PRIYANKA GHOSH

CV

Department of Psychology, Northeastern University, Boston, MA, 02120 p.ghosh@northeastern.edu

The primary objective of my PhD thesis was to functionally characterize the neural markers of bottom-up attention across unisensory and multisensory streams using electroencephalography (EEG). The field of cognitive and computational neuroscience immensely fascinates me. I have experience of working with state-of-the-art research facilities and a highly qualified team of researchers dedicated to designing/ performing psychophysical experiments as well as validating the empirical results through various computational models. I have been trained to work as an independent researcher and can also organize and manage projects with a team. I have good analytical, communication and scientific writing skills; my inter-disciplinary academic background helps me approach and understand research questions from a broader perspective.

WORK EXPERIENCE

Post-doctoral Research Scholar Feb 2023 - Present

Dr. Laurel Gabard-Durnam, Northeastern University, Boston, MA

EDUCATION AND QUALIFICATIONS

PhD, Cognitive and Computational Neuroscience Aug 2015 - Dec 2022

National Brain Research Centre, Manesar, Gurgaon, Haryana

PI : Prof. Arpan Banerjee, Ph.D.

(Includes one full year of coursework in neuroscience)

- Psychophysical paradigm designing using multisensory stimuli
- Behavioral experiments on healthy human adults.
- EEG and MRI data acquisition and pre-processing.
- Computational skills include ERP analysis, Principal Component Analysis, Signal Processing, EEG Source Localization and Granger Causality Analysis in time and frequency domains.
- Programming skills include MATLAB and the use of MATLAB based toolboxes including EEGLAB, Fieldtrip, Chronux, Brainstorm and SPM.

Master of Science (Specialization: Systems Neuroscience) Aug 2013 - Jul 2015

School of Life Sciences, Jawaharlal Nehru University, New Delhi

PI : Dr. Sushil K Jha, Ph.D.

- Worked with mice as a model organism and gained expertise in stereotaxic surgery, fear conditioning paradigm, cannula implantation, micro-injection of drug, animal perfusion, microtomy and histology.
- Successfully defended and submitted Masters' thesis titled " *The role of Metformin in the consolidation of fear memory".*

Bachelor of Science (Honors in Zoology) Jul 2010 - Jun 2013

Hindu College, Delhi University, New Delhi

- Completed project on "The *bioefficacy of Neem Seed Kernel Extract (NSKE) in disrupting the growth and development of the red cotton bug, Dysdercus koenigii* ".
- Summer internship on the study of *"Deregulated expression of epigenetic regulators and kinases involved in Glioblastoma oncogenesis using The Cancer Genome Atlas".*
- Expertise in molecular techniques including Western Blot, SDS-PAGE, PCR, Spectrophotometry, Chromatography, Tissue Culture, Colony Plating, DNA, and Protein isolation and quantification.

PUBLICATIONS AND PRE-PRINT(S)

- **Ghosh, P.***, Roy, D., Banerjee, A., 2021. Organization of directed functional connectivity among nodes of ventral attention network reveals the common network mechanisms underlying saliency processing across distinct spatial and spatio-temporal scales. Neuroimage 231, 117869. https://doi.org/10.1016/J.NEUROIMAGE.2021.117869
- **Ghosh, P.***, Roy, D., Banerjee, A.*, 2021. Psychophysical data to study the brain network mechanisms involved in reorienting attention to salient events during goal-directed visual discrimination and search tasks. Data Br. 36, 107020. https://doi.org/10.1016/J.DIB.2021.107020
- **Ghosh, P.**, Siddharth, T., Banerjee, A.*, 2022. Spatiotemporal mapping of the neural markers of prediction error processing across multisensory and unisensory modalities. bioRxiv 2022.02.11.480053. https://doi.org/10.1101/2022.02.11.480053
- Singhal, S., **Ghosh, P.**, Kumar, N., Banerjee, A.*, 2023. Parametric separation of phase-locked and non-phase-locked activity. J Neurophysiol 129: 199–210. https://doi.org/10.1152/jn.00467.2022

ACHIEVEMENTS / AWARDS

- Awarded **IBRO travel grant'22** for participating in **SfN Neuroscience** 2022.
- **Travel award** by National Brain Research Centre for attending the **Neurocog** event at Universite Catholique de Louvain, Belgium (November 2021).
- **Travel award** by IBRO-APRC **(International Brain Research Organization – Asia/Pacific Regional Committee)** School for attending Cognitive Neuroscience-the 5th Bangalore Cognition Workshop (June 2016).
- Awarded the **Junior Research Fellowship** (wef August 2016) and the **Senior Research Fellowship** (wef August 2018) by the **Council of Science and Industrial Research** (09/821(0044)/2017-EMR-I).
- Qualified the **Graduate Aptitude Test in Engineering -** Life Sciences (2015).
- **Indira Gandhi Postgraduate Scholarship** (2013-14).

PRESENTATIONS AT INTERNATIONAL CONFERENCES

- **Ghosh, P.**, Saluja, K., Banerjee, A. How do distracting sounds distract us while listening to target speech and non-speech audio? *Society for Neuroscience Annual Meeting,* San Diego, USA, 2022.
- **Ghosh, P.**, Talwar, S., Banerjee, A. Modality independent shared representational space results in early prediction of P300 from MMN. *NeuroCog event*, Universite Catholique de Louvain, Belgium, 2021.
- **Ghosh, P.**, Banerjee, A. Spectral features of an oddball task. *Neuromatch (NMC 3.0)*, 2020.
- **Ghosh, P.**, Roy, D., Banerjee, A. Neural communication dynamics of the Ventral Attention Network across distinct spatial and spatiotemporal scales. *Federation of European Neuroscience Societies Annual Meeting* , 2020.
- **Ghosh, P.**, Roy, D., Banerjee, A. Moving vs stationary: Do we attend to a 'pop-out' stimulus equally in both cases? *Society for Neuroscience Annual Meeting,* Chicago, USA, 2019.

PRESENTATIONS AT NATIONAL CONFERENCES

- **Ghosh, P.**, Saluja, K., Banerjee, A. Spectral markers of context-independent processing of salient auditory distractors. *9th Annual Conference of Cognitive Science,* Indian Institute of Technology Delhi, 2022.
- **Ghosh, P.**, Talwar, S., Banerjee, A. Distinct roles of MMN and P300 in processing prediction errors across modalities. *8th Annual Conference of Cognitive Science,* Amrita Vishwa Vidyapeetham, 2022.
- **Ghosh, P.**, Roy, D., Banerjee, A. Characterization of neural communication dynamics in the Ventral Attention Network across distinct spatial and spatiotemporal scales. *7th Annual Conference of Cognitive Science,* Indian Institute of Science, Bangalore, 2021.
- **Ghosh, P.**, Roy, D., Banerjee, A. Common cortical generators drive saliency-related processing across task conditions. *NCR Biotech Science Cluster*, Translational Health Science and Technology Institute, Faridabad, 2019.
- **Ghosh, P.**, Roy, D., Banerjee, A. Alpha enhancement during perceptual discrimination is context-dependent but not stimulus-specific. *5th Annual Conference of Cognitive Science,* Indian Institute of Technology, Guwahati, 2018.
- **Ghosh, P.**, Banerjee, A. Functional characterization of the Visual Attention Network. *4th Annual Conference of Cognitive Science,* University of Hyderabad, 2017.

WORKSHOPS

- PRAYOJAN (**P**ost-PhD: **R**esearch, **A**cademia and **I**ndustr**Y** **O**ppurtunities, Science **J**ournalism, Gr**A**nt writing and **N**etworking) workshop organized by **I**NYAS (**I**ndian National Young Academy of Sciences), 2022 (online event).
- Winter School on Cognitive Modeling, **I**ndian **I**nstitute of Technology, Mandi, **I**ndia, 2019.
- **I**BRO-APRC School on Cognitive Neuroscience, **I**ndian **I**nstitute of Science, Bangalore, **I**ndia, 2018.

ORGANIZATIONAL SKILLS

- Organized and coordinated all cultural events for the ***Ramalingaswami Fellows' Conclave*** held at National Brain Research Centre, **I**ndia, 2019.
- Part of the organizing team of the ***Annual meeting of Brain Modes*** *(A multimodal brain : Spatiotemporal network mechanisms and models)* held at National Brain Research Centre, **I**ndia, 2017.
- Part of the organizing team of the ***Annual Meeting of the Indian Academy of Neurosciences (IAN)*** held at National Brain Research Centre, **I**ndia, 2016.
- President of the organizing committee of ***Tantrika: the Annual Scientific and Cultural fest*** of the National Brain Research Centre, **I**ndia, 2016.

TEACHING EXPERIENCE

- TA for paradigm designing classes using *Neurobehavioral Systems Presentation* which included training on behavioral data collection and reaction time analysis using various statistical methods (for NBRC Masters' batches of 2019, 2020, and 2021).
- Provided practical training sessions on EEG data acquisition and pre-processing (for all NBRC Masters' students of batches 2017, 2018, 2019, and 2020).
- Conducted classes on the basics of signal processing and source localization of EEG data (for NBRC Masters' students of batches 2019 and 2020).

REVIEWER

Reviewed two research articles for the **Brain Research Journal**.

REFERENCES

References available on request.