

# Sukalyan Deb

PhD Candidate • Emotion & Cognition Lab • IISc Bangalore, India

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## Research Focus

**Cognitive control of emotional conflict:** How proactive control mechanisms resolve affective interference in the brain and behaviour.

## Education

2026 exp.	<b>PhD – Cognitive Neuroscience</b> , Centre for Neuroscience, Indian Institute of Science, IISc Bangalore. Dissertation: <i>Cognitive Control of Emotional Conflict</i> . Advisor: Dr Srikanth Padmala
2020	<b>MSc course-phase</b> (Integrated PhD), Centre for Neuroscience, IISc Bangalore — <i>GPA 8.6/10</i>
2018	<b>BSc (Hons) Microbiology</b> , Ramakrishna Mission Vidyamandira, University of Calcutta — <i>Silver Medallist GPA 9.09/10</i>

## Research Experience

### PhD Project-Emotion & Cognition Lab, IISc

2020 – present

- *Reward-driven proactive control of emotional conflict*: behavioural + fMRI; stimuli via Psychtoolbox/PsychoPy; analyses in AFNI with MVPA (linear SVM) and RSA; manuscript in prep.
- *Informative cue modulation of emotional conflict*: two behavioural cohorts; running eye-tracking (Gazepoint GP3) for pupil dilation & saccades with custom analysis.
- *Uncertainty as a motivational signal for cognitive control*: behavioural tasks manipulating reward probability/outcome variance; hierarchical DDM (HDDM).

### Other Academic Projects

- *Suprathreshold stochastic resonance in two-compartment neuronal model* — simulated synaptic noise gain in NEURON software.
- *Attention-linked modulation of SSVEP power* — re-analysis of open EEG;  $\geq 15\%$  occipital 12 Hz gain.
- *Intrasexual competition in Psammophilus dorsalis* — video-coded 200 h; behavioral state-transition matrices of female rock agamas.

### Industry & consultancy

- **1001 Stories** (India) — *Remote intern, Jul–Aug 2024*: 45 cross-cultural interviews on “premium” perceptions; built five consumer-journey personas for e-commerce and quick-commerce.
- **Hive Science.ai** (USA) — *Remote Consultant, Aug–Nov 2024*: Psychopy visual-search and IAT ad-effectiveness tasks; pandas pipelines; insight dashboards for AI model training.

## Grants, Scholarships & Honours

2015–present	JBNSTS Senior Scholar, West Bengal
2015–2018	DST-INSPIRE Fellowship, Government of India
2018	AIR 11 (IIT-JAM BL); AIR 26 (IIT-JAM BT); AIR 33 (GAT-B)
2023	Poster mention — ACCS-X, IIT Kanpur
2024	Travel award — OHBM Annual Meeting, Seoul

## Conference Presentations & Invited Talks

- Poster, *Reward-driven proactive control of emotional conflict*, OHBM, Seoul (2024)
- Poster, *Informative cue modulation of emotional conflict*, CNS In-house Symposium, IISc (2023)
- Poster, *Proactive control and temporal unpredictability*, ACCS-X, IIT Kanpur (2023)
- Oral, *Reward-driven proactive control of emotional conflict*, CNS In-house Symposium, IISc (2024)
- Invited talk, *Cognitive control and its mechanisms*, Brain & Behaviour Conf., Christ Univ. (2023)
- Attendee, Behavioural Science & Policy Association (BSPA) Annual Conference (online), 2–3 May 2024

## Publications & Manuscripts

- **Deb, S.** & Padmala, S. *Reward-driven proactive control of emotional conflict: behavioural and fMRI evidence*. Manuscript in preparation.
- **Deb, S.** & Padmala, S. *Informative cues modulate emotional conflict and pupil-linked arousal*. Manuscript in preparation.

## Teaching & Mentorship

- TA — *UB 201L Introduction to Biology III – Neurobiology* (Aug 2021); *UB 304L Experiments in Neurobiology* (Jan 2022)
- Online STEM tutor, Tutor.com — 120 h biology & statistics (2020)
- Supervised student projects: Yukta Thyagraj, Moon Majumdar, Athulya Krishnan, Pabitra Sharma, Ashlin Daniel

## Technical Skills

Experimental design	Psychtoolbox; PsychoPy; JavaScript
Neuroimaging	AFNI; MVPA (TDT); RSA; SPM; FSL
Programming	Python; MATLAB; NEURON; JavaScript; Bash; pandas/NumPy; MySQL; HTML/CSS
Behaviour & stats	R/RStudio; JASP; DDM (HDDM & HSSM); mixed-effects RT
Media & outreach	Adobe Premiere Pro; DaVinci Resolve; Canva; VN

## Professional Memberships

Organization for Human Brain Mapping (2024–) • Society for Neuroscience (2025–)

## Outreach & Extracurricular

- Produce neuroscience reels on Instagram & YouTube (2 k followers) in vernacular language
- Founder - scholarOP (LinkedIn + Instagram, 4 k members, Researcher Community)
- Actor, *Rangmanch* theatre group, IISc (5 productions)
- Quiz wins - Army Public School Cluster Quiz 2012; Environment Day Quiz 2013

## Referees

Dr Srikanth Padmala	Centre for Neuroscience, IISc — <a href="mailto:spadmala@iisc.ac.in">spadmala@iisc.ac.in</a>
Dr S. P. Arun	Centre for Neuroscience, IISc — <a href="mailto:sparun@iisc.ac.in">sparun@iisc.ac.in</a>
Dr Supratim Ray	Centre for Neuroscience, IISc — <a href="mailto:sray@iisc.ac.in">sray@iisc.ac.in</a>