ABOUT THE WORKSHOP

This workshop will focus on modern AI and machine learning techniques for understanding human cognitive behaviour and motion signature for detection of neurological and musculoskeletal diseases. The purpose of this workshop is to discuss human cognitive psychology with perception and action in the light of advanced computational cognitive science and Generative AI models. A strong relationship will be visualized between brain and motion signal for estimation of human cognitive states in healthcare applications. The scientists, researchers who are working in this area, will be benefited to know about computational methods for early diagnosis of neurological diseases. The scope of the workshop is listed below:

• Understanding human cognitive behaviour using Generative AI techniques.

• Analysis of EEG signal, Kinect-based motion pattern and IMU sensor-based biological signal.

• Deep Learning techniques for computational brain modelling and human motion classification.

• Clinical Diagnosis for prediction of neurological diseases using Generative AI algorithms.

• Modelling Correlation between brain and motion signal.

• Revolutionizing medical applications with Generative AI for advanced diagnostics and personalized treatments.

KEYNOTE SPEAKERS

1). Prof. Pradipta Maji, ISI Kolkata

2). Dr. K Mohanavelu, DEBEL, DRDO.

3). Dr. Koel Das, IISER Kolkata

4). Prof. Amitava Chatterjee, Jadavpur University

5). Prof. Jayanta Mukhopadhyay, IIT Kharagpur

6). Prof. S. M. Hazarika, IIT Guwahati

7). Prof. Jaya Sil, IIEST Shibpur

8). Prof. Pavan Chakraborty, IIIT- Allahabad

9). Prof. Subhasis Bhaumik, IIEST Shibpur

10). Dr. Bibhash Sen, NIT Durgapur.

COURSE CONTENT

This workshop is aimed to cover the following topics:

• Understanding Cognitive Psychology: Theoretical Perspectives to Medical Applications.

• Advances in EEG Data Analysis Methods and Brain-Computer Interface Applications.

• Introduction to Generative AI Models: Fundamentals and architectures, including GPT and diffusion models.

• Exploring applications of Generative AI models in medical imaging, diagnostics, and personalized healthcare.

• Real-world Applications of Generative AI: Case studies in drug discovery and medical imaging.

• Future Trends in Generative AI: Personalized medicine and AI-driven healthcare innovation.

• Utilizing IMU (Inertial Measurement Unit) sensors for human motion analysis and rehabilitation engineering.

• Enhancing cognitive and motion analysis through Generative AI integration with EEG and IMU data.

ANRF-SERB and DRDO Sponsored Workshop

on

Advancing Medical Applications with Generative AI: Challenges and Prospects (AMAGA-2025)
(Hybrid Mode)

Chairman
Prof. Bibhudatta Sahoo, HoD (CS)

Convener
Dr. Anup Nandy
Dr. Ratnakar Dash

Department of Computer Science and Engineering
National Institute of Technology
Rourkela-769008, Odisha

ABOUT NIT ROURKELA

National Institute of Technology (NIT) Rourkela is an institution of national importance funded by the Ministry of Education. NIT Rourkela was established as Regional Engineering College (REC) on August 15, 1961. In India, it was ranked 19 among engineering colleges by the National Institutional Ranking Framework (NIRF) in 2024. For details about the institute please visit us at www.nitrkl.ac.in.

ABOUT DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Department of Computer Science & Engineering, NIT, Rourkela was established in 1982. Since its inception, the Department is under dynamic progress and is able to establish the reputation for imparting quality education both at undergraduate and graduate programmes. The department also offers Ph. D. for regular as well as sponsored candidates. Please visit https://website.nitrkl.ac.in/CS/ to know more about the Department of CSE. The department has well equipped modern laboratories such as Software Engineering, Distributed Object Systems, Information Security & Data Communication, Image Processing & Cluster Computing and Advanced Database Engineering Labs for pursuing research keeping in view of the technological advancement.

TARGET PARTICIPANTS

Students (including under graduate, post graduate and research scholars), Faculties from different disciplines such as computer science, biomechanics, Medicine, biomedical engineering and additionally from industry and healthcare to come out with recent advances in human motion understanding and their applications to healthcare.

IMPORTANT DATES

Registration Starts	December 02, 2024
Registration Ends	February 02, 2025
Maximum Offline Participants (First Come First Serve Basis)	50
Registration Confirmation	February 05, 2025
Course Schedule	February 24- 28, 2025

PREREQUISITES

1. The offline participants may bring their laptop for lab session.
2. Basics of programming language and data structure will be an advantage in this workshop.

TOURIST PLACES NEARBY

Khandadhar Waterfall

Pitamahal Dam

Vedvyas Temple

Mandira Dam

REGISTRATION & FEE PARTICULARS

Registration Fee	
Students	Rs. 1,180/-
Faculty from Academic Institutions	Rs. 2,360/-
Employees from Industry and R&D Organizations	Rs. 3,540/-
Accommodation Charges for Students (Hostel): Rs. 300 + GST = Rs. 336/- **Food charges: Rs. 147/day.**	**Guest house** (Room Tariff (Per Day, 24 Hour Basis) https://guesthouse.nitrkl.ac.in/Users/Tariff.aspx

Registration fees include Registration Kit, Refreshment, Tea and Snacks and 18% GST. (Lodging, boarding, lunch and dinner facility can be availed on separate payment basis and based on availability.)

BANK ACCOUNT DETAILS FOR REGISTRATION

Account Name:	CONTINUING EDUCATION NIT ROURKELA
Account No.:	10138951784
Bank Name	State Bank of India (002109)
Branch:	NIT Rourkela Campus
IFSC Code	SBIN0002109

SCAN TO PAY

REGISTRATION FORM

To complete the online registration, the participants need to fill the google form as given below.
https://forms.gle/mMazQDYC5vT1H5gd6

Patron	Prof. K. Umamaheswar Rao, Director, NIT Rourkela
Chairman	Prof. Bibhudatta Sahoo
Convener	Dr. Anup Nandy & Dr. Ratnakar Dash

Correspondence

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STUDENT COORDINATORS

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