

A Workshop on Brain Computer Interface

March 11 – 12, 2023

Organized by

Indian Institute of Information Technology Guwahati

Sponsored by

Science for Equity Empowerment and Development (SEED) Division,

Department of Science and Technology (DST), Government of India

About IIIT Guwahati

Indian Institute of Information Technology Guwahati (IIITG) is an institution of National Importance under an Act of Parliament (The Indian Institutes of Information Technology (Public-Private Partnership) Act, 2017). It offers B. Tech. courses in Electronics and Communication Engineering (ECE) and Computer Science Engineering (CSE), M. Tech. courses in CSE and ECE and runs PhD programmes in ECE, CSE, Mathematics, and Humanities and Social Sciences (HSS). IIITG started operations in August 2013 with B. Tech programmes in CSE and ECE. The first batch of B. Tech. students completed their programme in May 2017. The first convocation of the Institute was held on May 15, 2018. IIITG is one of the 20 IIITs the Central Govt. set up in PPP mode. A Bill (Act of Parliament) to declare all the PPP-IIITs (including IIITG) as Institutes of National Importance was passed by both houses of the Indian parliament in July 2017. In its very first year, when it became eligible, IIITG ranked 66 in the Engineering category of NIRF 2020. IIITG strives to be attentive to the academic needs of every student. The Institute moved to its permanent campus in July 2018. Prof. Gautam Barua, former Director of IIT Guwahati, is the Director of the Institute.

About the Workshop

Brain-computer interface (BCI) technology, combined with machine learning and signal processing, can revolutionize our interaction with technology and devices. BCI technology uses sensors to detect brain activity and translate it into commands that can be used to control devices, allowing for seamless interaction between the user and the technology. Integrating BCI technology with the Internet of Things (IoT) can greatly benefit people with disabilities by enabling them to control various IoT devices, such as home appliances, using their brain signals. This technology has the potential to greatly enhance their quality of life and make daily tasks more manageable. Machine learning and signal processing algorithms play a crucial role in BCI technology by allowing accurate and reliable interpretation of brain signals. These algorithms learn to recognize patterns in brain signals and translate them into specific commands, enabling more efficient and effective control of devices. Overall, the combination of BCI technology, machine learning, and signal processing has the potential to significantly

improve the lives of people with disabilities by enabling them to interact with technology more naturally and intuitively. This technology has the potential to be a game-changer in the field of assistive technology and could enhance the lives of millions of people worldwide. This workshop aims to introduce the audience to various technologies BCI.

Who Can Attend

Advanced UG students, PG students, and research scholars. There is no registration fee for any participant. Maximum 30 participants are allowed.

Workshop Coordinators

Kaustuv Nag (kaustuv@iiitg.ac.in) and Rakesh Matam (rakesh@iiitg.ac.in), Department of Computer Science and Engineering, IIIT Guwahati. To apply use the following link: https://docs.google.com/forms/d/e/1FAIpQLSetrdfAjWrfqmz1zqg-Z4mAvSVJREVnu1Pr-9oQDWdBfujGXQ/viewform?usp=sf_link

Speakers

- Ferdous Ahmed Barbhuiya, Indian Institute of Information Technology Guwahati.
- Rakesh Biswas, Indian Institute of Information Technology Guwahati.
- Navin Gupta, Indian Institute of Technology Guwahati.
- Shovan Barma, Indian Institute of Information Technology Guwahati.
- Samarendra Dandapat, Indian Institute of Technology Guwahati.
- Shyamanta M. Hazarika, Indian Institute of Technology Guwahati.

Schedule

Day 1, March 11, 2023 (Saturday)

09:45 AM – 10:00 AM	Inauguration	
10:00 AM – 11:30 AM	First Session	Speaker: Ferdous Ahmed Barbhuiya
11:30 AM – 11:45 AM	Tea Break	
11:45 AM – 01:15 PM	Second Session	Speaker: Rakesh Biswas
01:15 PM – 02:30 PM	Lunch Break	
02:30 PM – 04:00 PM	Third Session	Speaker: Navin Gupta

Day 2, March 12, 2023 (Sunday)

10:00 AM – 11:30 AM	Fourth Session	Speaker: Shovan Barma
11:30 AM – 11:45 AM	Tea Break	
11:45 AM – 01:15 PM	Fifth Session	Speaker: Samarendra Dandapat
01:15 PM – 02:30 PM	Lunch Break	
02:30 PM – 04:00 PM	Sixth Session	Speaker: Shyamanta M. Hazarika
04:00 PM – 04:15 PM	Valedictory	

Venue

Lecture Gallery 2 (LG2), Indian Institute of Information Technology Guwahati.