



EEG Training Workshop May 05, 2023, IIT Indore, India



Report Prepared by

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1. Objectives

This event is for the organization of the workshop on “**EEG Training**” under the auspices of the IEEE CIS Chapter, MP Section and IITI Drishti CPS Foundation.

The primary objectives of the EEG Training Workshop are as follows:

- **Skill Development:** Provide participants with comprehensive training in EEG (Electroencephalography) techniques, methodologies, and data analysis, enhancing their proficiency in utilizing EEG technology for research and practical applications.
- **EEG Signal and Machine Learning:** Introduce participants to the integration of EEG signal processing techniques with machine learning algorithms, exploring how machine learning can enhance EEG data analysis, classification, and interpretation for applications such as brain-computer interfaces, cognitive neuroscience, and clinical diagnostics.
- **Knowledge Enrichment:** Offer insights into the theoretical foundations and practical aspects of EEG, including signal processing techniques, artifact identification, and interpretation of brainwave patterns, thereby expanding participants' understanding of neurophysiology and neuroscience research methodologies.
- **Hands-on Experience:** Facilitate hands-on sessions and practical exercises where participants can apply acquired knowledge and skills to analyze EEG data, interpret results, and gain practical experience in EEG experimentation under the guidance of experienced instructors.
- **Networking and Collaboration:** Foster collaboration and networking opportunities among participants, instructors, and researchers in the EEG and neuroscience community, enabling knowledge sharing, idea exchange, and potential collaborations for future research endeavors.

2. About IIT Indore

IIT Indore is one of the premier institutes under the Ministry of Human Resource Development (MHRD), Govt. of India. IIT Indore was founded in 2009 by the Govt.

of India. In this short span of time, IIT Indore has positioned itself as a vibrant center for outstanding research. Multidisciplinary research at IIT Indore has been recognized at the international level with active participation in several key international projects and several joint collaborations with academic/research institutions in Japan, Norway, USA, Germany, France, Singapore, and many other countries. The institute is growing rapidly as the only center for advanced learning and knowledge dissemination in the pure and applied sciences in Central India. Read more at <https://iiti.ac.in>.

3. Organizers

Coordinator

- M. Tanveer, IIT Indore, India

Executive Committee of IEEE MP Section - CIS Chapter

- M. Tanveer (Founding Chairman), Indian Institute of Technology Indore, India
- Aruna Tiwari (Convener, CIS Professional Activities), Indian Institute of Technology Indore, India
- Gyanendra Kumar Verma (Executive Member), National Institute of Technology Raipur, India
- Suresh Kumar Gawre (Executive Member), Maulana Azad National Institute of Technology, Bhopal, India
- Mallikharjuna Rao K (Executive Member), Dr. Shyama Prasad Mukherjee International Institute of Information Technology Naya Raipur, India
- Md Sajid (Secretary), Indian Institute of Technology Indore, India
- Mushir Akhtar (Treasurer), Indian Institute of Technology Indore, India
- Anuradha Kumari (Representative, Event Head), Indian Institute of Technology Indore, India
- Ashwani Kumar Malik (Student Representative), Indian Institute of Technology Indore, India
- Abdul Quadir (Webmaster), Indian Institute of Technology Indore, India

6. Poster



*“If the human brain were so simple
that we could understand it, we would
be so simple that we couldn't.”
-Emerson M Pugh*

EEG TRAINING WORKSHOP

*by Department of Mathematics
IIT Indore*

MAY 05, 2023

Venue: Sandipani Seminar Hall

Time: 10:30 am to 12:30 pm

Coordinator: Dr. M. Tanveer

Registration is Free !



*For registration,
please scan*

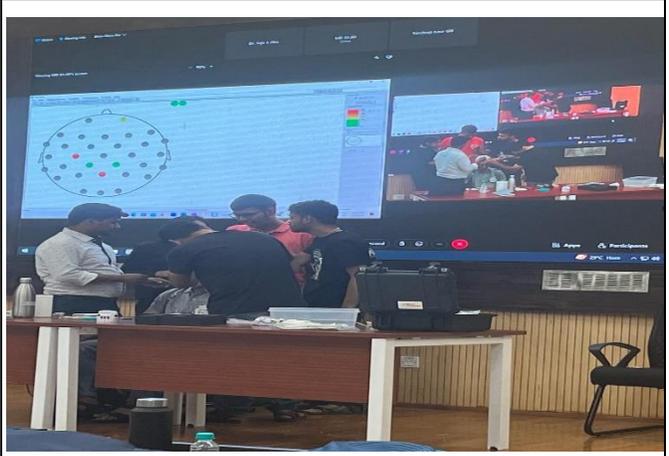
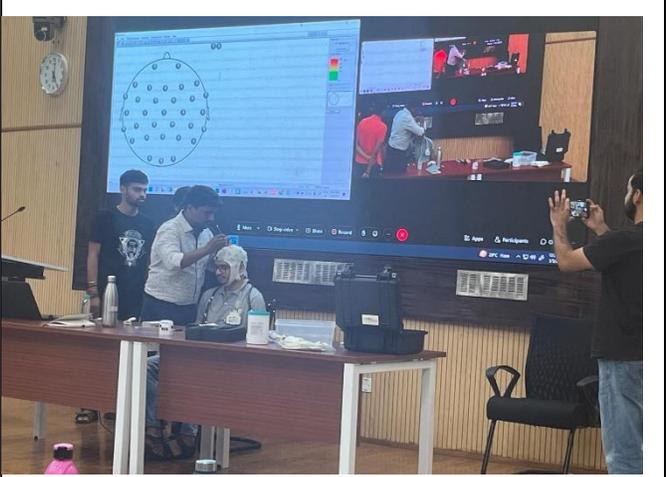
**Supported by IEEE CIS Chapter - MP Section
and IITI Drishti CPS Foundation**

No prerequisites required



7. Activity Photos





8. Participant Details

S. No.	Name	Department
1	Rahul Kumar Sharma	Mathematics
2	Vidushi Jaya	School of Humanities and Social Sciences
3	Harsh Soni	Electrical Engineering
4	Ritu Sharma	School of Humanities and Social Sciences
5	Md Sajid	Mathematics
6	Ritik Mishra	Mathematics
7	Abdul Quadir	Mathematics
8	Tithi Sarkar	Mathematics
9	Diksha	Mathematics
10	Aparna Santra Biswas	Computer Science and Engineering
11	Anuradha Kumari	Mathematics
12	Sheetal Wankhede	Mathematics
14	Parth Toshniwal	Electrical Engineering
15	Muzamil Nazir Bhat	Mathematics
16	Achinta Mondal	Electrical Engineering
17	Nabasmitta Phukan	Electrical Engineering
18	Chandravardhan Singh Raghaw	Computer Science and Engineering
19	Neelanshu Garg	Electrical Engineering
20	Kedarmal Verma	School of Humanities and Social Sciences
21	Vaibhav Mishra	Electrical Engineering
22	Guddu Kumar	Electrical Engineering

23	Kamanksha Prasad Dubey	Computer Science and Engineering
24	Akah P.C	Electrical Engineering
25	Suhel Khan	Electrical Engineering
26	Ujavala Gorakh Langhi	Computer Science and Engineering
27	Ashwani Kumar Malik	Mathematics
28	Anushka	Mathematics
29	Ashok Mahato	Electrical Engineering
30	Akash Bhople	Mathematics
31	Madhu	Mathematics
32	Vishal Kumar	Electrical Engineering
33	Yovan Singh	Mathematics
34	Suman Mondal	Mathematics
35	Jha Rohan	Computer Science and Engineering
36	Priyanka	Computer Science and Engineering
37	Lalit Jain	Computer Science and Engineering
38	Kh. Humendro Singh	Civil Engineering

10. IEEE CIS Member Drive

During the IEEE CIS Member Drive, we had the privilege of sharing the extensive benefits of IEEE membership with all participants in the workshop dedicated to IEEE Women in Artificial Intelligence. IEEE membership provides a unique avenue for women professionals and researchers in AI to connect, collaborate, and thrive in a supportive community. Members gain access to a global network of experts, cutting-edge resources, and valuable opportunities for professional development. The IEEE community, particularly in the context of Women in AI, fosters inclusivity, mentorship, and empowerment, providing a

platform for women to excel in their careers. By emphasizing these benefits, we aimed to encourage active participation, networking, and knowledge exchange within the IEEE community, supporting the growth and success of women in the dynamic field of Artificial Intelligence.

The following are the key benefits highlighted:

1. Online access to IEEE Computational Intelligence Magazine.
2. Delivery of monthly CIS E-Newsletter, with the most up-to-date information about the CIS field, events, and information about activities in the Society.
3. Online access to our significant journals:
 - IEEE Transactions on Neural Networks and Learning Systems
 - IEEE Transactions on Fuzzy Systems
 - IEEE Transactions on Evolutionary Computation
 - IEEE Transactions on Emerging Topics in Computational Intelligence
4. Members of CIS can subscribe to additional publications at discounted prices. These include:
 - IEEE Transactions on Artificial Intelligence
 - IEEE Transactions on Biomedical Circuits and Systems
 - IEEE Transactions on Cognitive and Developmental Systems
 - IEEE Transactions on Games
 - IEEE Transactions on Computational Social Systems
 - IEEE Transactions on Affective Computing
 - IEEE Transactions on Big Data
 - IEEE Transactions on NanoBioscience
 - IEEE Transactions on Smart Grid
5. IEEE Members will receive discounts to attend the following CIS Sponsored Conferences
 - IEEE Congress on Evolutionary Computation (CEC)
 - IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)
 - International Joint Conference on Neural Networks (IJCNN)
 - IEEE Conference on Games (CoG)
 - Joint IEEE International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob)
 - IEEE International Conference on Data Science and Advanced Analytics (DSAA)
 - IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)
 - IEEE Symposium Series on Computational Intelligence (SSCI)

Student Members

6. opportunity to apply for an IEEE CIS Graduate Student Research Grant.

7. opportunity of applying to receive a travel grant to attend a CIS sponsored conference.
8. You can organize or join a CIS Student Chapter at your university.
9. You have the opportunity of finding a mentor.



REGISTRATION DESK

IEEE CIS MEMBERSHIP DRIVE

Organized By: IEEE MP Section – CIS Chapter

11. Impacts and Discussions

The EEG Training Workshop was expected to have several significant impacts and foster valuable discussions within the neuroscience, CIS and research communities:

1. **Enhanced Research Capabilities:** By equipping participants with advanced EEG techniques and methodologies, the workshop contributed to the enhancement of research capabilities in neuroscience and related fields. Participants are better equipped to design, conduct, and analyze EEG experiments, leading to more robust and insightful research outcomes.
2. **EEG Signal and Computational Intelligence:** Machine learning approaches applied to EEG data enable the extraction of meaningful patterns and features

from brain signals, leading to insights into brain function, cognition, and neurological disorders. By uncovering complex relationships within EEG data, researchers can deepen their understanding of brain dynamics and inform the development of targeted interventions for neurological conditions.

3. **Interdisciplinary Collaboration:** The workshop brought together researchers, practitioners, and students from diverse backgrounds, fostering interdisciplinary collaboration and knowledge exchange. Discussions during the workshop sessions provided opportunities for participants to learn from each other's experiences, perspectives, and expertise, ultimately promoting cross-disciplinary collaboration in EEG research.
4. **Methodological Advancements:** Through discussions on the latest advancements and best practices in EEG data acquisition, processing, and analysis, participants gained insights into cutting-edge methodologies and techniques. These discussions may spark new ideas and innovations, driving further advancements in EEG research methodologies.
5. **Addressing Challenges and Limitations:** The workshop provided a platform for participants to discuss common challenges and limitations encountered in EEG research, such as artifact removal, data interpretation, and reproducibility issues. Through collaborative discussions and sharing of strategies, participants can develop practical solutions to address these challenges, thereby advancing the field as a whole.
6. **Professional Networking:** Networking opportunities provided during the workshop will enable participants to establish connections with peers, mentors, and experts in the EEG research community. These networking interactions may lead to potential collaborations, mentorship opportunities, and career advancement prospects for participants.

In conclusion, the EEG Training Workshop aims to not only impart valuable knowledge and skills but also to stimulate discussions, collaborations, and advancements in EEG research, ultimately contributing to the broader goals of understanding brain function and improving human health and well-being.

12. Acknowledgement

The organizers would like to express sincere thanks to the IEEE MP Section – CIS Chapter and IITI Drishti CPS Foundation, IIT Indore for their support. Thanks to IIT Indore for providing facilities and support in organizing this workshop.