## Startup Recognition: Folium Sensing, 12th Startup from CNDE Lab.



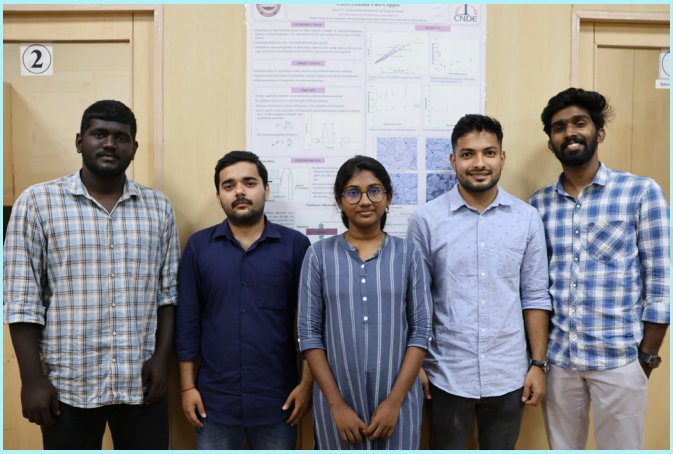
We're proud to spotlight Folium Sensing Pvt Ltd, a Pravartak IITM-RP and CNDE-incubated startup from IIT Madras that is redefining infrastructure monitoring through its advanced multi-modal distributed fiber optic sensing solutions (DAS, DTS, DSS). Their technology enables real-time analytics for predictive maintenance, intrusion detection, and asset protection across energy, defense, transportation, and smart city applications. Backed by multiple Centres of Excellence at IIT Madras, Folium holds a proprietary Indian patent and has already secured high-impact pilots with GAIL, TDK Japan, Forbes Marshall, TATA Steels, DRDO, BEL, and the Indian Army. Recently, Folium was featured in The Times of India as part of IITM Pravartak's initiative to bridge academic research and market innovation, highlighting their role among 40+ incubated startups that have collectively raised ₹300+ crore. Further adding to their accolades,

Folium won 1st place nationally at the Google Cloud FutureX competition, emerging as South India's top start-up and outperforming premier institutions including IIT Bombay in the final round. Represented by co-founder Sanidhya Chaturvedi at Google HQ, the victory stands as a testament to the team's excellence and CNDE's mission to translate world-class research into national impact. Folium is co-founded by Prof. Krishnan Balasubramanian, Prof. Balaji Srinivasan, Venkatesh Vardhan (CTO), and Sanidhya Chaturvedi (COO), with strong support from IIT Madras and CNDE's deep-tech ecosystem.

## NIT Trichy's Brightest Minds Join CNDE's Summer Program

*A Launchpad for Future NDE Leaders*

This summer, CNDE has the pleasure of hosting five exceptional Master's students from NIT Trichy's prestigious Non-Destructive Testing program. Priyanka Murugesan, Rahul Singh Pokhariya, Lathin Nagabattula, Karthik M., and Pawan Kumar Pandey represent the next generation of NDE specialists, and they're already making their mark in our labs.



What makes this internship special isn't just the advanced equipment they're using, though working with our computed tomography scanners and terahertz imaging systems is certainly exciting. It's the real-world problems they're tackling developing AI-assisted analysis for battery CT scans that could revolutionize energy storage safety, pioneering muon tomography techniques that might one day help inspect aging bridges and dams and creating smart water monitoring systems that detect contaminants faster than traditional methods.

These students aren't just learning, they're contributing to projects that could shape India's infrastructure future.

## Srijan Tiwari Takes CNDE's NDE 4.0 Vision to the World Stage, Berlin

*From CNDE Research to Global Recognition*


We’re proud to share that Srijan Tiwari, Research Scholar at CNDE and Co-founder of TIQ World, recently represented IIT Madras and India at the prestigious DGZfP Annual Conference in Berlin, one of the foremost global platforms for Non-Destructive Testing (NDT) innovation. As the only Indian presenter, he delivered a talk on the digitalisation of NDT within the framework of NDE 4.0, focusing on AI-powered knowledge retrieval, intelligent inspection systems, and the integration of contextual data for smarter decision-making. His presentation reflected the core vision of TIQ World—an all-in-one platform for inspection, training, and quality management—aimed at bridging critical gaps in global NDE workflows through technology, automation, and digital traceability. This milestone highlights CNDE’s commitment to advancing next-generation NDT research and India’s growing leadership in the global inspection ecosystem.

## Celebrating Prof. Rajagopal's Prestigious Fellowship Achievement

*Honoring Excellence in Socially Impactful Engineering*

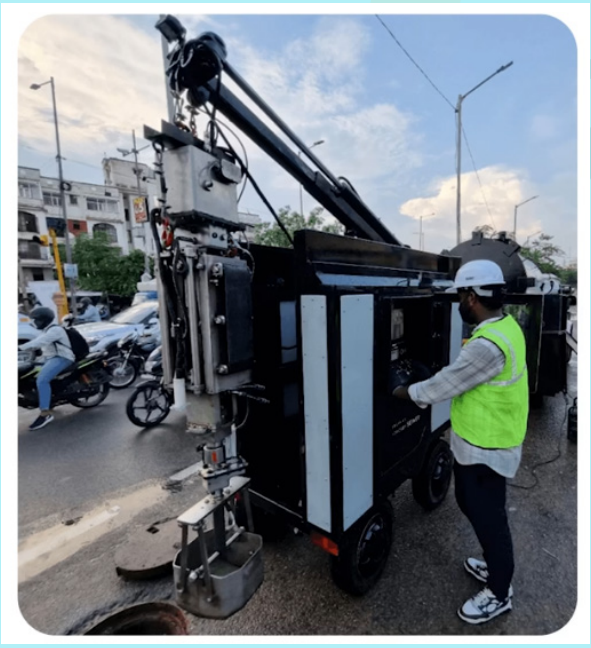
We are thrilled to announce that Prof. Prabhu Rajagopal of Mechanical Engineering has been honored with the distinguished Mukta Pai Faculty Fellowship. This esteemed recognition celebrates his outstanding contributions that uniquely blend technical expertise with profound social relevance.

Prof. Rajagopal's pioneering work includes developing HomoSEP, an innovative robotic system transforming sanitation safety, and BlockTrack, a secure digital platform revolutionizing healthcare record management. These projects exemplify his commitment to engineering solutions that address pressing societal challenges. This fellowship highlights the exceptional caliber of faculty at IIT Madras who are redefining engineering's role in creating meaningful change. It recognizes not just academic excellence, but the tangible difference research can make in people's lives.

Join us in applauding this remarkable accomplishment that inspires both students and colleagues alike.

## Solinas Integrity: Robotic Solutions Transforming India's Sanitation Landscape

*Engineering Innovation for Social Impact*



Prof. Prabhu Rajagopal highlights the remarkable field implementation of HomoSEP robotic technology, now enhanced under Moinak Banerjee's technical leadership at Solinas Integrity. This CNDE-born innovation addresses India's critical sanitation challenges through advanced robotic systems capable of navigating complex sewer networks while performing comprehensive cleaning and inspection.

The technology's real-world impact has garnered significant recognition, including support from the Department of Science and Technology and alignment with Swachh Bharat Mission objectives. Founders Divanshu Kumar and Moinak Banerjee have demonstrated how academic research can evolve into scalable solutions that improve both infrastructure and worker safety across the nation. Featured in The Climate Conversations, Solinas Integrity's work exemplifies the powerful potential of translational engineering to address systemic societal challenges.

## CNDE Invites Applications for Postdoctoral Fellowships in X-Ray Imaging Technologies

*Join Our Cutting-Edge Non-Destructive Evaluation Team*

The Center for Non-Destructive Evaluation at IIT Madras is currently seeking qualified candidates for post-doctoral research positions specializing in advanced X-ray imaging systems. We encourage applications from doctoral graduates in physics, engineering, or mathematical sciences with expertise in computed tomography, X-ray detector development, or related computational imaging fields.

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Interested candidates are invited to submit their detailed resumes to ceo@cnde.in for consideration. This position offers exceptional potential for professional growth within one of India's premier academic research environments.

## XYMA Analytics Wins Top Innovation Honor at Southeast Asia Summit

*Global Recognition for Cutting-Edge Solutions*

We're proud to announce that XYMA Analytics has secured first prize in the Innovation Category's 60-second pitch competition at the prestigious GATES Enterprise Channel Summit. The event, held July 3-5 in Bali, Indonesia, brought together leading technology innovators from across Southeast Asia.



Selected through audience and vendor voting from eight competing teams, this achievement highlights XYMA's commitment to developing transformative analytical solutions, the award recognizes both the technical excellence and compelling presentation of our innovative approach.

This international accolade underscores the global relevance of XYMA's work and the strong research foundation provided by CNDE at IIT Madras. We extend our gratitude to the summit organizers and all supporters who contributed to this success.

## CNDE Faculty Honored as Chief Guest at Premier Engineering Competition

*Celebrating Leadership in Automotive Innovation*

We are delighted to announce that Prof. Krishnan Balasubramanian, esteemed Chair Professor at IIT Madras and senior faculty member of CNDE, served as the distinguished Chief Guest for the BAJA SAEINDIA 2026 Virtual Round inauguration on July 18, 2025.



This prestigious student engineering competition, hosted by Sri Sairam Engineering College in collaboration with SAEINDIA, challenges participants to design and develop advanced All-Terrain Vehicles. Prof. Balasubramanian's participation highlights CNDE's dedication to nurturing next-generation engineering talent and promoting cutting-edge automotive research.

The virtual event brought together India's brightest engineering minds to showcase innovative vehicle designs and endurance capabilities. We commend the organizers for creating this exceptional platform that bridges academic learning with real-world engineering challenges.

## Visioning India's Tech-Driven Future at CII Yi Summit 2025

*Bridging Innovation and National Transformation*

The recent CII YiFi Entrepreneurship Summit 2025 convened leading thinkers to chart India's technological trajectory toward 2030. This pivotal discussion examined how deep-tech innovation and digital transformation can propel India's emergence as a global technology leader while fostering inclusive growth.

Distinguished panelists including Prof. Prabhu Rajagopal (IIT Madras) and Srinath Ravichandran (Agnikul Cosmos) explored critical themes, scaling innovation from research labs to real-world impact, empowering entrepreneurs beyond metropolitan hubs, and positioning India at the forefront of technological advancement.



Skillfully moderated by Pradeep Chenthilkumar of Young Indians, the session highlighted practical pathways for building a self-reliant, technologically empowered nation that creates solutions for both domestic challenges and global markets.

## Prof. Rajagopal Explores Entrepreneurship Education at IIT Bombay

*Bridging Innovation and National Transformation*

Prof. Prabhu Rajagopal recently visited IIT Bombay's Desai Sethi School of Entrepreneurship for insightful discussions on teaching entrepreneurship methodologies. During the visit, he engaged with faculty members including Prof. Trupti Mishra and Prof. Sankalp Pratap, exchanging perspectives on developing effective entrepreneurship curricula.

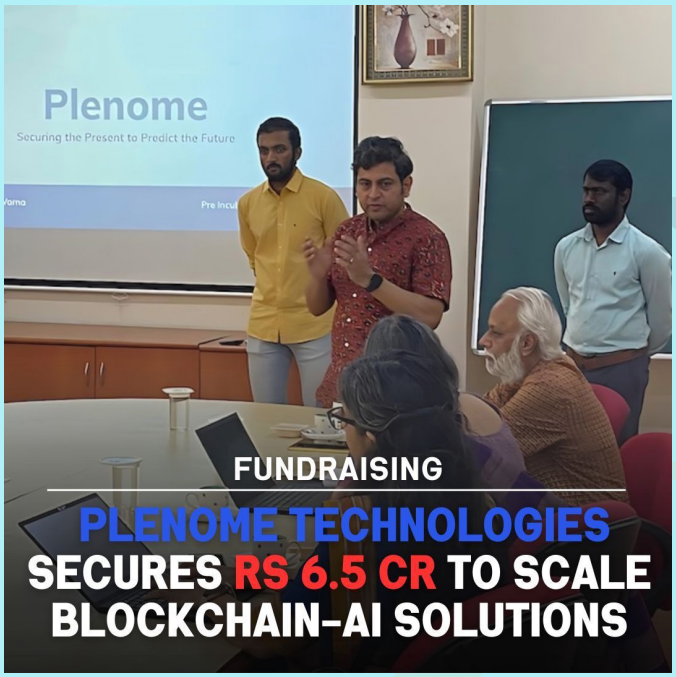

The dialogue yielded concrete plans for collaboration between IIT Madras and IIT Bombay, including joint research initiatives, academic conferences, and student exchange programs. Dr. Ramesh Kuruva, IITM alumnus and former CEO of YNOS Venture Engine, contributed valuable industry insights to these discussions.

Later, Prof. Rajagopal participated in a CII Young Indians forum alongside Agnikul Cosmos co-founder Srinath Ravichandran, where they highlighted institutional approaches to nurturing innovation ecosystems. The event brought together academic and industry leaders to examine best practices in entrepreneurship development.

## CNDE-IIT Madras Startup Plenome Technologies Secures Major Seed Funding

*Blockchain and AI Innovations Attract Strategic Investment*

The CNDE-IIT Madras ecosystem celebrates a significant achievement as incubated startup Plenome Technologies successfully raises ₹6.5 crore in seed funding. The investment round, led by Ovington Capital Partners, will accelerate the company's mission to revolutionize secure digital infrastructure through cutting-edge blockchain and AI solutions.





Founded by Prof. Prabhu Rajagopal with researchers Vijayaraja Rathinasamy and Anirudh Varna, Plenome is making waves with its transformative products. Their BlockTrack OrganEase system brings transparency to organ transplant management, while BlockVote's secure voting platform has already demonstrated success at IIT Madras. The team's Ashwin health suite similarly shows promise in dental diagnostics, with plans for broader medical applications.

This funding milestone underscores the growing impact of CNDE's innovation ecosystem in developing technologies that address critical global challenges in data security and healthcare management.

## Digital Innovation Takes Center Stage at CII Corrosion Conference

*Industry 4.0 Solutions for Smarter Asset Management*

The recent CII International Conference on Corrosion Technology in Chennai featured a pivotal session examining digital transformation in corrosion prevention. Moderated by Reliance Industries' Amish Jani, experts explored how emerging technologies are revolutionizing infrastructure maintenance.

IIT Madras' Dr. Krishnan Balasubramanian emphasized the need for customized Industry 4.0 approaches that account for regional environmental factors. Corrosion Intel's Ashutosh Kumar presented practical frameworks for implementing AI solutions, while Emerson's Matthew Harris (UK) addressed adoption challenges through collaborative tool development.


Key insights highlighted the critical intersection of quality data, domain expertise, and user-friendly interfaces in developing effective corrosion monitoring systems. The discussion underscored how digital tools can extend asset lifespans across energy, oil & gas, and infrastructure sectors when properly implemented.

## Advancing NDE Through AI and Ultrasonic Innovation

*CNDE Hosts Cutting-Edge Research Seminar*

CNDE recently welcomed Dr. Abhishek Saini for an enlightening seminar on the transformative integration of ultrasonic NDE with artificial intelligence. The session showcased groundbreaking imaging methodologies including half-skip total focusing (HSTFM) and reverse time migration techniques, demonstrating their enhanced defect detection capabilities when combined with AI-driven time-of-flight prediction.

Dr. Saini's presentation highlighted applications across nuclear, aerospace, and energy sectors, emphasizing how these advanced approaches enable more precise material characterization in complex components. The discussion also explored emerging frontiers like acoustic metamaterials and non-destructive thermal analysis, pointing toward a future of automated, sustainable inspection systems.

This seminar reinforced CNDE's position at the forefront of smart inspection technologies, offering researchers valuable insights into next-generation NDE solutions for critical industrial applications.

## Professors and HOD from REC, Chennai Explores NDT Innovations at CNDE

*Fostering Institutional Collaboration in Non-Destructive Testing*

A distinguished six-member faculty team alongside HODs from Rajalakshmi Engineering College, Chennai recently visited CNDE at IIT Madras to explore cutting-edge NDT research and potential academic partnerships. The delegation, comprising four Electrical Engineering and two Computer Science professors, gained comprehensive exposure to advanced testing methodologies including ultrasonic inspection, eddy current analysis, and thermal imaging systems. The visit was brilliantly lead by our CEO Mr. Venugopal and Mr. Srijan Tiwari (Co-founder & Director TIQWorld) from our CNDE Lab as he gave an insightful session at REC in the month of April.

The visit facilitated detailed discussions about student internship opportunities and collaborative research prospects in hardware testing and condition monitoring applications. Participants examined how these non-destructive evaluation techniques bridge electrical and computational engineering disciplines under guidance of our Post Doc Mr. Krishnadas, with particular relevance to modern industrial challenges.

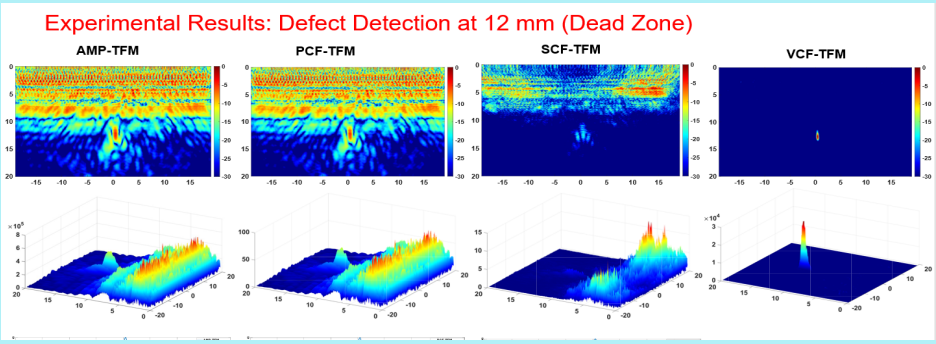
This academic exchange underscores CNDE's commitment to knowledge sharing and institutional partnerships that advance NDT education and research capabilities across India's engineering institutions.

## MS Scholar - Mr. Kaushal Bacchav, Advancing Guided Wave Ultrasonic Imaging at CNDE, IIT Madras

Kaushal Bachhav, an M.S. researcher at the Centre for Non-Destructive Evaluation (CNDE), IIT Madras, is working on enhancing guided wave ultrasonic imaging techniques for evaluating thin-walled structures. His research leverages Lamb wave propagation and Full Matrix Capture (FMC) data, using the Total Focusing Method (TFM) as a baseline.

To improve image quality and defect detection, he introduces advanced coherence-based weighting strategies—including the Phase Coherence Factor (PCF), Sign Coherence Factor (SCF), and the Vector Coherence Factor (VCF). These methods significantly boost image resolution, reduce side-lobe artifacts, and enhance defect visibility, particularly in challenging “dead-zone” regions.

The newly proposed VCF-TFM technique delivers up to 1100% enhancement in Signal-to-Noise Ratio (SNR) compared to conventional approaches, ensuring superior resolution and artifact suppression. This research addresses core challenges in dispersive Lamb wave imaging, offering a robust, coherence-driven framework for practical structural health monitoring using advanced phased array systems.



## Special Section: Our Scholars Beyond Research Lab

Srijan Tiwari, Entrepreneurial Research Scholar at CNDE and Co-founder & Director of TIQWorld Pvt Ltd (14th Startup from CNDE Ecosystem), was among the 40 innovators and entrepreneurs globally selected to participate in the 6th International Summer School on Knowledge-Driven Innovation and Entrepreneurship at the University of Luxembourg Incubator at Marienthal, Luxembourg. Notably, TIQWorld was the only startup from an Indian university to be represented.

The program, led by Prof. Ted Zoller, offered a deep dive into the 6M framework—Meaning, Model, Market, Money, Management, and Milestones, providing actionable strategies to turn ideas into scalable ventures. Srijan's participation strengthened the vision for TIQWorld, which is incubated at IITM Incubation Cell, IIT Madras Research Park, as it works to build a digital ecosystem for NDT and manufacturing quality management.

His experience highlights CNDE's rising influence in the global entrepreneurial ecosystem and reflects the lab's growing culture of fostering deep-tech startups.

**** The End ****