

CURRENT RESUME



Name of the Faculty: DR. BARNINI BHATTACHARYA

Designation: TEACHING ASSISTANT (AWAITING TO BE PROMOTED TO ASSISTANT PROFESSOR)

Department: MEDICAL LABORATORY TECHNOLOGY

School: ALLIED HEALTH SCIENCES, SWAMI VIVEKANANDA UNIVERSITY, BARRACKPORE

Qualification: PhD (Sc.) in Physiology, Indian Statistical Institute/University of Calcutta, 2026

Total no. of publications: 44

Specialization: Cognitive Neuroscience

Area of Interest: Sensory Physiology, Experimental Biophysics, Behavioural Cognitive Experiments, Zebrafish Handling

Experience: Teaching Experience: 2 years / Research Experience: 8 years

FDP: Successfully completed the course on 'Classics in Neuroscience', organized by IIT Madras, funded by MoE, GoI, 2026

Details of research portfolio of faculty:

Researcher's ID details:

Google Scholar ID: Af53qEAAAAJ

ORCID: 0000-0001-9785-8094

Scopus ID:

Vidwan ID: 686083

Administrative Responsibilities: Member and Exam Coordinator, DQAC, MLT, SVU

Reviewer Activities:

- a) *Frontiers in Psychology* [Scopus, Web of Science; IF: 3.8]
- b) *Open Veterinary Journal* [Scopus, Web of Science; IF: 1.6]

Professional Membership – Ordinary Member (OM-1054) of the Indian Science News Association, Kolkata - 9

Contact Details: Email id: barnibhattacharya@gmail.com / barninib@svu.ac.in; Mobile No.: 9073182806

Barnini Bhattacharya.

Declaration: All the information are true to the best of my knowledge

DETAILED LIST OF PUBLICATIONS

JOURNALS

Paper Title	Year	Journal Name	Impact Factor	Indexing	Authors
1) A microscopic study on scattering in tissue section of <i>Alternanthera philoxeroides</i> under polarized light	2021	Journal of Biosciences	2.6 (5-yr)	SCI	Roy S , Bhattacharya B, Bal B, Ghosh K
2) Understanding the role of starch sheath layer in graviception of <i>Alternanthera philoxeroides</i>	2023	Journal of Plant Research	2.9 (5-yr)	SCIE	Roy S , Bhattacharya B, et al.
3) A study on variation in spatial voltage distribution pattern across tissue layers between non-excitabile plant and excitable plant	2023	Indian Journal of Biochemistry and Biophysics	1.476 (5-yr)	UGC-CARE	Roy S , Bhattacharya B, Bal B, Ghosh K
4) A preliminary electro biophysical study on electrical polarity detection ability of <i>Mimosa pudica</i>	2023	International Journal of Microsystems and IoT	N/A	ISSN: 2584-0495	Roy S , Bhattacharya B, et al.
5) Understanding the voltaic cell-like nature of moist cellulose thread through the development of a modified version of JC Bose's strain cell: A crucial property for cellulose-based biomedical sensors	2024	Indian Journal of Physiology and Allied Sciences	0.099 (1-yr)	Copernicus	Roy S , Bhattacharya B, et al.
6) Social cognition: a crucial indicator of higher-order cognitive ability across the animal phyla		Behavioral and Brain Sciences	8.2	SCIE	Bhattacharya B , Ghosh K
7) Effect of Variation in Temperature of Water in close proximity on the Rheotactic Motor Output in Zebrafish	2025	Proceedings of Zoological Society	1.04 (1-yr)	Scopus	Bhattacharya B, Roy S , et al.
8) Effect of Short-term Exposure to Momentary DC electrical field on Orientation Reflex of Fish	2025	Goya Journal	0.11 (1-yr)	Scopus	Bhattacharya B, Roy S , et al.
9) Impact of Variable Water Flow Rates on Rheotactic Ability: A Live Simulation Study	2025	Science and Culture	N/A	UGC-CARE	Bhattacharya B, Roy S , et al.
10) Effect of Variation of Spatial and Temporal Frequencies on Optokinetic Response of Adult Zebrafish	2025	Zebrafish	1.8 (5-yr)	Scopus, PubMed	Bhattacharya B, Roy S , et al.
11) Impact of Temperature and Flow Characteristics of Aquatic Environment on Body Balance	2025	Indian Journal of Gerontology	N/A	UGC-CARE	Bhattacharya B, Roy S , et al.
12) Development of a Robotic Fish to Manipulate Fish Behaviour	2025	Conscientia	N/A	ISSN: 2278-6554	Bhattacharya B, Roy S [independent research]

13) Studying the Mechanical Response of Petiole of Mimosa Pudica following Exposure to Dc Electrical Stimulation: An Attempt to Demonstrate through Electrical Model	2026	International Journal of Engineering and Techniques	8.3	UGC-CARE	Roy S, Bhattacharya B [independent research]
14) Quantification of Microscopic Optical Scattering – A Potent Indicator of Environmental Stressor-Induced Tissue Structural Deformations in Biological Specimen	2026	Hayat Journal	0.34	Scopus, Web of Science	Roy S, Bhattacharya B [independent research]
15) An Instrumentation based Experimental Study on Biomechanical Property of Plant Tendril – A probable Application in Bioinspired Technology	2026	Journal of Beijing University of Posts and Telecommunications	6.2	Scopus, Web of Science	Roy S, Bhattacharya B [independent research]
16) Breaking Boundaries: Three Trailblazing Indian Women in Science - A Three-Century Heritage	2026	Bulletin For Technology And History Journal	0.9	Scopus, Web of Science	Roy S, Bhattacharya B [independent research]

Book Chapters:

Book Chapter Title	Year	Name of the Proceedings/Book	Authors	Publisher
17) An Experimental Study to Analyze Social Behavior in Zebrafish Through Deep Learning Algorithm.	2026	7 th International Conference on Computational Intelligence and Networks (CINE)	Bhattacharya B, Roy S , Singh D, Chowdhury A, Ghosh K	IEEE
18) Automated Tracking of Ocular Movements of Fish Using a Semi-supervised Algorithm: A Laboratory Study on Optokinetic Response of Adult Zebrafish.	2025	International Conference on Pattern Recognition and Machine Intelligence (PREMI, Lecture Notes in Computer Science, vol 16358)	Bhattacharya B, Roy S , Bandyopadhyay S, Bal B, Mukherjee S, Bhat A, Ghosh K	Cham: Springer Nature Switzerland
19) A Study on Electrical Response of Mature Node of Alternanthera sp. Under different degrees of strength of Mechanical Perturbation	2019	Environment and Epilogues Disquiets and Panacea	Roy S , Bhattacharya B, Bal B, Ghosh K	Scholars' Book Hub
20) A study on effect of rise in water temperature on activity of adult zebrafish	2019	Environment and Beyond: Proceedings of Emerging Environmental Issues: Retrospect and Prospect	Bhattacharya B, Roy S , Bal B, Mukherjee S, Ghosh K	Scholars' Book Hub
21) Perceptual Filling-in of Blind-Spot for Surrounding Color Gradient Stimuli	2018	Intelligent Human Computer Interaction (IHCI 2018, Lecture Notes in Computer	Mukherjee A, Paul A, Roy R, Roy S , Ghosh, K	Cham: Springer Nature Switzerland

Conference Publications

22. Roy S, Bhattacharya B (2026, February 16). Understanding J. C. Bose's Molecular Strain Theory through a Preliminary Experimental Approach, In: National Symposium on Role of Chemical Sciences Towards Sustainable Development, Department of Chemistry, University of Kalyani, India. [[independent research](#)]
23. Roy S, Bhattacharya B (2026, February 2 – 4). Development of Portable Stimulator Apparatus for application of different forms of Electrical Stimulus - An Electrobiophysical Study on Behavioral Response of *Mimosa pudica*, In: 9th India Biodiversity Meet 2026, International Conference, Indian Statistical Institute, Kolkata, India. [[independent research](#)]
24. Roy S (2025, October 29). Tardigrades – An Excellent Model for Research Ranging from Space to Quantum Entanglement, In: One day symposium on Artificial Intelligence– Two Decades of the Center for Soft Computing Research: Deep Learning and Granular Computing, Organized by Center for Soft Computing Research, Indian Statistical Institute, Kolkata and National Science Chair Grant of Prof. Sankar K Pal with CSCR [[independent research](#)]
25. Roy S, Bhattacharya B (2025, September 10 – 11). Designing of an Electrical Equivalent Circuit Inspired from Polar Electrical Response of *Mimosa pudica*. In :International Conference on Frontiers in Science, Krishnanagar Government College, Kolkata, India in association with IQAC [[independent research](#)]<https://www.krishnagargovtcollege.ac.in/FileNotice/ICFS%202025%20-%20Book%20of%20Abstract.pdf>
26. Roy S, (2025, March 24 – 26). Effects of Physical Stress on Trichome Morphology of *Pistia stratiotes* – An Experimental Study through Smart Microscopic Device, In: 8th India Biodiversity Meet 2025, International Conference, Indian Statistical Institute, Kolkata, India
27. Bhattacharya, B., Roy, S., Bal, B., Mukherjee, S., Ghosh, K (2025, March 24 – 26). Effect Of Acute Exposure To Hypersaline Aquatic Medium on Morphology of Zebrafish Scales, In: 8th India Biodiversity Meet 2025, International Conference, Indian Statistical Institute, Kolkata, India
28. Bhattacharya B, Roy S, Bandyopadhyay S, Bal B, Mukherjee S, Bhat A and Ghosh K, **Assessment of Ocular Movement Frequency of Adult Zebrafish in response to Optokinetic Visual Stimulus**, In: Visual observation and analysis of Vertebrate And Insect Behavior 2024, 27th International Conference on Pattern Recognition (ICPR 2024), Kolkata, India <https://homepages.inf.ed.ac.uk/rbf/vaib24.html>
29. Roy S, Bhattacharya B, Bal B, Chowdhury A, Haldar R, Ghosh K, **Development of a Real Time Plant Response Recorder to Detect Mechanical Response of an Excitable Plant over Short Time Scales – A Biophysical Study**, In: Das, M., Mukherjee, S. (eds.) Book of Abstracts, Volume 1: Chemistry, Earth Sciences, Mathematics and Physics. West Bengal State University, Fifth Regional State Science and Technology Congress, Region three, Scholars' Book Hub, organized by DSTBT, GoWB and WBSU, held at WBSU, Kolkata, India, (ISBN: 978-81-959389-4-0), 2023 (pp. 120).
30. Roy S, Bhattacharya B, Bal B, Haldar R, Ghosh K (10 – 13 November 2022). **Development of a Customized and Multi-Modal Polarizing Microscope for Imaging of Samples Ranging from Biological Specimens to Rock Specimens**, In: Book of Abstracts, XLV Symposium of the Optical Society of India, Conference on Optics, Photonics & Quantum Optics, Department of Physics, IIT Roorkee, India <https://iitr.ac.in/copaq2022/img/COPaQ2022Proceeding.pdf>
31. Bhattacharya B, Roy S, Bal B, Mukherjee S, Ghosh K. **A Biophysical Study on Effect of Electrical Field on Hydrodynamic Reflex of the Model Animal Zebrafish** in the Fifth Regional State Science and Technology Congress, 2023 organized by DSTBT, GoWB and West Bengal State University, held at West Bengal State University
32. Bhattacharya B, Roy S, Bal B, Mukherjee S, Ghosh K. **Development of an Optokinetics Response Recorder – An Instrument to Study the Influence of Electrophysiological Factors on Visuomotor Processing of the Model Animal Zebrafish** in the Fifth Regional State Science and Technology Congress, 2023 organized by DSTBT, GoWB and West Bengal State University, held at West Bengal State University.
33. Roy S, Bhattacharya B, Bal B, Haldar R and Ghosh K. **Electrical and Mechanical Responses of Sensitive Model Plants: An approach to Study their Sensory Abilities Analogous to Animals** - A Review. IBRO-APRC Associate School of Neuroscience – Biophysical to Molecular Techniques: An interface in Neurobiology Research, Indira Gandhi National Tribal University, 2021, Amarkantak, India
34. Bhattacharya B, Roy S, Bal B, Mukherjee S, Ghosh K. **Neurophysical Methods To Assess Select Neurocognitive Domains – A Review on Zebrafish Model**. IBRO-APRC Associate School of Neuroscience – Biophysical to Molecular Techniques: An interface in Neurobiology Research, Indira Gandhi National Tribal University, 2021, Amarkantak, India
35. Roy S, Bhattacharya B, Bal B, Ghosh K. **Detection of Change in Electrical Activity of Neuronal Cells of an Ant's Brain**

- Region with Change in its Body Movement: A Preliminary Electrobiophysical Study.** Young Scientists' Conference, India International Science Festival, Biswa Bangla Convention Centre, 2019, Kolkata, India
36. Bhattacharya B, **Roy S**, Bal B, Mukherjee S, Ghosh K. **Fish as the Emerging Animal Model for Cognitive Studies: A Brief Review.** Young Scientists' Conference, India International Science Festival, Biswa Bangla Convention Centre, 2019, Kolkata, India
 37. **Roy S**, Bhattacharya B, Bal B, Ghosh K. **Exploring the Contributions of Acharya Jagadish Chandra Bose in Quantifying Plant Responses against Environmental Factors in Short Time Scales.** 7th India Biodiversity Meet, International Conference, Indian Statistical Institute, Kolkata, 2019b, India
 38. Bhattacharya B, **Roy S**, Bal B, Mukherjee S, Ghosh K. **Zebrafish as a Promising Bioindicator of Water Quality: A Review Study.** 7th India Biodiversity Meet, International Conference, Indian Statistical Institute, Kolkata, 2019b, India
 39. **Roy S**, Bhattacharya B, Bal B, Ghosh K. **Detection of Surface Mechanoelectric Response Pattern of *Alternanthera sp.*** 6th India Biodiversity Meet, International Conference, Indian Statistical Institute, Kolkata, 2019a, India
 40. Bhattacharya B, **Roy S**, Bal B, Mukherjee S, Ghosh K. **Quantification of Rheotactic Response of Adult Zebrafish under Variable Water Temperature: A Probable Tool to Assess Climate Change Impact on Fish.** 6th India Biodiversity Meet, International Conference, Indian Statistical Institute, Kolkata, 2019a, India
 41. **Roy S**, Bhattacharya B, Bal B, Ghosh K. (2019, February 19). **A Study on Electrical Response of Node of *Alternanthera sp.* under Different Degrees of Strength of Mechanical Perturbation.** [Conference presentation abstract]. National Seminar on Environmental Issues: Retrospects and Prospects, Vijaygarh Jyotish Ray College, Kolkata, India
 42. Bhattacharya B, **Roy S**, Bal B, Mukherjee S, Ghosh K. **A Study on effect of water temperature on activity of adult Zebrafish.** National Seminar on Environmental Issues: Retrospects and Prospects, organized by Jyotish Ray College, Kolkata, 2019, India
 43. Bhattacharya B, **Roy S**, Bal B, Mukherjee S, Ghosh K. **Effect of Direction of Electric Field on Movement of Swimming Adult Zebrafish under Rheotaxis.** A Scientific Colloquium organized by the Indian Academy of Neurosciences, Kolkata Chapter, held at Indian Institute of Chemical Biology, Kolkata, 2018, India
 44. Bhattacharya B, **Roy S**, Bal B, Mukherjee S, Ghosh K. **Effect of Rising Water Temperature on Swimming Behavior in Rheotaxis of Adult Zebrafish.** International Conference on Neuroscience and XXXVI Annual Meeting of Indian Academy of Neurosciences, Banaras Hindu University, Varanasi, 2019, India

Awards and Achievements

1. Received **Outstanding Paper Award** in *Fifth Regional Science and Technology Congress*, 2023, organized by DSTBT GoWB and WBSU
2. Received **Outstanding Model Presentation Award** in the *Fifth Regional Science and Technology Congress*, 2023, organized by DSTBT GoWB and WBSU
3. Was **invited** to demonstrate a **scientific model** titled: The Optokinetics Response Recorder: A device to record Optokinetic Nystagmus in Adult Zebrafish at the *30th West Bengal State Science and Technology Congress*, organized by DSTBT, GoWB for securing a position in the **Top 3**, at the Fifth Regional Science and Technology Congress
4. Delivered an **Invited Oral Presentation** in the *105th Rastriya Vigyan Sancharak Sammelan*, held during 105th session of the Indian Science Congress, 2018, Manipur University
5. Received **Certificate of Merit** for securing **First** Position in the Training Programme on *Science Communication and Media Practice* (Batch XXXI) 2017, organized by Indian Science News Association (ISNA), Kolkata and Vigyan Prasara, DST, Govt. of India, New Delhi
6. Received **Order of Merit** for securing **Seventh position** in aggregate in the *B.Sc. Three Year Honors Examination in Physiology* (2014), University of Calcutta

Registrar
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Dated: 13th May 2026

To
Smt Barnini Bhattacharya
10, Kali Banerjee Lane,
Howrah-711101.

Madam,

I am to inform you that on the recommendation of the Board of Examiners on their adjudication of the undernoted thesis submitted by you for the **Ph.D.(Sc.) Degree of this University in terms of 6.6 Regulation for the Degree of Doctor of Philosophy (Ph.D.), C.U., framed under UG Guidelines 2016 and on the results of the viva-voce examination, you have been admitted to the aforesaid degree on May 12, 2026 in Physiology.**

Yours faithfully,

Debasis Das
13/05/2026
Registrar

REGISTRAR
UNIVERSITY OF CALCUTTA

Title of Thesis : Impact Of Select Physical And Chemical Stressors On Cognitive Intelligence - A Study In Zebrafish Model