

## Annual Report 2023

IEEE Joint CSS-IMS Kolkata Chapter  
Kolkata Section, CS23/IM09 (CH10673)

### Event 1:

**Event Name:** Invited Talk on “Image Processing for Precision Health Care”

**Event Type:** Seminar

**Date:** March 13, 2023

**Time:** 3.00 pm IST

**Venue:** Lecture Gallery-2, IIIT Guwahati

**Lecture Title:** “Image Processing for Precision Health Care”

**Speaker:** Dr. Gajendra Kumar Mourya, North-Eastern Hill University, Meghalaya.

**Organized by:** Dept. of ECE, IIIT Guwahati and IEEE Joint CSS-IMS Kolkata Chapter

At the outset, Dr. Surajit Panja, Executive Committee Member of IEEE Joint CSS-IMS Kolkata Chapter, briefed the activities of the Chapter and introduce the speaker, Dr. Gajendra Kumar Mourya, Assistant Professor, North-Eastern Hill University, Meghalaya. Dr. Shovan Barma, HoD ECE, IIIT Guwahati felicitated the speaker with Gamocha. Then, Dr. Mourya delivered his lecture on “Image Processing for Precision Health Care.” In his talk, Dr. Mourya primarily focused on the role of medical image processing in planning the diagnosis and therapeutic procedures in the Indian scenario. He discussed various real-time challenges that need to be addressed to achieve precision healthcare measures. The Talk was of a duration of one and a half hours. At the end Dr. Rusha Patra, Assistant Professor, Dept. ECE, presented a memento to Dr. Mourya as a token of appreciation.



Fig. 1. Welcome speech by Dr. Surajit Panja



Fig. 2. Dr. Shovan Barma felicitated the speaker



Fig. 3. Dr. Gajendra Kumar Mourya, during his Invited Talk at IIIT Guwahati.



Fig. 4. Dr. Risha Patra presented a memento to Dr. Mourya

**Attendance/ Audience breakup:**

IEEE members	Non-IEEE members
6	32



# IEEE Joint Control Systems Society-Instrumentation & Measurement Society Kolkata Chapter



## Event 2:

**Event Name:** FDP on Recent Advancement on Control & Instrumentation

**Event Type:** Faculty Development Program

**Date:** July 10 to 14, 2023

**Venue:** Zoom, Virtual Platform

**Organized by:** Department of Electrical & Electronics Engineering Department (EEE), Institute of Engineering & Management (IEM)

Department of Electrical & Electronics Engineering Department (EEE), Institute of Engineering & Management (IEM) has organized a five-day Faculty Development Program (FDP) on “Recent Advancement on Control & Instrumentation” from July 10 to 14, 2023. The program was technically co-sponsored by IEEE Joint CSS-IMS Kolkata Chapter.

The main aim of this FDP is to focus on the area of Computational intelligence and their application in the field of Control, Instrumentation, Bio-Medical, Power Systems and Robotics. The FDP began with energetic & motivating inaugural session with a speech from President Sir and Principal Sir.

FDP included nine (9) speakers, 180 participants from all over India from different IITs, NITs, State Universities. Also we have participants from Woosong University, South Korea. The conference was concluded in Valedictory session on 14th July 2023.

The Speakers and the title of the topics are given below:

Sr No.	Name of the resource person	Affiliation with Address, phone number and email	Title of the lecture
1.	Dr. Sohom Chakrabarty	Assistant Professor, EE Dept., Indian Institute of Technology, Roorkee.	Recent application of reinforcement learning based control in robotic systems
2.	Dr. Chayan Sarkar	Scientist, TCS Research	DL based approached for NLP and vision problems for robotics.
3.	Dr. Manas Bera	Associate Professor, EE Dept., NIT Rourkela	Event-triggered control.
4.	Dr. Samiran Chattopadhyay	Professor, Department of Information Technology, Jadavpur University	National Education Policy

5.	Dr. Pratyusha Rakshit	Associate Professor, Department of ETCE, Jadavpur University	Machine Intelligence Approach to Brain-Computer Interfacing
6.	Dr. Arun Kumar Verma	Associate Professor, Electrical Engineering Department Indian Institute of Technology Jammu	“Control application in power converters”
7.	Dr. Sanjoy Kumar Parida	Associate Professor Department of Electrical Engineering Indian Institute of Technology Patna	Robust Wide-Area Damping Controller for Critical Low Frequency Oscillations in Power Systems
8.	Dr. Aritro Dey	Assistant Professor Department of Electrical Engineering NIT DURGAPUR	"Design of Flight Control Law for Fixed Wing Aircrafts & Quadcopters : Few Aspects".
9.	Dr. Shubhobrata Rudra	Assistant Professor Department of Electrical Engineering NIT Rourkella	Application of backstepping controller for non-linear system

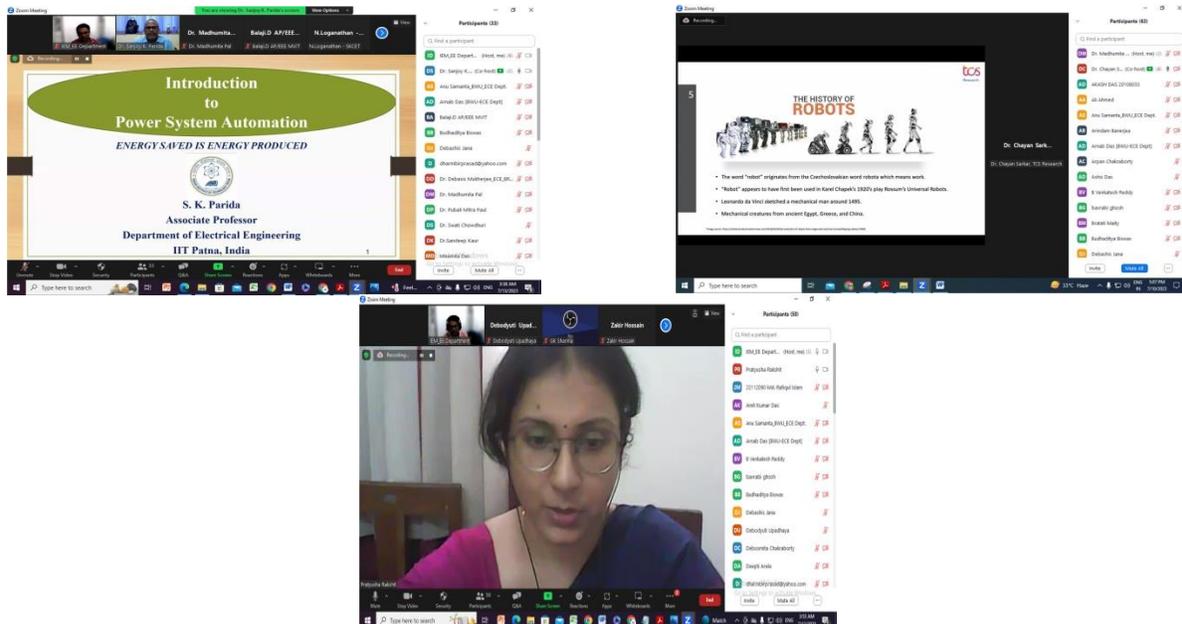


Fig 5 : During the FDP event.



# IEEE Joint Control Systems Society-Instrumentation & Measurement Society Kolkata Chapter



## Event 3:

**Event Name:** One Day Workshop on Recent Development of Electrohydraulic system and Control

**Event Type:** Workshop

**Speaker:**

**Date:** September 30, 2023

**Venue:** Google Meet, Virtual Platform

**Organized by:** Center for Robotics and Mechatronics and Student activity Centre, NIT Meghalaya

Center for Robotics and Mechatronics and Student activity Centre, NIT Meghalaya in Collaboration with IEEE Joint CSS-IMS Chapter, Kolkata, India organized One Day Workshop on Recent Development of Electrohydraulic system and Control Under the aegis of Amrit-Kal Vimrsh, A resurgent India-A Viksit Bharat@2047 on 30-09-2023.

Two lectures are delivered such as, Design of wind turbine system controller for enhancement of performance and Energy saving in off-road vehicles using leakage compensation technique.

The first lecture covered application of Electrohydraulic system in horizontal axis wind turbine and what are the different control techniques are used in wind turbine system. Further the details about wind turbine pitch control system discussed. Various control strategies applied to the wind turbine pitch control system Is discussed.

The second lecture delivered the hydraulics in a excavator and its performance with leakage and leakage compensation. Further the effect of controller design on the performance of the excavator is discussed.

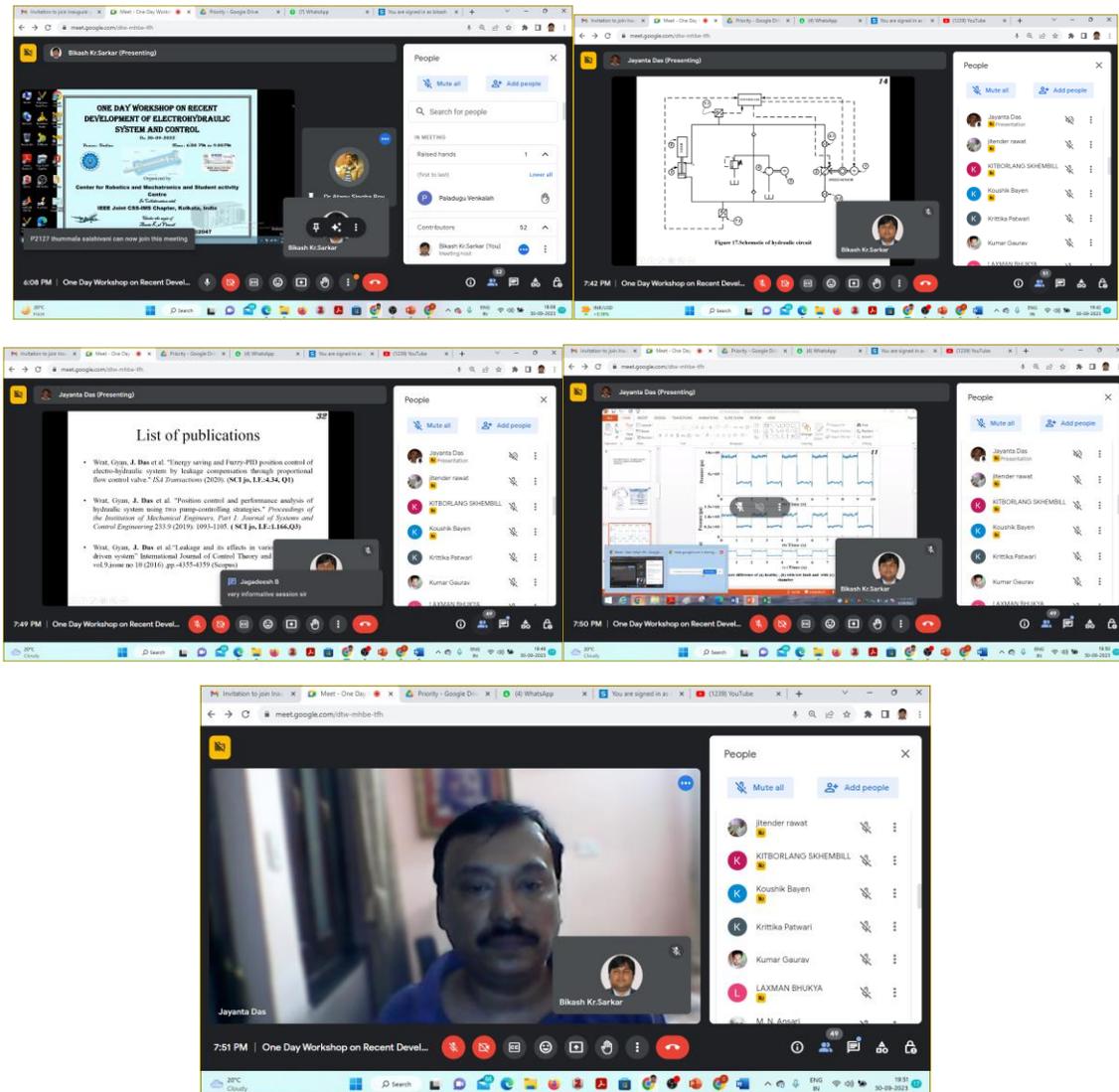


Fig 6 : Few moments of the event.

**Attendance / Audience breakup:**

IEEE members	IEEE CSS members	Non-IEEE members
4	1	53

#### Event 4:

**Event Name:** “Simulating Soft Landing in Real Time-A Hardware-in-loop Approach”

**Event Type:** Seminar (Hybrid)

**Speaker:** Prof Amitava Gupta and Prof Sayan Chatterjee, Jadavpur Univesity

**Date:** October 10, 2023

**Time:** 4:45 pm IST

**Venue:** Seminar Hall, Dept. of Electrical Engineering, IEST, Shibpur and Google Meet Platform

**Organized by:** IEEE Joint CSS-IMS Kolkata Chapter and Dept. of Electrical Engineering, IEST, Shibpur

IEEE Joint CSS-IMS Kolkata chapter and Department of Electrical Engineering, IEST Shibpur organized a lecture of recent success of Chandrayaan-3 a project by Indian Space Research Organisation (ISRO) on October 10, 2023. The topic was of this lecture “Simulating Soft Landing in Real Time-A Hardware-in-loop Approach”, which is the one of the key factors of successful landing of Chandrayaan-3 lander “Vikram”. This lecture was delivered by Prof Amitava Gupta and Prof Sayan Chatterjee, Jadavpur Univesity, who were responsible for the successful completion of the project on soft landing of lander “Vikram”. The event was started with inaugural speech by Prof Anindita Sengupta, Head of the department of Electrical Engineering, IEST. She also give brief description of the activity of IEEE Joint CSS-IMS Kolkata chapter.

The lecture was ended with small interaction/Q&A session between the speaker and the audience followed by the vote of thanks by Prof Roshni Mati.



Fig 7: Delivering lecture by Prof A Gupta and Prof S. Chatterjee.



# IEEE Joint Control Systems Society-Instrumentation & Measurement Society Kolkata Chapter



## Attendance / Audience breakup:

IEEE members	Non-IEEE members
16	35

## Event 5:

**Event Name:** Symposium on “MEASUREMENT ASPECTS IN NEW-AGE POWER ELECTRONIC SYSTEMS”

**Event Type:** Seminar

**Speaker:** Dr. Olive Ray, IIT, Bhubaneswar and Dr. Soumya Shubhra Nag, IIT, Delhi,

**Date:** November 25, 2023

**Time:** 5:00 pm IST

**Venue:** WebEx, Virtual Platform

**Organized by:** IEEE Joint CSS-IMS Kolkata Chapter

IEEE Joint CSS-IMS Kolkata Chapter organized a Symposium on “MEASUREMENT ASPECTS IN NEW-AGE POWER ELECTRONIC SYSTEMS” on November 25, 2023. The Symposium was held in ONLINE mode and it comprised two Expert Talks by two very eminent academicians in the domain of Power Electronics and measurement aspects. Each Expert Talk was of duration of one and a half hours. At the outset, Prof. Kaushik Das Sharma, Chairman, IEEE Joint CSS-IMS Kolkata Chapter, delivered the Inaugural Address.

Then Dr. Olive Ray, Assistant Professor, Department of Electrical Engineering, Indian Institute of Technology, Bhubaneswar, India, delivered his Expert Lecture on “Current Estimation in High-Frequency Power Electronic Converters.” In his talk, Dr. Ray primarily discussed the necessity of current programmed control for power flow management of power electronic converter. Then, Dr. Ray focused on how current estimation can be applied as an alternate means for current mode control in DC-DC converters. Dr. Ray’s lucid presentation and great explanation skills turned the session into a very lively one, marked by extensive audience interactions in the end.

Next, another very active researcher and academician, Dr. Soumya Shubhra Nag, Assistant Professor, Indian Institute of Technology, Delhi, India, delivered his Expert Talk on

“PCB embedded Rogowski Coil based current sensing in wide band-gap power converters”. He mainly concentrated on the requirement of high bandwidth current sensing for the wide bandgap switching devices. His session was equally informative in that he talked about the development of a PCB- embedded non-invasive Rogowski coil as well as the signal processing and instrumentation circuit for overcurrent sensing. This session also concluded with a lively audience interaction and an extensive question-answer session.

The Symposium came to a conclusion when Prof. Amitava Chatterjee, Executive Committee Member, IEEE Joint CSS-IMS Kolkata Chapter, delivered the Vote of Thanks. Initially, there were 127 registered participants for this Symposium. Finally, 40 participants attended the Symposium and out of which 14 were IEEE members and 26 were non-IEEE members. This included 04 IEEE-IMS members and 03 IEEE-CSS members. The audience comprised a large population of enthusiastic undergraduate and graduate students, research scholars, young faculties as well, and senior Professors.

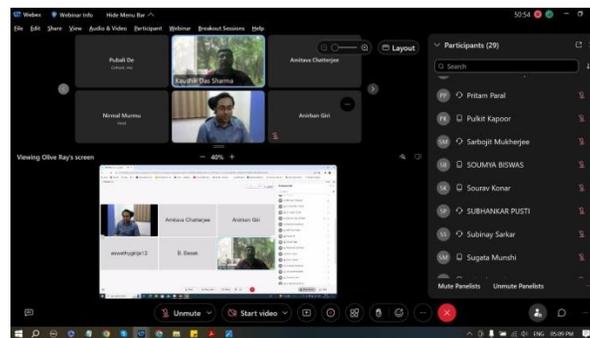


Fig 8. Inaugural Address by Prof. Koushik Das Sharma



Fig 9. Dr. Olive Ray, during his Expert Talk.

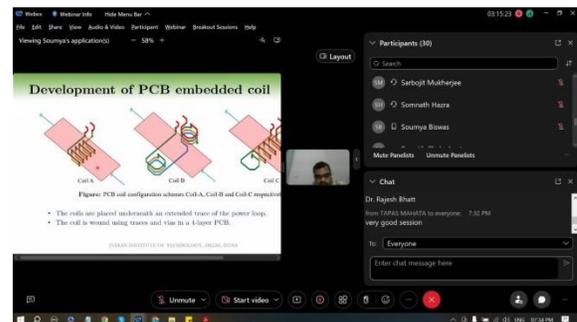


Fig 10. Dr. S. S. Nag, during his Expert Talk.

### Attendance / Audience breakup:

IEEE CSS members	IEEE IMS member	IEEE members	Non-IEEE members
02	04	14	26



# IEEE Joint Control Systems Society-Instrumentation & Measurement Society Kolkata Chapter



## Event 6:

**Event Name:** Invited Lecture Series

**Event Type:** Seminar

**Date:** December 12, 2023

**Time:** 6:00 pm IST

**Venue:** Seminar Hall, Department of Applied Physics, University of Calcutta

**Speaker:** Dr. Partha Sarathi Mukhopadhyay, IITM, Pune and Dr. Anindya Nag, Technische Universität Dresden, Germany

**Organized by:** Department of Applied Physics, University of Calcutta

Department of Applied Physics, University of Calcutta organized an invited lecture series on December 12, 2023. The program was started with an introductory session delivered by Prof Jitendra Nath Bera. Two lectures were delivered in this program. The topic of the first lecture was “Challenges of Forecasting Weather Extremes: A Combined Approach of AI and NWP” which was delivered by Dr. Partha Sarathi Mukhopadhyay. He mainly discussed the application of machine learning techniques and artificial intelligence and its advantages, and disadvantages in weather forecasting. The next lecture was delivered by Dr. Anindya Nag on the topic “Flexible wearable sensors: Current status and future opportunities”. This lecture was on recent developments in wearable biomedical sensors and the materials, and their challenges.

Both lectures comprised a small interaction/Q&A session between the speakers and the audience followed by a vote of thanks by Mr. Aritra Ghosh.

## Attendance / Audience breakup:

IEEE members	Non-IEEE members
5	15



# IEEE Joint Control Systems Society-Instrumentation & Measurement Society Kolkata Chapter



## Administrative Meeting

- There are **5 executive committee meetings** (ExeCom), and **1 annual general meeting** (AGM) was held from January 01, 2023 till January 05, 2024.
- **Executive Committee Meeting:**
  1. The 1<sup>st</sup> ExCom of 2023 was held on **February 24, 2023**, with Prof. Kaushik Das Sharma in the chair, over Google Meet. The meeting was progressed with the following agenda,
    - i. Confirmation of last EXECOM minutes held on December 21, 2022.
    - ii. New event proposals for technical co-sponsorship, if any.
    - iii. Annual program planning of the chapter for the year 2023.
    - iv. Miscellaneous, if any.In this meeting total, **11 members** were present.
  2. The 2<sup>nd</sup> ExCom of 2023 was held on **June 03, 2023**, with Prof. Kaushik Das Sharma in the chair, over Google Meet. The meeting was progressed with the following agenda,
    - i. Confirmation of the last EXECOM minutes held on February 24, 2023.
    - ii. New event proposals for technical co-sponsorship, if any.
    - iii. Update on CIEC24.
    - iv. Miscellaneous, if any.Miscellaneous if any In this meeting total **8 members** were present.
  3. The 3<sup>rd</sup> ExCom of 2023 was held on **September 05, 2023**, with Prof. Kaushik Das Sharma in the chair, over Google Meet. The meeting was progressed with the following agenda,
    - i. Confirmation of the last EXECOM minutes held on June 03, 2023.
    - ii. New event proposals for technical co-sponsorship, if any.
    - iii. Update on CIEC24.
    - iv. Miscellaneous, if any.In this meeting total **9 members** were present.
  4. The 4th ExCom of 2023 was held on **December 01, 2023** with Prof. Kaushik Das Sharma in the chair, over Google Meet. The agenda points of this meeting are,
    - i. Confirmation of the last EXECOM minutes held on September 05, 2023.
    - ii. Update on CIEC24.
    - iii. Update on DL program.
    - iv. New event proposals for technical co-sponsorship, if any.
    - v. Preparation of SLATE for 2024.



# IEEE Joint Control Systems Society-Instrumentation & Measurement Society Kolkata Chapter



vi. Miscellaneous if any.

In this meeting total **11 members** were present.

5. The 5th ExCom of 2023 was held on **January 02, 2023** with Prof. Kaushik Das Sharma in the chair, over Google Meet. The agenda points of this meeting are,
  - i. Confirmation of the last EXECOM minutes held on December 01, 2023.
  - ii. Update on CIEC24.
  - iii. New event proposals for technical co-sponsorship, if any.
  - iv. SLATE for 2024.
  - v. Secretary Report for year of 2023.
  - vi. Miscellaneous if any.

In this meeting total **5 members** were present.

- **Annual General Meeting:**

1. The 9th AGM of the IEEE Joint CSS-IMS Kolkata Chapter, Kolkata Section, was held on Wednesday, **January 14, 2023** at 6:00 P.M. at Calcutta Club, 241, Acharya Jagadish Chandra Bose Rd, Gokhel Road, Elgin, Kolkata, West Bengal 700020. The agenda of the meeting was,
  - i. Confirmation of minutes of last AGM (2022)
  - ii. SLATE of Chapter 2023
  - iii. Welcome address by New Chair
  - iv. Activities report of the chapter 2022 and plan for 2023
  - v. Misc if any.

A total of **12 members** were present at this meeting.