FEBRUARY

9 & 10

2026

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 Dhvani AI

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.

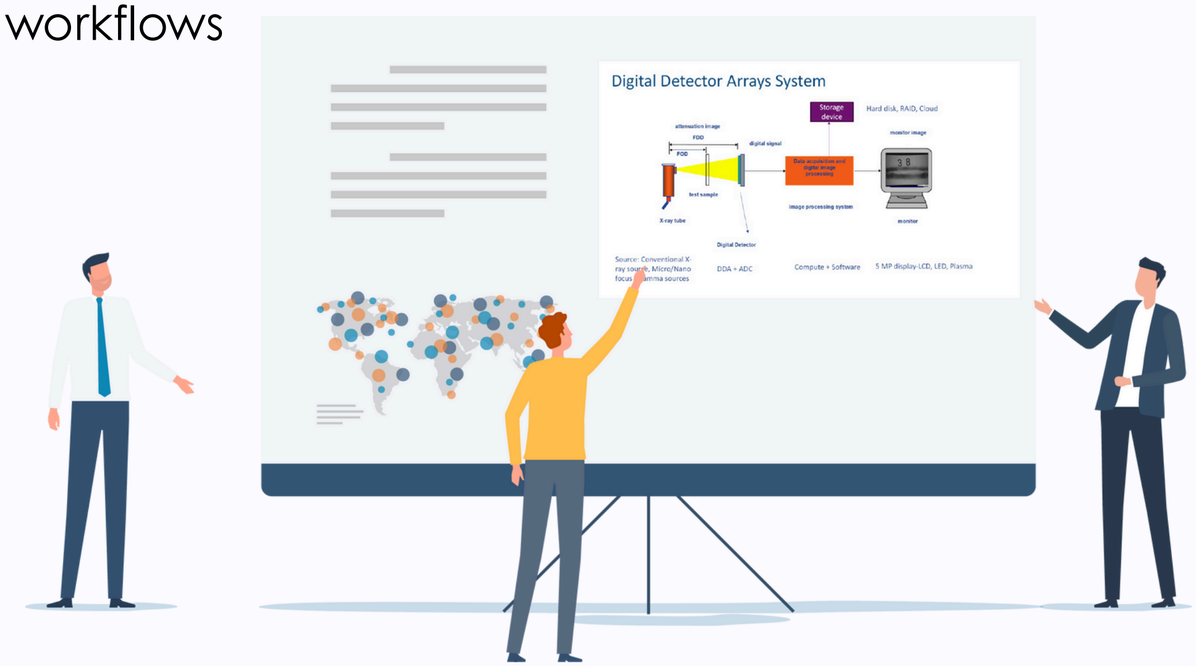
Program Overview

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 Balasubramanian is an internationally recognized leader in Non-Destructive Evaluation and Ultrasonic Engineering, serving as an Institute Chair Professor at IIT Madras and Head of the Centre for Non-Destructive Evaluation. With 25+ years of experience, his work spans ultrasonics, wave propagation, structural health monitoring, intelligent manufacturing, and AI-assisted inspection for Radiography and PAUT, impacting aerospace, manufacturing, and infrastructure sectors. He has authored over 500 technical publications, led major sponsored research programs, mentored numerous PhD and MS scholars, and serves on the editorial boards of leading international NDE journals. His work has had significant translational impact across aerospace, manufacturing, energy, and infrastructure sectors, strengthening the adoption of advanced NDE and AI-enabled inspection technologies in real-world applications.

Mr. Venugopal Manoharan is the CEO of CNDE, IIT Madras, with 35+ years of experience in Radiographic Testing (RT) and advanced X-ray based NDE systems. He has led the development and industrial deployment of digital radiography, X-ray CT, and automated RT inspection solutions across aerospace, nuclear, and manufacturing sectors. An ASNT Level III certified professional, he brings deep expertise in RT image quality, interpretation, radiological safety, and inspection reliability. Actively involved in RT and PAUT training, certification, and competency development, he has shaped national-level NDT education and standards. A National NDT Award recipient and ISNT Fellow, he currently serves as Chief Controller of Examinations at ISNT, mentoring the next generation of NDT professionals.

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 5 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. She serves as an active reviewer for leading international journals published by Elsevier and Baishideng Publishing Group (BPG).

Rini PL

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

Padma Purushothaman

Technical Director
DhvaniAI

Padma P is an Engineering Graduate with 35+ years of experience in antenna design (VHF/UHF), aerospace R&D software, and X-ray & ultrasonic simulation. Led advanced electromagnetic and CFD-based software development, including radar propagation, aircraft-mounted antenna radiation analysis, and aero-engine post-processing. Former Group Head (R&D Software) at Safran Aerospace India, driving design optimization and CFD analytics. Technical Director at Dhvani R&D / Dhvani Analytic Intelligence, leading AI-driven Automatic Defect Recognition solutions for weld radiography, PAUT, CT, and industrial casting inspection.

Surekha Kuppili

Technical Manager
DhvaniAI

Surekha is a Technical Manager at DhvaniAI with 15+ years of experience in Radiographic and Ultrasonic Testing (RT/UT) and hardware–software integration. Architect and lead developer of AI-based Automatic Defect Recognition systems for Waygate, Mazagon Dock, DRDO, and Reliance. Proven expertise in translating NDT data into intelligent inspection solutions using machine learning and computer vision. Former Project Officer at IIT Madras with international academic experience at the International Maritime College, Sohar, Oman. Strong background in data science, predictive modeling, and data-driven strategy, driving innovation and operational efficiency.

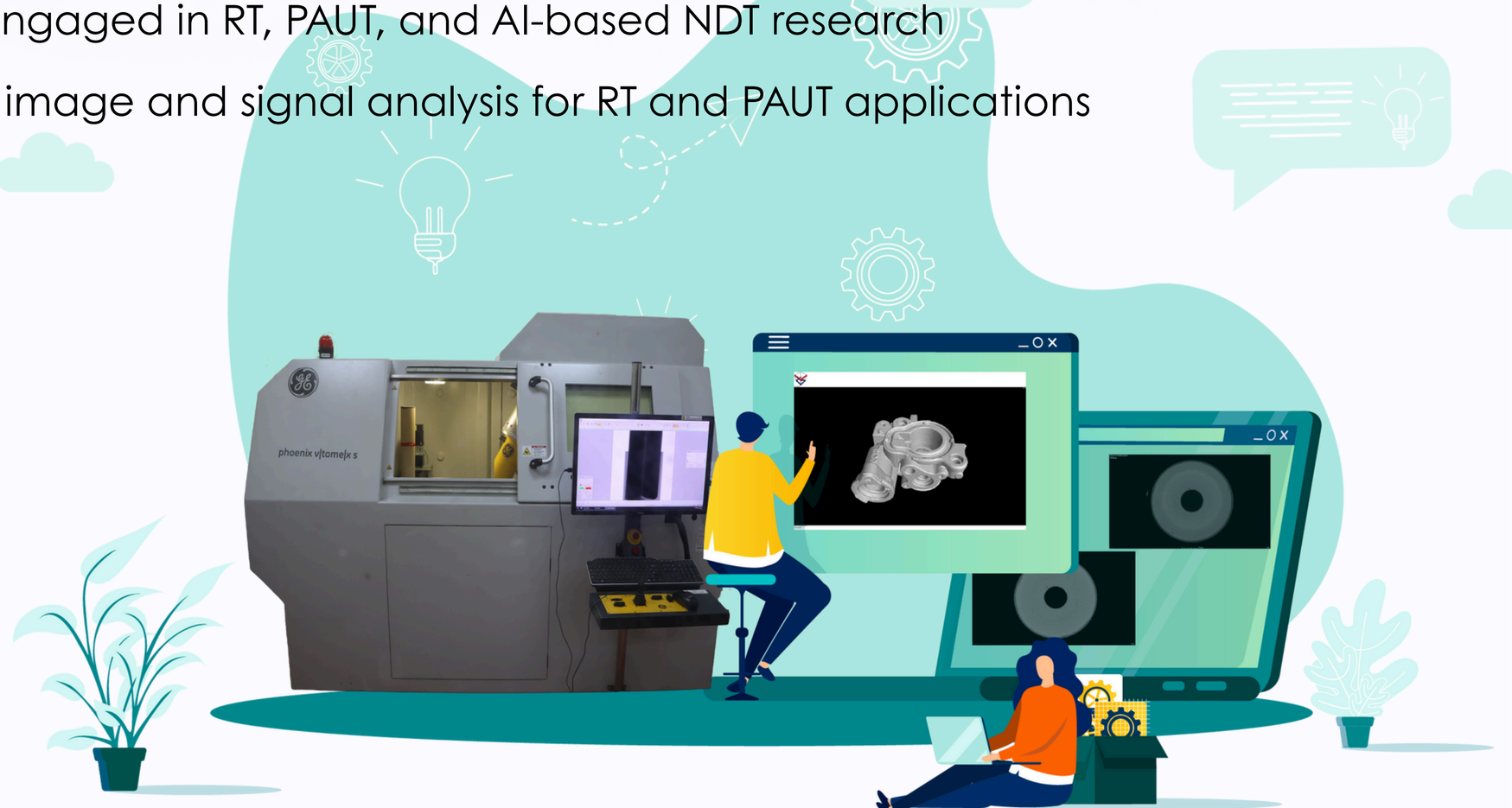
Dr. Siddharth Shankar is the Strategy and Business Head at Dhvani Analytic Intelligence, leading product strategy, go-to-market initiatives, and business development for AI-driven industrial data analytics across radiography, vision, and ultrasonic domains. He holds a PhD in Non-Destructive Testing from 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

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)**
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:

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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