels and essay-writing sessions.
- Run interview preparation office hours for prospective students applying to PhD programs in Neuroscience and the biosciences at large.

### **Club Member**

Stanford Alpine Club

*Stanford, CA*

Sep. 2025 - Present

- Explore the great outdoors through hiking, backpacking, skiing and rock climbing!

### **Volunteer, Board Member**

Milton Marks Family Neuro Oncology Camp

*San Francisco, CA*

Apr. 2025 - Present

- Assist with developing literature-backed program outcomes surveys and preparing camp outcomes surveys from the past decade for publication.
- Volunteer at camp annually as a youth counselor.

### **Nonprofit Board Member**

Boundless Brilliance Nonprofit

*Los Angeles, CA*

Nov. 2022 - Present

- Assisted in restructuring the board mission and activities to better support college chapters.
- Organize and run events for the organization, including a board retreat (Feb. 2023), a booth at Los Angeles's City of STEM (Apr. 2024, 2025) and a board-chapter leadership summit (Sep. 2024).
- Served a one-year term as Student Board Member as the voice for the undergraduate chapters of the organization.

### **Chapter Outreach Co-Coordinator**

Boundless Brilliance

*Occidental College, CA*

July 2024 - May 2025

- Organizing the Occidental Boundless Brilliance chapter's elementary school STEM fairs in Nov. 2024 and Mar. 2025.
- Manage a small team of volunteers in coordinating elementary school presentations.

## **Chapter President**

*Occidental College, CA*

Boundless Brilliance

May 2022 - May 2024

- Led and supported the Boundless Brilliance chapter at Occidental College in providing presentations and community events to increase diversity in STEM and encourage K-6 students and undergraduates to embrace their potential.
- Initiated and managed the organization of the chapter's first three annual STEM Fairs in Spring 2024, Fall 2024, and Spring 2025 with 100+ attendees at each event.
- Implemented initiatives to encourage club involvement on campus by creating weekly all team meetings and simplifying recruitment procedures. Restructured and expanded event opportunities for elementary school presentations.

## **Technical Skills** ---

**Programming** Python, R, MATLAB, Java

**Software** PsychToolBox3, Neuron, Qualtrics, SPSS

**Drawing & Typesetting** Microsoft Suite, L<sup>A</sup>T<sub>E</sub>X, Adobe Creative Suite, Canva