Animesh Halder

https://sites.google.com/view/dranimeshhalder

Clinical Data Science | Computer Vision | Biomedical Instrumentation | Brain Computer Interfacing | Mentor | Future Jobs | Critical Thinker | Advisor | Consultant

I am an enthusiastic and curious learner, deeply engaged in the complexities of machine learning and deep learning. My interests extend across diverse fields, including artificial intelligence, bioelectronics, and medical electronic devices. Over the past eight years as an educator at prestigious engineering institutions in Kolkata, I have developed significant expertise in guiding student research projects, particularly in ML and DL, while nurturing their growth in these cutting-edge technologies.

Communication details

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EDUCATION

Standard	Degree	University	Major	YOP	Marks (%)
10th		WBBSE	General	1997	78
12th		WBCHSE	Science	1999	75
B. Tech	B. Tech	WBUT	Electronics & Instrumentation Engineering	2007	67
M. Tech	M. Tech	Tezpur University	Bioelectronics	2009	75
Doctoral	Ph. D.	Calcutta University	Biomedical Application	2022	79

PROJECT

Role: Principal Investigator
Title: Development and feasibility analysis of various Spectral, Optical and Opto-Mechanical techniques for low-cost and accurate determination of Food Adulteration: Novel Approach
Duration of Research: 1 years
Sources: Adamas University, India
Grant No: AU/SEED/2023-24/AUG/017
Budget granted: Rs. 1 lakh
Month & Year: November 2023 to October 2025

Role: Team lead at CDAC
1. Creating a multimodal system to detect lies and deception.
2. BCI communication for children with special needs.
Role: Supervisor at CDAC
1. Breast Cancer Detection using Hybrid Model
2. Utilizing a mobile phone camera as microscope for quantitative imaging

RESEARCH INTEREST

Miniaturized biomedical devices, Point-of-care diagnostics, Fabrication of nano-sensor, Cancer detection device,
Ultra-low power biomedical circuits, Spectroscopy, Bio Medical Technology, Artificial Intelligence.

SKILLS

Research | Teaching | Data Science | Data Analytics | Documentation | ML/DL | Administration

EXPERIENCE

Adamas University, Kolkata
Assistant Professor
SEPTEMBER 2023 - Present
Dept. Biomedical Engineering
Teaching, Administration support, project supervision, evaluation, and seminar.

CDAC, New Delhi
Senior Project Engineer
AUGUST 2022 – AUGUST 2023
Artificial Intelligence and Extended Reality Group
Define technical requirements for computer vision projects according to the scope document and design plan, ensuring they are integrated into engineering deliverables. Oversee engineering strategy in collaboration with project leaders. Develop the scope of work to support project goals, selecting and managing external engineering service providers effectively.

Zyna MedTech Pvt Ltd, Visakhapatnam
Senior Engineer
MARCH 2021 - MAY 2021
Managed execution and timely completion of biomedical projects by analyzing scope and determining project specifications, establishing testing methods for product investigations, analyzing test programs for adequacy and sequence, examining samples for compliance with requirements, and preparing reports.

SN Bose National Centre for Basic Science, Kolkata
Scientist C
MAY 2018 - MARCH 2021
Collaborated with partners to analyze biomedical instrumentation issues, gathering relevant data for insights. Used a data-driven approach to create visualizations that informed strategic decisions with executives. Extracted and ensured the accuracy of data from various sources, developed prototypes, and participated in the approval process for new products.

SN Bose National Centre for Basic Science, Kolkata
SRF (Project)
SEPTEMBER 2016 - MAY 2018
Research and collaboration with Institutes.

INSTRUMENT

Spectroscopy: Steady-state UV-Vis Absorption, and Emission Measurements, Diffuse Reflectance Spectroscopy (DRS), Optical Emission spectroscopy, Fluorescence Spectroscopy etc.

MATHEMATICAL TOOLS

Extensive experience in working with Origin 8.5, Sigma Plot.

CERTIFICATION

Post Graduate in Data Science & Business Analytics from Great Lakes Institute of Management and University of Texas, Austin | 2022
Artificial Intelligence under FutureSkills PRIME Program from CDAC | 2022

AWARDS

GYTI Award, New Delhi,2018.

GATE in Instrumentation Engineering, 2007

PATENT

Patent No. 405442

Date: April 23, 2015

Title: A PACEMAKER BATTERY RECHARGER FOR ENHANCING THE SERVICE LIFE

ADDITIONAL INFORMATION

DOB: September 01, 1980

Languages: Bengali, English,

Hindi

Marital Status: Married and having one son of 9 years old.

SN Bose National Centre for Basic Science, Kolkata
Research Associate-I
JUNE 2016 - SETEMBER 2016
Research and collaboration with Hospitals.

Techno India Batanagar, Kolkata
Assistant Professor
JUNE 2012 - MAY 2016
Dept. Electronics & Communication Engineering
Teaching, administration, project supervision, evaluation, and seminar

Dream Institute of Technology, Kolkata
Assistant Professor
SEPTEMBER 2010 - MAY 2012
Dept. Applied Electronics & Instrumentation Engineering
Teaching, and project supervision

Pailan College of Management & Technology, Kolkata
Assistant Professor
JULY 2009 - SEPTEMBER 2010
Dept. Electronic & Electrical Engineering
Teaching, project supervision, and management

PUBLICATIONS

Publications in Peer-Reviewed Journals

1. Halder, P. K. Sarkar, P. Pal, S. Chakrabarti, P. Chakrabarti, D. Bhattacharyya, R. Chakraborty and S. K. Pal “Digital Camera Based Spectrometry for the Development of Point-of-Care Anemia Detection on Ultra-low Volume Whole Blood Sample”, IEEE Sens. J. 17 (2017) 7149.
2. A. Halder, M. Banerjee, S. Singh, A. Adhikari, P. K. Sarkar, A. M. Bhattacharya, P. Chakrabarti, D. Bhattacharyya, A. K. Mallick, and S. K. Pal “A Novel Whole Spectrum-based Non-invasive Screening Device for Neonatal Hyperbilirubinemia”, IEEE J. Biomed. Health Inform. 23 (2019) 2347.
3. A. Halder, S. Singh, A. Adhikari, P. Singh, P. Sarkar, U. Pal, R. Ghosh, D. Shikha, Y. Solanki, M. Agarwal, A. B. Gupta, R. Chakraborty, T. Saha Dasgupta, R. Das and S. K. Pal “Selective and Fast Responsive Sensitized Micelle for Detection of Fluoride Level in Drinking Water”, ACS Sustain. Chem. Eng. 7 (2019) 16355.
4. A. Halder, S. Singh, A. Adhikari, S. Ghosh, Deep Shikha, D. Saha, R. Chakraborty, A. Kundu, S. K. Tripathi and S. K. Pal “NaLiK, a Self-developed Device for Rapid, Reliable and Simultaneous Assessment of Sodium, Lithium and Potassium for Management of Fluid Balance and Bipolar Disorder in Human Subjects”, J. Anal. At. Spectrom. 34 (2019) 1875.
5. A. Halder, A. Adhikari, R. Ghosh, S. Singh, A. Banerjee, N. Ghosh, A. M. Bhattacharya, S. Mandal, P. Chakrabarti, D. Bhattacharyya, H. M. Altass, M. Morad, S. A. Ahmed, A. K.

Mallick and S. K. Pal, “Large scale Validation of a New Non-Invasive and Non-Contact Bilirubinometer in Neonates with Risk Factors”, Sci. Rep. 10 (2020) 11149.

6. P. K. Sarkar, S. Pal, N. Polley, R. Aich, A. Adhikari, A. Halder, S. Chakrabarti, P. Chakrabarti and S. K. Pal “Development and Validation of a Noncontact 170 Spectroscopic Device for Hemoglobin Estimation at Point-of-Care”, J. Biomed. Opt. 22 (2017) 055006.
7. P. K. Sarkar, P. Kar, A. Halder, P. Lemmens, and S. K. Pal “Development of Highly Efficient Dual Sensor for Direct Estimation of Iron and Fluoride in Drinking Water”, ChemistrySelect 4 (2019) 4462.
8. D. Bagchi, A. Halder, S. Debnath, P. Saha, and S. K. Pal “Exploration of Interfacial Dynamics in Squaraine Based Nanohybrids for Potential Photodynamic Action”, J. Photochem. Photobiol. A 380 (2019) 111842.
9. S. Singh, A. Halder, O. Sinha, P. K. Sarkar, P. Singh, A. Banerjee, S. A. Ahmed, A. Alharbi, R. J. Obaid, S. K. Ghosh, A. Mitra and S. K. Pal, “Nano-particle based ‘turn-on’ scattering and post-sample fluorescence for ultrasensitive detection of water pollution in wider window”, PLOS One 15 (2020) e0227584.
10. L. Roy, A. Halder, S. Singh, J. Patwari, P. Singh, K. Bhattacharya, S. Mondal and S. K. Pal “Spectroscopy of an Intrinsic Fluorophore in Animal and Plant Milk for Potential Identification of Their Quality”, J. Dairy Sci. 103 (2020) 1366.
11. K. Kole, A. Halder, S. Singh, A. Samanta, S. Das, Sankar; A. K. Kundu, D. Bhattacharyya, S. K. Pal and S. Jana “Chromogenic Functionalized Silica Nanoflower Composites for the Detection of Carbon Dioxide”, ACS Applied Nano Materials 3 (2020) 4321.
12. S. Singh, A. Halder, Sk. A. Mohid, D. Bagchi, O. Sinha, A. Banerjee, P. K. Sarkar, A. Bhunia, S. K. Ghosh, A. Mitra and S. K. Pal “Non-Thermal Atmospheric Plasma (NTAP) induced cellular Envelope damage of Staphylococcus aureus and Candida albicans Biofilms: Spectroscopic and Biochemical Investigations”, IEEE Trans. Plasma Sci. 48 (2020) 2768171.
13. N. Das, N. Bhattacharyya, S. Singh, A. Halder, D. Shikha and S. K. Pal “Simultaneous Measurement of Atmospheric Moisture and Temperature in the Presence of Suspended Particulates using Ultrasonic Technique”, Jap. J. Appl. Phys. 59 (2020) 096503.
14. A. Banerjee, S. Singh, R. Ghosh, M. N. Hasan, A. Bera, L. Roy, N. Bhattacharya, A. Halder, A. Chattopadhyay, S. Mukhopadhyay, A. Das, H. M. Altass, Z. Moussa, S. A. Ahmed and S. K. Pal
15. L. Roy, D. Mukherjee, S. Singh, A. Banerjee, N. Bhattacharyya, A. Halder, P. Singh, S. Mukhopadhyay, K. Bhattacharya, R. Das and S. K. Pal., “Pico-second resolved Förster resonance energy transfer (FRET) differentiates self-assembled biological macromolecules in aqueous medium”, Chemical Physics Impact 4 (2022) 100081.
16. N. Bhattacharyya, S. Singh, R. Ghosh, A. Banerjee, A. Adhikari, A. Halder, M. Goswami, A. Chattopadhyay, P. Mondal, S. S. Natto, S. A. Ahmed, A. Mallick, and S. K. Pal, “Development of a Smart Active Respirator for Comfortable and Hygienic Breathing”, Phys. Fluids 34 (2022) 051901.
17. N. Bhattacharyya, S. Singh, D. Mukherjee, N. Das, A. Chatterjee, A. Halder, A. Adhikari, S. Mondal, D. Shikha, A. Bajaj, P. Mondal, P. Chakrabarti, A. K. Mallick and S. K. Pal,

"Picosecond-resolved Fluorescence Resonance Energy Transfer (FRET) in Diffuse Reflectance spectroscopy explores biologically relevant hidden molecular contacts in a non-invasive way", Phys. Chem. Chem. Phys. 24 (2022) 6176-6184.

18. N. Bhattacharyya, A. Halder, S. Singh, A. Adhikari, R. Ghosh, P. Mondal and S. K. Pal, "Detection of Lithium in Real World using Optical Emission Spectroscopy: Caution to E-Waste Management", 6th International Conference for Convergence in Technology (I2CT) (2021) pp. 1-5.
19. S. Singh, A. Halder, A. Banerjee, M. N. Hasan, A. Bera, O. Sinha, S.K. Ghosh, A. Mitra, S. K. Pal, "An Optical Scattering Based Cost-Effective Approach Towards Quantitative Assessment of Turbidity and Particle Size Estimation In Drinking Water Using Image Analysis", J. Environ. Sc. & Engg. (2021).
20. N. Bhattacharyya, S. Singh, A. Halder, A. Adhikari, R. Ghosh, D. Shikha, S. K. Tripathi, A. K. Mallick, P. Mondal and S. K. Pal, "An Energy-Resolved Optical Non-invasive Device Detects Essential Electrolyte Balance in Humans at Point-of-Care", Transactions of the Indian National Academy of Engineering 6 (2021) 355-364.
21. S. Singh, A. Halder, O. Sinha, N. Chakrabarty, T. Chatterjee, A. Adhikari, P. Singh, D. Shikha, R. Ghosh, A. Banerjee, P. Das Mahapatra, A. Mandhar, M. Bhattacharyya, S. Bose, S. A. Ahmed, A. Alharbi, A. M. Hameed and S. K. Pal, "Spectroscopic Studies on the Biomolecular Recognition of Toluidine Blue: Key Information Towards Development of a Non-Contact, Non-Invasive Device for Oral Cancer Detection", Frontiers in Oncology 10 (2020) 529132.
22. M. N. Hasan, T. K. Maji, U. Pal, A. Bera, D. Bagchi, A. Halder, S. A. Ahmed, J. H. Al-Fahemi, T. M. Bawazeer, T. Saha-Dasgupta, and S. K. Pal, "Wide bandgap semiconductor based novel nanohybrid for potential antibacterial activity: Ultrafast Spectroscopy and Computational Studies", RSC Advances 10 (2020) 38890.
23. R. Ghosh, S. Singh, A. Adhikari, S. Mondal, D. Mukherjee, N. Bhattacharyya, A. Halder, M. Bhattacharyya and S. K. Pal, "Synthesis and characterization of a nano-formulation for long lasting sterilization effect", Materials Today: Proceedings (In Press).

Book Chapter

1. A. Halder, S. Singh, A. Adhikari, P. K. Sarkar and S. K. Pal "Development of Spectroscopy-based Medical Devices for Disease Diagnosis in Low Resource Point of Care Setting", (Book Chapter) in "Bioelectronics and Medical Devices" Edited by Kunal Pal, ELSEVIER, LONDON 2018.