NCNDE
NATIONAL CONSORTIUM FOR NON-DESTRUCTIVE EVALUATION

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CNDE

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

CENTER FOR NON-DESTRUCTIVE EVALUATION

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Training on
AI in NDE: Assisted inspection tools for RT & PAUT

Organized by the
National Consortium for Non-Destructive Evaluation
Collaboration with Dhavani AI

FEBRUARY
9 & 10,
2026

Center for Non-Destructive Evaluation (CNDE)

The Center for Non-Destructive Evaluation (CNDE) was established at the Indian Institute of Technology, Madras (IITM), in April 2001. The CNDE is Asia's leading academic center for Non-Destructive Evaluation (NDE) research and technology translation. The Center focuses on research in Non-Destructive Evaluation, Structural Health Monitoring, and measurements in harsh environments. CNDE has excellent experimental facilities for X-ray, Ultrasound, Infrared (IR) Thermal imaging, Terahertz (THz) imaging, including Micro and Nano Digital Radiography and Computed Tomography system

Mission

Deep-research based non-destructive technologies for improved performance, enhanced safety and increased life for industrial applications and societal well-being.

VISION

To become the world's largest Deep-research and technology translational center in the field of NDE.

National Consortium For Non-Destructive Evaluation (NCNDE)

NCNDE was established in November 2024 under CNDE to promote collaborative research in Nondestructive Imaging & Evaluation, Structural Health Monitoring (SHM), and Online process parameter measurements.

The NCNDE aims to tackle the real-world challenges that stakeholders face in non-destructive evaluation (NDE) and structural health monitoring (SHM) through collaborative research and creating top-tier resources for NDE. The Major benefits of NCNDE to the members are the following

- Collaborative research reduces research costs by allowing multiple parties to share their investments.
- Industry-focused research driven by the management board of the consortium.
- Engaging industries in the early stages of research facilitates the testing of technology in real-world environments.
- Reduction in research cycle time due to inputs at various stages of technology development.
- Accessing cross-industry & cross-platform technologies.
- Likelihood of successfully transitioning to a commercial product.
- Enhanced understanding of risks and regulatory requirements at the project's early stage.
- The members of the consortium are open to recruiting top talent from CNDE.

Dhvani Analytic Intelligence (DAI)

Dhvani AI is a deep-tech startup incubated at IIT Madras, focused on transforming Non-Destructive Evaluation (NDE) through artificial intelligence and digital technologies. Leveraging advanced machine learning, image processing, and domain-specific physics models, Dhvani AI develops tools that assist inspectors, reduce manual subjectivity, and accelerate decision-making in industrial inspection workflows.

At the core of Dhvani AI's mission is the belief that NDE should be faster, smarter, and operator-independent. The company's software platforms provide AI-assisted interpretation of Digital Radiography (RT) and Phased Array Ultrasonics (PAUT), helping users automatically detect defects, evaluate image-quality metrics, and generate standardized reports. These tools are designed to support real-world field conditions and comply with leading standards such as ISO, ASTM, and ASME.

Program Overview

Artificial Intelligence (AI) is rapidly transforming the field of Non-Destructive Evaluation (NDE). This two-day hands-on training program focuses on the application of AI-assisted inspection tools for Radiographic Testing (RT) and Phased Array Ultrasonic Testing (PAUT), combining strong fundamentals with real-world practical exposure.

Participants will gain insight into how AI enhances defect detection, interpretation consistency, inspection efficiency, and decision-making in NDE.

Key Learning Objectives

- Understand the fundamentals of Digital Radiography (DR) and PAUT
- Learn key image quality metrics, systems, and applicable standards
- Gain basic knowledge of AI, Machine Learning, and Deep Learning for NDE
- Perform hands-on inspection using AI-assisted RT and PAUT tools
- Compare conventional vs AI-assisted inspection workflows
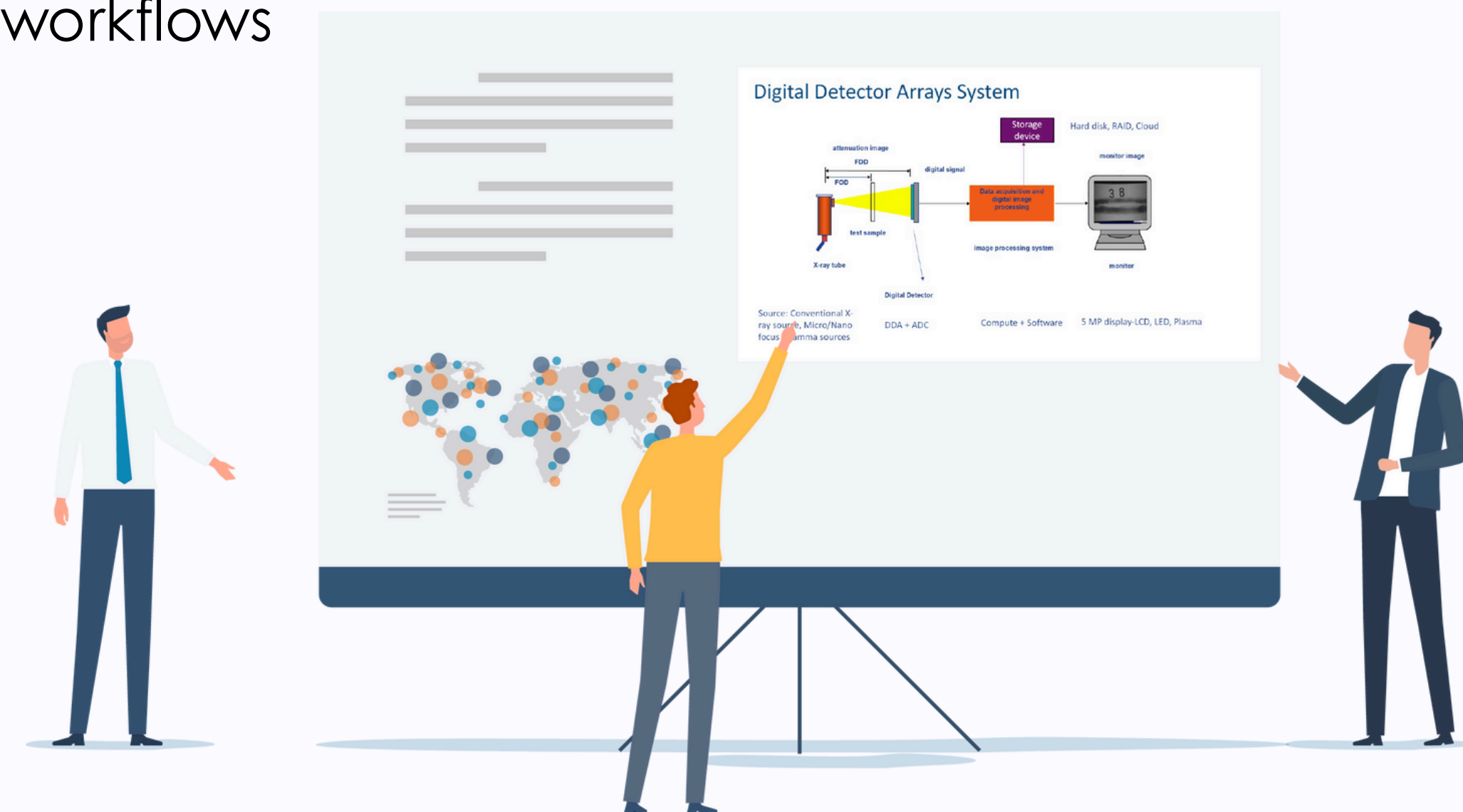
Trainers

Prof. Krishnan Balasubramanian
Professor In-Charge, GDC;
Professor of Mechanical Engineering,
Head of Centre for Nondestructive
Evaluation (CNDE), IIT Madras

Prof. Krishnan Balasubramaniam is a distinguished expert in Non-Destructive Evaluation with over 25 years of experience in maintenance, quality assurance, manufacturing, and design. His research interests include intelligent manufacturing, in-process monitoring, structural health monitoring, applied data analysis, and AI-assisted inspection for Radiography and PAUT. He has authored over 500 technical publications, guided numerous PhD and MS scholars, led major sponsored research projects, and serves on the editorial boards of leading international NDE journals.

Venugopal Manoharan is the CEO of the Centre for Nondestructive Evaluation (CNDE), IIT Madras, with over 35 years of experience in NDE research, system development, and industrial applications. He has held senior roles at GE Research, VisiConsult (as Principal Technologist), BARC, and IGCAR, specializing in digital radiography, X-ray and CT technologies, and radiological safety.
A recipient of the National NDT Award and ISNT Fellowship, he holds ASNT Level III certification in multiple NDE methods, has 12+ patents and 30 technical publications, and currently serves as Chief Controller of Examinations at ISNT.

Venugopal Manoharan
CEO of CNDE ,
Indian Institute of Technology -Madras.

CHITTATHUR SRINIVASAN

Advisor of CNDE ,
Indian Institute of Technology -Madras.

Mr. Chittathur Srinivasan has over 35 years of extensive experience in inspection and quality assurance across manufacturing, pressure vessels, heavy equipment, and the hydrocarbon industry. He has held senior overseas roles as Inspection Head and Senior API Inspector, leading NDT, heat treatment, and shutdown inspection services across major petrochemical and refinery complexes in the Gulf region.He has successfully handled more than 75 plant shutdowns, with expertise in repair and replacement recommendations, remaining life assessment (RLA) calculations, and comprehensive inspection reporting for management decision-making.

Rini PL is a Post-Doctoral Researcher (AI) at the CNDE Lab, IIT Madras, with doctoral research in Artificial Intelligence focused on multimodal behavioral analytics for early dementia diagnosis. She brings over five years of industrial experience and holds a B.Tech in Information Technology and an M.E. in Computer Science from Anna University. At CNDE, she explores the convergence of AI and advanced imaging, with expertise in computer vision, natural language processing, image processing, and transformer-based deep learning architectures.

Rini PL

Post-Doctoral Researcher at CNDE ,
Indian Institute of Technology -Madras.

Padma P

Technical Director
DhvaniAI

Padma P is an engineering graduate with 35+ years of experience in antenna design, aerospace R&D software, and NDE technologies. She has worked on VHF/UHF antennas, radar propagation, and diffraction-based antenna modeling, and led aerospace software development at Safran Aerospace India. Former Technical Director at Dhvani R&D, currently Technical Director at Dhvani Analytic Intelligence (DAI). Her work focuses on ultrasonic and X-ray simulation (SIMSONIC, SIMXRAY) and AI-driven Automatic Defect Recognition for weld radiography, PAUT, CT, and casting inspections.

Surekha is a Technical Manager at DhvaniAI with over 15 years of experience in RT & UT, hardware–software integration, and AI-based Automatic Defect Recognition solutions for organizations including Waygate, DRDO, Mazagon Dock, and Reliance. She has previously worked at IIT Madras and the International Maritime College Sohar, Oman. Her interests include data science, predictive modelling, and driving data-driven innovation to improve operational efficiency and business growth.

Surekha

Technical Manager
DhvaniAI

Dr. Siddharth Shankar is the Strategy and Business Head at Dhvani Analytic Intelligence, leading product strategy, go-to-market initiatives, and business development for AI-driven industrial data analytics across radiography, vision, and ultrasonic domains. He holds a PhD in Non-Destructive Testing from IIT Madras, with research on EMAT ultrasonic sensor design and NDT robotics, resulting in multiple publications and a patent in sensor technology. He combines deep expertise in NDT and data analytics with strong business acumen, holding degrees in Mechatronics Engineering (Monash University) and Engineering Project Management (University of Melbourne).

Dr. Siddharth Shankar

Business Head
DhvaniAI

Who can attend:

- NDT experts in Radiographic Testing (RT) and Ultrasonic Testing / PAUT

- NDT Level II and Level III professionals in RT and UT/PAUT

- NDT trainers / tutors seeking to extend their expertise in AI-assisted RT and PAUT

- Technicians working in Digital Radiography (CR & DR) and PAUT systems

- Institutions planning to establish RT and/or PAUT facilities

- Institutions currently using RT and PAUT and transitioning to AI-assisted inspection workflows

- Students and researchers engaged in RT, PAUT, and AI-based NDT research

- AI professionals working on image and signal analysis for RT and PAUT applications

AGENDA

Time	Feb 9, 2026 AI-Assisted Radiographic Testing (RT)	Feb 10, 2026 AI-Assisted Phased Array UT (PAUT)
AI in NDE: Assisted inspection tools for RT & PAUT @ CNDE-IITM, MDS		
09:30 am - 10:00 am	Registration	PAUT fundamentals
10:00 am-11:00 am	Inauguration	PAUT Systems and standards
11:00 am-11:15 am	Tea Break	Tea Break
11:15 am-12:15 pm	Fundamentals of Digital Radiography & Image Quality metrics	PAUT Data Interpretation & Challenges
12:15 am-13:15 pm	Introduction to AI, ML & DL for NDT	AI-Based Pipeline for Defect Detection in PAUT
13:15 pm-14:15 pm	Lunch break	Lunch Break

AI in NDE: Assisted inspection tools for RT & PAUT @ CNDE-IITM, MDS

Time	Feb 9, 2026 AI-Assisted Radiographic Testing (RT)	Feb 10, 2026 AI-Assisted Phased Array UT (PAUT)
14:15 pm-15:15 pm	Relevant standards and codes	Practical Session: AI-Assisted PAUT Inspection (Dhvani Tool)
15:15 pm-16:15 pm	Practical Session: AI-Assisted RT Inspection (Dhvani Tool)	
16:15 pm-16:30 pm	Tea break	Tea break
16:30 pm-17:30 pm	Practical Session: AI-Assisted RT Inspection (Dhvani Tool)	Case Studies, Discussion & Wrap-Up
17:30 pm-18:30 pm		

Registration Process:

Number of Participants allowed: 30
Registration fee: Rs 20,000 + GST

Contact Person for Registration:

Dhanalakshmi. R
Executive Secretary of CNDE, IITM
cnde.in@gmail.com
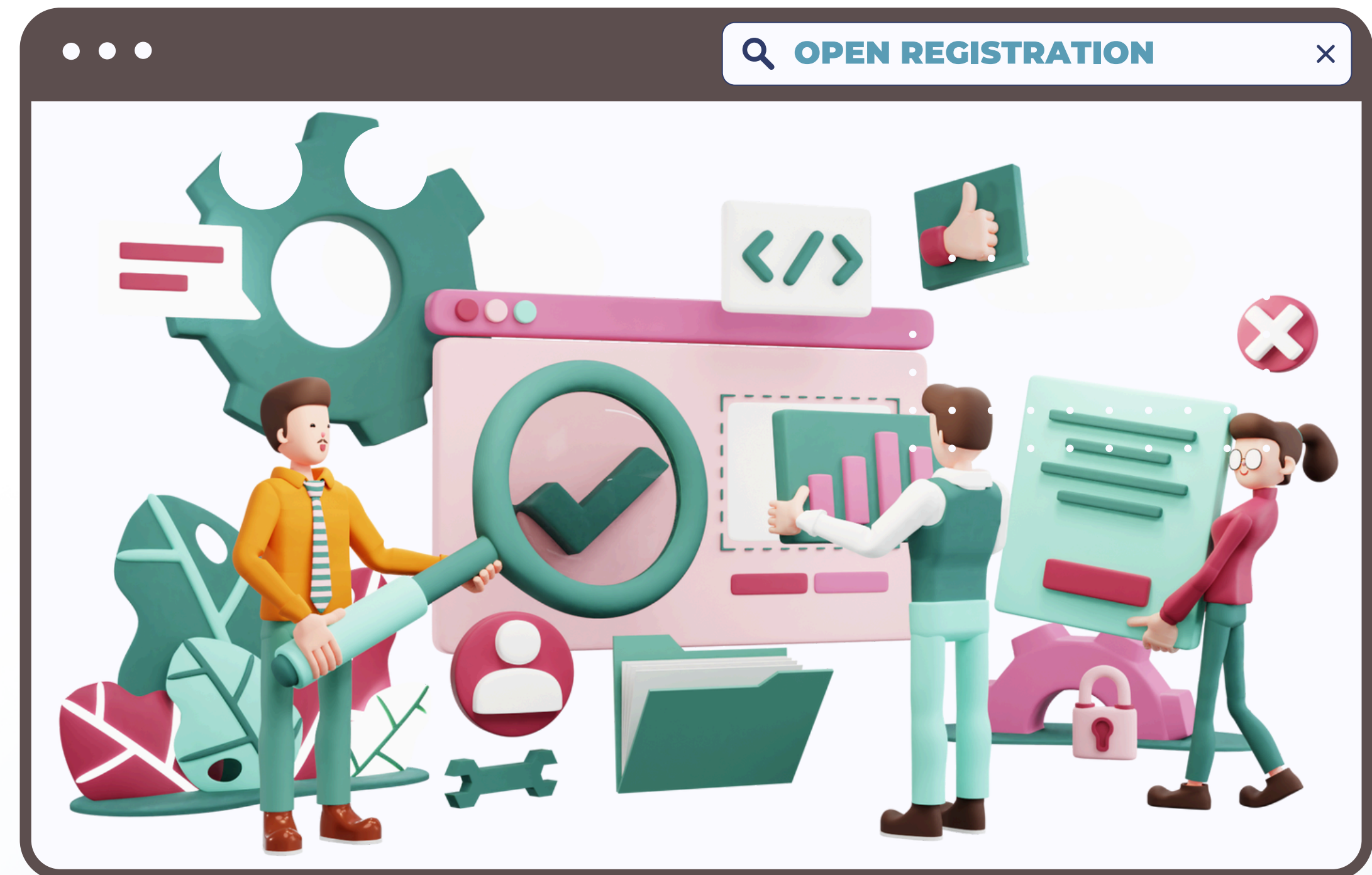
Phone: 044 2257 5688 / 9940908831

If you are interested, register here:

OPEN REGISTRATION

Accommodation

Accommodation can be arranged at the IIT Madras Guest House upon request.
Guests are requested to make direct payment to the Guest House at
the time of stay.

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