

# Srijita Karmakar

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I am a fourth-year PhD candidate in the **Vision and Image Understanding Lab** at UC Santa Barbara. My research investigates dynamic social vision, eye movement behavior in naturalistic scenes, and biologically grounded computational modeling of attention and gaze.

## EDUCATION

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### Ph.D

2022–Present

University of California, Santa Barbara

Psychological and Brain Sciences

Advisor: Miguel Eckstein

GPA: 4.0

### BS-MS Dual Degree

2017–2022

Indian Institute of Science Education and Research, Kolkata

Major: Biological Sciences

Master's Thesis Advisor: Koel Das

GPA: 9.46 (out of 10)

## PUBLICATIONS

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### Peer-Reviewed Articles

**Karmakar, S., & Eckstein, M. P. (2025).** The psychophysics of dynamic gaze-following saccades during search. *Journal of Vision*, 25(14), 14. <https://doi.org/10.1167/jov.25.14.14>

Dasgupta, D., Banerjee, A., Dutta, A., Mitra, S., Banerjee, D., Karar, R., **Karmakar, S.**, Bhattacharya, A., Ghosh, S., Bhattacharjee, P., & Paul, M. (2025). Decoding food solicitation techniques applied by free-ranging Hanuman langurs residing in an urban habitat. *Animal Cognition*, 28(1). <https://doi.org/10.1007/s10071-024-01925-y>

Klein, D. S., **Karmakar, S.**, Jonnalagadda, A., Abbey, C. K., & Eckstein, M. P. (2024). Greater benefits of deep learning-based computer-aided detection systems for finding small signals in 3D volumetric medical images. *Journal of Medical Imaging*, 11(04). <https://doi.org/10.1117/1.jmi.11.4.045501>

Dasgupta, D., Banerjee, A., Karar, R., Banerjee, D., Mitra, S., Sardar, P., **Karmakar, S.**, Bhattacharya, A., Ghosh, S., Bhattacharjee, P., & Paul, M. (2021). Altered Food Habits? Understanding the Feeding Preference of Free-Ranging Gray Langurs Within an Urban Settlement. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.649027>

### Under Review

Madinei, P.\*, **Karmakar, S.\*** Hoeffing, R. C., Gervits, F., and Eckstein, M. P. (2025). IRIS: Intent Resolution via Inference-time Saccades for Open-Ended VQA in Large Vision-Language Models (\* equal contribution)

**Karmakar, S., & Das, K. (2023).** Investigating the role of visual experience with face-masks in face recognition during COVID-19 (Version 1). *arXiv*. <https://doi.org/10.48550/ARXIV.2303.06031>

### In Preparation

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**Karmakar, S., Liu, A. D., & Eckstein, M. P.** Influence of contextual information in human and AI gaze judgments. In preparation.

**Karmakar, S.**, & Eckstein, M. P. Early peripheral information use in dynamic gaze-cued covert attention orientation. In preparation.

**Karmakar, S.**, & Eckstein, M. P. Gaze-following in naturalistic dynamic scenes: A review. In preparation.

## CONFERENCE PRESENTATION

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**Karmakar, S.**, & Eckstein, M. P. (May 2026). Influence of Scene Context on Eye Movements During Gaze Perception. *Vision Sciences Society Annual Meeting*, St. Pete Beach, FL. (Accepted, Poster)

Shehabi, S., **Karmakar, S.**, & Eckstein, M. P. (May 2026). Covert vs. Overt Spatial Attention Effects on Scene Comprehension. *Vision Sciences Society Annual Meeting*, St. Pete Beach, FL. (Accepted, Poster)

**Karmakar, S.**, & Eckstein, M. P. (July 2025). Temporal Dynamics of Peripheral Information Use During Covert and Overt Search with Dynamic Gaze Cues. *Gordon Research Conference on Eye Movements*, South Hadley, MA (Poster).

**Karmakar, S.**, & Eckstein, M. P. (May 2025). The time course of foveal and peripheral information integration during dynamic gaze-cueing. *Vision Sciences Society Annual Meeting*, St. Pete Beach, FL. Abstract published in *Journal of Vision*, 25(9), 2034. <https://doi.org/10.1167/jov.25.9.2034> (Poster)

**Karmakar, S.**, & Eckstein, M. P. (May 2024). Anticipatory orienting of covert attention with dynamic gaze cueing. *Vision Sciences Society Annual Meeting*, St. Pete Beach, FL. Abstract published in *Journal of Vision*, 24(10), 751. <https://doi.org/10.1167/jov.24.10.751> (Poster)

**Karmakar, S.**, & Eckstein, M. P. (July 2023). Effect of Peripheral Information on Gaze-Following Strategies. *Gordon Research Conference on Eye Movements*, South Hadley, MA (Poster).

**Karmakar, S.**, & Eckstein, M. P. (July 2023). Effect of Peripheral Information on Gaze-Following Strategies. *Gordon Research Seminar on Eye Movements*, South Hadley, MA (Talk).

**Karmakar, S.**, & Das, K. (May 2022). Does visual experience with face masks aid face recognition during the COVID-19 pandemic? *Vision Sciences Society Annual Meeting*, St. Pete Beach, FL. Abstract published in *Journal of Vision*, 22(14), 3243. <https://doi.org/10.1167/jov.22.14.3243> (Poster)

## RESEARCH MENTORSHIP

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**Research Mentor, Bridge Scholars Program** 2025–Present  
VIU Lab, Psychological & Brain Sciences, UC Santa Barbara  
Supervise two undergraduate scholars in eye-tracking methods, data analysis, and human–AI model comparisons as part of a program supporting first-generation and historically underrepresented students.

**Senior Thesis Mentor** 2024–2025  
VIU Lab, Psychological & Brain Sciences, UC Santa Barbara  
Supervised an undergraduate Senior Thesis project examining gaze-cue perception with and without contextual information in humans and AI large language models.  
The student presented this work at a university-wide undergraduate research conference (URCA).

**Research Mentor, PSY99/199 Research Assistants** 2022–Present  
VIU Lab, Psychological & Brain Sciences, UC Santa Barbara  
Mentor and train 4–12 undergraduate research assistants per quarter in multi-session psychophysics experiments, eye-tracking, and EEG data collection. I also teach MATLAB/Python programming, lead coding and journal discussions, and deliver lectures on attention, eye movements, and EEG.  
Mentees have secured university research fellowships (CIRM COMPASS 2-year paid research internship) and received competitive excellence awards (Thomas Moore Storke Award for Excellence).

## **TEACHING**

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- Graduate Teaching Assistant** 2022–Present  
Department of Psychological & Brain Sciences, UC Santa Barbara  
PSY129L Lab in Perception (3 quarters); PSY130 Perception and Vision (2 quarters); PSY120L Advanced Research Methods (1 quarter); PSY10A Research Methods (1 quarter); PSY10B Statistics (1 quarter). Led weekly lab discussion sections, held office hours, developed quiz materials, proctored exams, and graded laboratory reports. Served as Lead TA for PSY10B Statistics, coordinating a team of five TAs.
- Undergraduate Teaching Assistant** 2021–2022  
Indian Institute of Science Education and Research (IISER) Kolkata  
LS2201 Evolutionary Biology; LS3102 Cell Biology.

## **AWARDS**

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- Grad Slam Preliminary Round Runner-Up Prize** 2025  
UCSB Graduate Division
- Nominee, Excellence in Teaching Award** 2025  
UCSB Graduate Students Association
- UGC-NET Junior Research Fellowship (JRF)** 2022  
Government of India  
Percentile: 99.44; Rank: 100
- DST-INSPIRE Scholarship (JBNSTS Senior Scholar)** 2017  
Department of Science and Technology – Innovation in Science Pursuit for Inspired Research,  
Government of India  
Ranked among the top 10 scholars
- Jagadish Bose National Talent Search (JBNSTS) Junior Scholar** 2015  
Government of West Bengal, India

## **PROFESSIONAL DEVELOPMENT**

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- Public Speaking Certification** 2025  
UCSB Graduate Division, Professional Development
- Neuromatch Academy – Computational Neuroscience** 2022  
Intensive international summer program in computational neuroscience, modeling, and machine learning.

## **SERVICE AND OUTREACH**

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- Access Grads Mentor** 2023–Present  
Department of Psychological & Brain Sciences, UC Santa Barbara  
Mentor 2–3 undergraduate students annually interested in graduate study, guiding them through research development and application preparation. Mentees have secured internship positions in their areas of interest.
- Community Science Educator, Ek Pehal Initiative** 2018–2020  
Indian Institute of Science Education and Research (IISER) Kolkata  
Volunteered as a science and mathematics instructor for children from underserved communities through a student-led outreach program.
- Member, IKQRAAR (IISER-K Queer Resolution and Allies of the Rainbow)** 2020–2022  
Indian Institute of Science Education and Research (IISER) Kolkata

Member of a campus initiative promoting LGBTQ+ inclusion and allyship.

## **TECHNICAL SKILLS**

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**Programming:** Python (PsychoPy, PyTorch), MATLAB (Psychtoolbox, EEGLAB), R, Git (version control), Jupyter, Linux

**Computational Modeling:** Bayesian inference, Bayesian ideal observers, neural networks, deep learning, machine learning

**Methods:** Eye tracking (EyeLink), EEG, reverse correlation, psychophysics

**Software:** Adobe Photoshop, Adobe Premiere Pro, Blender, L<sup>A</sup>T<sub>E</sub>X, Visual Studio Code

## **CREATIVE WORK**

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**Author, *Notes to Self, Letters to the World***

2023

Published a collection of original poetry and songs.

**First Prize, Sci-Poetry Competition**

2021

Science-poetry competition organized by the IISER-K Literary and Science Clubs.

## **LANGUAGES**

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**Bengali:** Native    **Hindi:** Fluent    **English:** Fluent    **Spanish:** Basic