

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

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

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.*** Hoffing, 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

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

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

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

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

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

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

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

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^AT_EX, Visual Studio Code

CREATIVE WORK

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

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