



**PU-IIT Regional Accelerator for Holistic Innovations Foundation**  
**Northern Region Science and Technology Cluster**  
*An initiative of the O/o the Principal Scientific Advisor, Govt. of India*

# PI-RAHI FOUNDATION

## NEWSLETTER

### About PI-RAHI

The Northern Region Science & Technology Cluster has been established by Panjab University, Chandigarh (PU) & Indian Institute of Technology, Ropar (IIT-Ropar) under the initiative of O/o PSA, GOI. The S&T cluster is a Section-8 Company (non-profit organization) that aims to connect knowledge producers with knowledge consumers and end-users to enhance the regional industrial base's overall competitiveness, research, and innovation intensity, and resource utilization at par with the global industry.

- This is the first regional S&T cluster by the government of India and will take care of the **Punjab, Haryana, and Himachal Pradesh** states, and **J&K and Chandigarh UT's**



**Innovate**  
Driving cutting-edge research and development through robust collaborations with academic institutions, industries, and government bodies, fostering a region-wide culture of innovation that addresses pressing challenges.

**Empower**  
Building a strong entrepreneurial ecosystem by offering resources, mentorship, and funding opportunities to startups and innovators, enabling transformative ideas to thrive and contribute to sustainable growth.

**Accelerate**  
Advocating for progressive policies and strategic partnerships that create a conducive environment for scientific advancements and socio-economic development, positioning the region as a hub for technology-driven solutions with global impact.

- THEMATIC AREAS**
- Agriculture & Food Processing
  - Waste Management & Wealth from Waste
  - Indigenous Technology Development & Optimization
  - Pharma / Healthcare & Medical Devices
  - Sustainable Mobility & Green Energy



# What we do

## Driving Innovations



### Incubation and Acceleration

We assist emerging businesses in gaining access to mentors, training, shared space, professional assistance, funding, and other services that will propel them to success



### Funding

We provide funding for startups through our initiatives, our corpus, and funds from corporate and institutional partners. These funds vary from the stage of the startup and their technology readiness level



### Successful Partnerships

Forge collaborations between academia, industry, and government to drive research, innovation, and technology transfer



### Capacity Building:

Provide training, education, and workforce development initiatives to cultivate talent and skills in science, technology, and entrepreneurship.



### Policy Advocacy:

Advocate for policies that promote research, innovation, and economic development at local, regional, and national levels.

# Two-day workshop on "Transforming Tomorrow: Artificial Intelligence for Sustainable Agriculture, Health, and Ecosystem Resilience"

PI-RAHI conducted a two-day workshop on "Transforming Tomorrow: Artificial Intelligence for Sustainable Agriculture, Health, and Ecosystem Resilience" at the Sophisticated Analytical Instrumentation Facility (SAIF)/CIL, Panjab University, Chandigarh. The event, supported by the Department of Science and Technology and renewable energy and TIF-AWaDH, brought together experts to discuss the transformative potential of artificial intelligence (AI) in addressing critical challenges in agriculture, healthcare, and sustainability.

## Key Highlights

**Dr. Akhilesh Gupta's Address:** Dr. Akhilesh Gupta, Retd. Secretary, Science and Engineering Research Board (SERB), emphasized the importance of building a value chain connecting agriculture, water, and health, with centralization of data being a crucial step in healthcare.

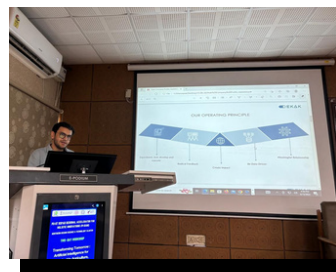
**SHINE Initiative:** PI-RAHI unveiled the SHINE – SKILL, HARVEST, INNOVATE, NETWORK AND EARN Initiative, which aims to empower the S&T ecosystem by engaging young professionals.

## Expert Talks:

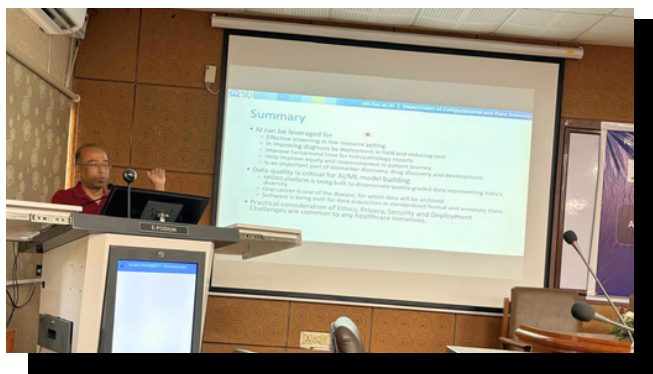
- **Dr. Poonam Saini** presented on the evolution of AI and data science and engineering, highlighting the need for responsive AI.
- **Dr. Amit Kumar** discussed AI-based high-resolution remote sensing for commercially important medicinal and aromatic crops of the Himalayas.
- **Prof. Moni Madaswamy** shared insights on the evolving landscape of informatics and its impact on agriculture.

**Panel Discussion:** A dynamic panel on "AgriTech Revolution: The Impact of AI on Farming Practices" featured experts from various institutions, including Plaksha University, IIT Ropar, and STPI NEURON.

**Founder Talks:** Founders from Agrimatrix Pvt. Ltd. and Ekak Innovations shared their visions and experiences.







## Day 2 Highlights

### Virtual Session:

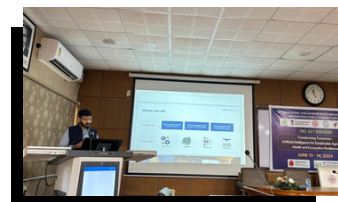
**Anvita G.**, CEO of AINovo Biotech at Stanford University, discussed the revolutionary impact of generative AI on diagnostics and drug discovery for cancer and infectious diseases.

### Expert Talks:

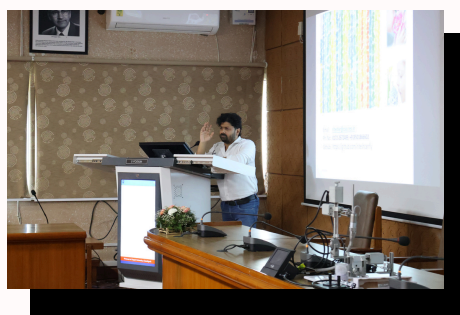
- Prof. **Debnath Pal** presented a case study on oral cancer and the AI model MIDAS.
- Dr. **Bhaskar Rajakumar** discussed AI's role in tackling dengue and collaborative efforts.
- Dr. **Nihar Desai** presented on NLP and LLM applications in public healthcare.
- Dr. **Suresh K. Sharma** shared insights on advanced statistical techniques in AI.
- Dr. **Mona Duggal** highlighted AI's role in screening diabetic retinopathy.
- Dr. **Sanjay Sood** spoke about eSanjeevani's AI-driven healthcare delivery model.
- Dr. **Rajnish Kumar** presented on AI's potential in healthcare.

### Founder Talk:

-**Parminder Singh**, Co-founder of ZippiAi, shared his vision and experiences.



## Three Day Pre-conference Workshop “Advanced Techniques in Molecular Neurobiology”



Dr. Ritesh Kumar, Principal Scientist, CSIR-CSIO, Chandigarh talked about how deep learning methods are crucial for understanding olfaction model and the neural circuits involved in processing odors, helping to predict sensory responses to various molecules. He further added how these techniques provide insights into the relation of molecular structure with olfactory perception. When applied to the restaurant industry, such models could help predict customer preferences for tastes and aromas, allowing restaurant owners to personalize menus and enhance the dining experience based on sensory data.



## PI-RAHI: Northern Region S&T Cluster Grants Rs. 9.5 Lakhs to Scale Up Microbial Hyaluronic Acid from Lab to Markets



The project title- "Towards Commercialization of Microbial Hyaluronic Acid: From TRL 4 to TRL 7" has been awarded financial support of Rs. 9.5 lakhs under the Cluster Phase-1 Call for R&D Proposals.

Led by Principal Investigator **Prince Sharma** and Co-Principal Investigator Prof. **Neena Capalash** from Panjab University, Chandigarh, the initiative aims to optimize the production of hyaluronic acid, a compound widely used in pharmaceuticals and cosmetics, with the goal of scaling from lab-scale production to commercial viability. Supported by **Invigorate Biotechnologies LLP**, the initiative will span six months, driving commercialization efforts

Prof. Prince Sharma has an established history of successful technology transfers, having collaborated with companies such as New England Biolabs (USA) and Cadila Pharmaceuticals, and is working with multiple industry partners.

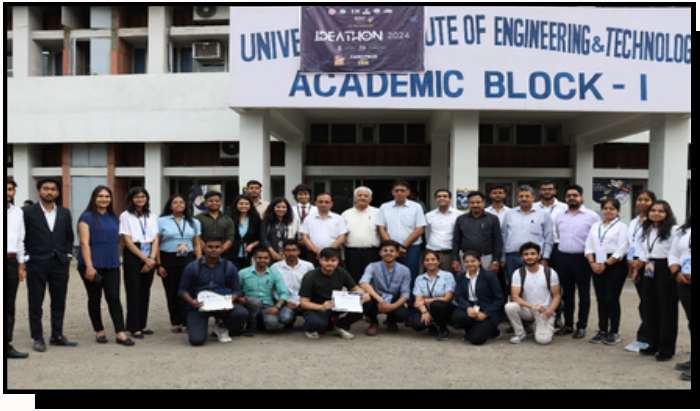
Thematic Area: Pharma / Healthcare & Medical Devices

## Composting of Food Waste of Sabzi-Mandi, Chandigarh using cost-effective technology for the efficient degradation of food and horticulture waste

The project was carried out in collaboration with the Chandigarh Forest Department, which provided forest land for the composting process. The composting was performed in open piles without the use of additional supplements. Within 30 days, rapid degradation took place, with pile temperatures rising to 70-80°C. Steam was observed during the turning and mixing of the piles, with a significant reduction in volume noted after 15 days. By the end of the 30-day period, the waste was fully decomposed, achieving complete degradation.



Thematic Area: Waste Management & Wealth from Waste



PI-RAHI collaborated to conduct an Ideathon at Panjab University which over **65 team registrations and 130 individuals in the 1st round, with 40 teams and 75 members advancing to the 2nd round** . This fostered a culture of entrepreneurship within the community.

The Ideathon focused on cutting-edge solutions across Agro Tech, Health Tech, Sustainable Development, and other emerging technologies. The first prize of ₹5,000 was awarded to Crop-hawk (Ananay, Ayushi) , second prize of ₹3,000 to Prosta Can Detect (Kirti) , and third prize of ₹2,000 to Cit Peels Naturals (Gaurav Rauthan).

## Conducted Ideathon to thrive Entrepreneurship

**Cit Peels Naturals** ,specializes in eco-friendly home cleaning solutions and is incubated at IIT Ropar. Their innovative products are supported by a BIRAC research grant, advancing sustainability.

**Prosta Can Detect** is developing a rapid detection kit for early prostate cancer, offering specificity and speed without the need for lab testing, promising early intervention and reduced biopsy overuse.

**Crop-Hawk** is an AI-powered, open-source platform designed for precision agriculture. It utilizes NDVI satellite data and drones to identify thirsty patches and disease-prone areas in real time. This enables selective irrigation and targeted pesticide application, empowering drone enthusiasts and farmers to implement smart farming techniques without specialized expertise.

## S&T Cluster bridging the gap Between Research and Commercialization

The Office of PSA to the GOI, organized an 'Industry Connect' at Vigyan Bhawan Annexe, New Delhi. This was done in coloration with all the other clusters. Under the chairmanship **Hon'ble PSA to GOI, Prof. Ajay Kumar Sood** , discussed on the role of the ecosystem , and representatives from various industry associations including **FICCI, ASSOCHAM, CII** , **CropLife India, AIMed, Indian Pharmaceuticals Alliance** , **Indian Drugs Manufactures Association, Chemicals & Petrochemicals Manufacturing Association.**

**Dr.(Mrs.) Parvinder Maini** ,Scientific Secretary highlighted the pivotal role clusters can play in ecosystem. **Dr. Vishal Choudhary, Scientist F, O/o PSA** showcased the concept of the cluster .

With immense potential in the STI capabilities in India, this event offered a vital ecosystem for exploring commercialisation opportunities.





## Brainstorming session on “the Agrarian Crisis in Punjab”

PI-RAHI in collaboration with Institute for Development and Communication, Chandigarh and Bharat Krishak Samaj brought together key stakeholders to brainstorm and tackle one of the most pressing issues today – the Agrarian Crisis in Punjab.

Punjab, often hailed as the "Food Basket of India" and the "Granary of India", is critical to India's food security. Yet, despite producing two-thirds of the country's food grains, the state faces mounting challenges tied to income inequality, soil degradation, and water scarcity.

During the brainstorming session, we dove deep into:

1. The nature of the agricultural crisis and its broader regional, national, and global implications.
2. The potential of crop diversification to address these issues.
3. Why crop diversification hasn't been successfully implemented since 1986.
4. Alternatives to crop diversification and the impact on soil nutrients and carbon emissions.



## Crafting success business plan: Unleashing innovation for ToT and Technopreneurship

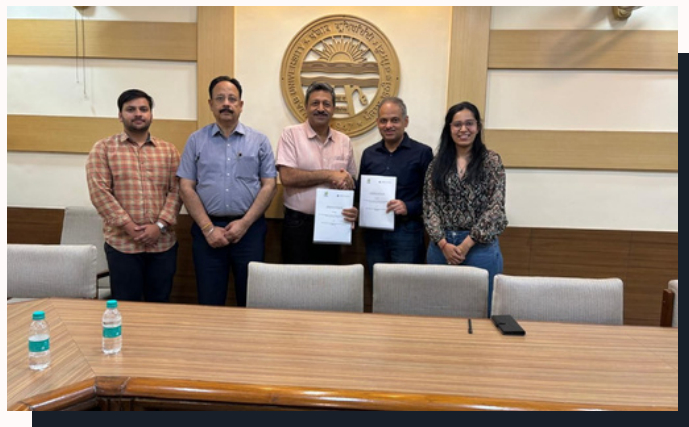


This workshop, which showcased the participation of 35 faculty members and researchers from Panjab University, aimed to empower patentees to commercialize their patents through licensing or starting a business. It provided insights into addressing industry needs during Technology Transfer (ToT), including raw materials, machinery, investment, ROI, and risks. Participants learnt to create compelling business plans (B-plans) around their patents.

- This workshop is aimed to make patentees capable of commercializing their patents by either licensing it to the Industry or by creating a startup around the patent.
- Provide valuable insights to patentees for fishing answers to the quests of the industry in process of Transfer of Technology (ToT), related to raw material, machinery, Investment, Return on Investment (RoI), risks etc.
- Give valuable insights to the patentees for creating compelling B-plans around their patents.
- Equip a patentee to create a realistic B Plan for creating a startup around a patent, with answers to all questions of an investor to convince them that in business proposal missing ingredient is only fund.



## Innovative Partnership Boosts AI and Robotics in Agriculture and Health



PI-RAHI and AI & Robotics Technology Park (ARTPARK) at IISc Bangalore signed a Memorandum of Understanding (MoU) at Panjab University, Chandigarh. This collaboration aims to enhance research, development, and deployment of AI and robotics technologies in agriculture, health, and ecosystem resilience.

### Key areas of focus include:

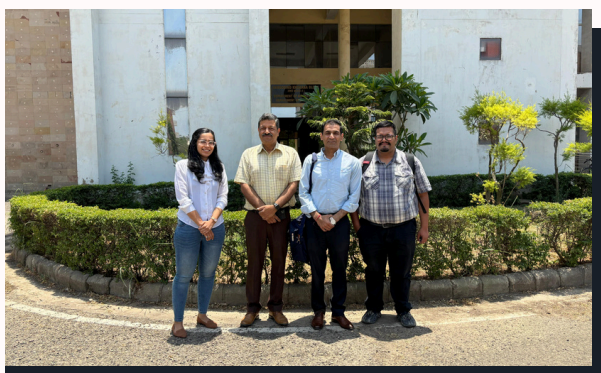
**Agriculture:** Developing AI-powered solutions for precision agriculture, crop monitoring, and yield prediction.

**Healthcare:** Creating AI-driven diagnostic tools, disease surveillance systems, and personalized medicine.

**Ecosystem Resilience:** Implementing AI-powered monitoring systems for climate change, water management, and biodiversity conservation.

The partnership will facilitate collaborative research, startup incubation, skilling programs, and industry collaborations. It is expected to improve healthcare outcomes, increase agricultural productivity, and enhance ecosystem resilience, driving significant advancements in these fields.

## Strengthening the Startup Ecosystem: PI-RAHI Collaborates with Innovation Mission Punjab



### Our Commitment to Innovation and Entrepreneurship

At PI-RAHI, we are dedicated to creating an environment that fosters innovation and supports entrepreneurs in their journey. Our recent discussion with Innovation Mission Punjab highlights our shared commitment to building a vibrant tech community that drives growth and progress.

PI-RAHI (Northern Region Science and Technology Cluster) recently had an insightful discussion with Ashish Mehta and Dhaval Kaku from Innovation Mission Punjab, focusing on identifying potential synergies to nurture and foster the startup ecosystem. This collaboration marks a significant step towards driving innovation, supporting entrepreneurs, and building a thriving tech community in the region.

### The Power of Collaboration

By working together, we can leverage each other's strengths and expertise to create a more robust and supportive ecosystem for startups. This collaboration will enable us to identify and address the unique challenges faced by startups in our region, providing them with the necessary resources and guidance to succeed.

PI-RAHI had the pleasure of engaging in a dynamic and enlightening conversation with **Vijetha Shastry, Associate Director at Standard Chartered**. Our dialogue delved into the critical importance of fostering collaboration and partnerships within the startup ecosystem. Vijetha's enthusiasm for supporting founders, entrepreneurs, and investors perfectly complements PI-RAHI's mission to nurture and empower these innovators. His insights were not only inspiring but also incredibly valuable as we strive to strengthen the support network for startups.



PI-RAHI had meeting that aimed to bridge the gap between research and startup success, **Dr. Rudra Pratap, the Founding Vice Chancellor of Plaksha University**, engaged with representatives from PI-RAHI (Northern Region Science and Technology Cluster) to explore potential collaborative initiatives.

Plaksha University, recognized for its commitment to redefining technology education and research, served as an inspiring venue for these discussions. Participants had the opportunity to witness firsthand the groundbreaking work being conducted at the university, highlighting its role as a catalyst for innovation.

## S&T Cluster concept showcased at International platforms



**Dr. Vishal Choudhary, Scientist F and Nodal Officer for S&T Clusters** at the Office of the Principal Scientific Adviser to the Government of India, presented the concept of S&T Clusters to Cluster Partners and researchers at the University of Bonn, Germany, as part of a delegation organized by DAAD German Academic Exchange Service. India's S&T Clusters, under the guidance of PM-STIAC in India, focus on connecting knowledge producers with consumers to address regional challenges and drive innovation with global impact.

## Environment Film Festival

PI-RAHI, in collaboration with CMS Vatavaran, conducted an **Environmental Film Festival & Forum on LiFE (Lifestyle for Environment)** an initiative by Punjab State Council for Science & Technology to promote and raise awareness about sustainable lifestyles. The event took place at Panjab University, Chandigarh, with the support of the **Ministry of Environment, Forest, and Climate Change, Government of India**. Some key highlights of the program included a filmmaking workshop by **Mr. Gautam Pandey**, a national award-winning wildlife filmmaker, along with a painting competition and the screening of environmental films.



## Tree Plantation drive



(PI-RAHI) Foundation, initiated Tree Plantation drive in association with **Horticulture Department, Panjab University, Chandigarh**, under the campaign 'EkPedMaaKeNaam' today.

- The Chief Guest of the function was **Shri. Navneet Srivastava, Deputy Conservator of Forests, and Director, Science, Technology & Renewable energy, Chandigarh Administration.**



# Startups Spotlight

# 1



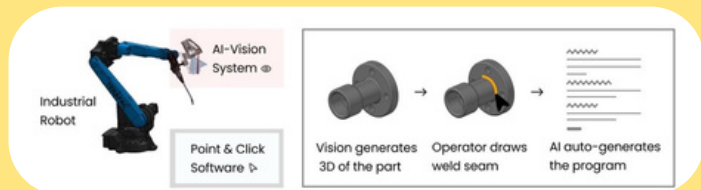
ZippiAi offers an AI-powered tool designed for industrial technicians and service engineers, aiming to streamline the disorganized market. Targeting the \$6.3 billion Industrial Gen AI market, ZippiAi enhances troubleshooting, reduces downtime, and improves repair efficiency. The tool integrates data analytics to build a knowledge base, supports workforce training, and elevates quality management, ensuring technicians deliver reliable and efficient service.

**Key Achievements** : ZippiAI selected by Maruti Suzuki India Limited for POC for Troubleshooting and management AI assistance for shop floor technician and engineers.

# 2



Terafac is building AI-Vision platform for welding robots for metal fabrication industries. Their platform allows robots to automatically scan, orient and weld the parts, minimizing the turn-around time and eliminating the need of robot programmers.



Terafac sets up Smart Manufacturing and IoT labs in colleges, schools and ITIs. They also run IoT, AI and Industry 4.0 workshops.

**Key Achievements:** Current Pilots: Hero group in Ludhiana, Valve manufacturer in Meerut. OEM Collaborations: ABB, Orangewood.



Office of the Principal Scientific Adviser to the Government of India

**Northern Region S&T Cluster**  
PU-IIT Ropar Regional Accelerator for Holistic Innovations (PI-RAHI)

## SHINE

**Skill · Harvest · Innovate · Network · Earn**

Aimed at engaging young professionals to contribute meaningfully to our groundbreaking Science & Technology Ecosystem

SHINE, an initiative which is aimed at engaging young professionals to contribute meaningfully to the S&T ecosystem. Through SHINE, we aim to harness the talent and enthusiasm of young professionals from our esteemed initiative, empowering them to contribute meaningfully to our collective vision.

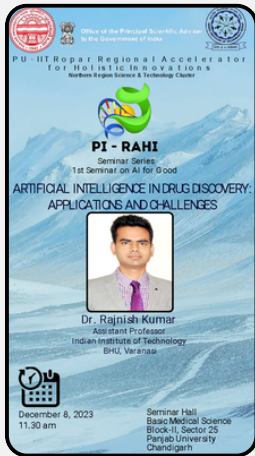
These interns will play pivotal roles in supporting various activities within the cluster, thereby facilitating its growth and enhancing its impact.

IGNITE is a grant program dedicated to supporting innovative projects with the potential for substantial societal impact. This initiative is designed to foster breakthrough ideas and provide the necessary resources for their development. This includes early-stage research and development- from initial idea generation and concept formulation to experimental proof of concept.



SPARKS is a comprehensive support program designed to empower startups with the resources they need to succeed. This initiative is crafted to provide a solid foundation for early-stage companies and facilitate their growth trajectory. SPARKS supports companies that are moving from technology validation and prototype development to commercial readiness and market entry.

# PI-RAHI in the News



## Seminar on AI in drug discovery held at PU

CHANDIGARH, DECEMBER 8  
The PU-IIT Ropar Regional Accelerator for Holistic Innovation (PI-RAHI) Foundation, Science & Technology Cluster for the Northern Region organised a seminar on 'Artificial intelligence (AI) in drug discovery: Applications and Challenges' at Panjab University. The speaker, Dr. Rajnish Kumar from IIT-BHU (Varanasi), deliberated on various aspects of artificial intelligence and its applications at different stages of the drug development pipeline. He highlighted the advantages of



A speaker at the seminar on artificial intelligence.

AI in terms of saving time and costs compared to traditional methods of drug discovery. He also introduced the participants to various AI-based platforms in drug development. — TNS

## ‘एआई से दवा की खोज करना आसान’ आईआईटी बीएचयू के प्रो. रजनीश ने पीयू में आयोजित सम्मेलन में लिया भाग

संवाद म्यूज एजेंसी

चंडीगढ़। एक नई दवा की खोज करने में आज डिजिटल दुनिया में चार-पांच सालों का समय लग सकता था। उसे अतिरिक्तित्व एप्लिकेशन को मदद से काम को करवा एक साल में पूरा किया जा सकता है। यह बात आईआईटी बीएचयू के प्रो. रजनीश कुमार ने चंडीगढ़ में हुए 'एआई से दवा की खोज' के विचार और चुनौतियों का सम्मेलन में कहा।



पीयू और आईआईटी रोपर, वैकल्पिक एक्सेलरेटर पर डिजिटल दुनिया के विकास और चुनौतियों का सम्मेलन में प्रो. रजनीश कुमार ने कहा। उन्होंने कहा कि एआई से दवा की खोज में बचत हो सकती है। एआई से दवा की खोज में बचत हो सकती है। एआई से दवा की खोज में बचत हो सकती है। एआई से दवा की खोज में बचत हो सकती है।

## Seminar Series: “AI for Good

## Seminar on AI in Forensics

आईआईटी रोपर में आयोजित पीयू में एआई फॉर गुड विषय पर रजनीश ने एआई टिल्ली से अरिस्टोटे प्रोफेसर डॉ. इंदु जौरी ने दिया व्याख्यान

## फॉरेंसिक में दी एआई के प्रयोग की जानकारी

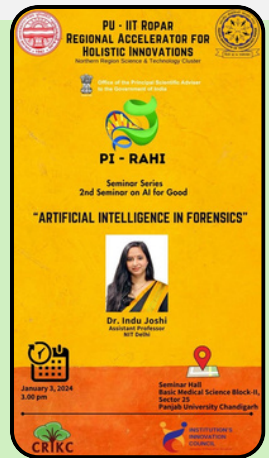
संवाद म्यूज एजेंसी

चंडीगढ़। पंचम फोरेंसिक में एआई और गुड विषय पर रजनीश ने एआई टिल्ली से अरिस्टोटे प्रोफेसर डॉ. इंदु जौरी ने दिया व्याख्यान। उन्होंने कहा कि एआई से दवा की खोज में बचत हो सकती है। एआई से दवा की खोज में बचत हो सकती है। एआई से दवा की खोज में बचत हो सकती है।

बायोकेमिस्ट्री, फॉरेंसिक साइंस, माइक्रोबायोलॉजी और एप्रोबोलाजी के छात्र बने हिस्सा



आईआईटी रोपर में आयोजित फॉरेंसिक में प्रयोग पर व्याख्यान करती डॉ. इंदु जौरी।



## Training Program on Artificial Intelligence

## Workshop on Human Emotions Understanding in Public Speech







धियो यो नः प्रचोदयात्।

“May the Sun illumine our intellects  
in the same way he sheds his effulgence”.



तमसो मा ज्योतिर्गमयः

“Lead me from darkness to light”



**PI - RAHI**


PU - IIT Ropar Regional Accelerator for  
Holistic Innovations

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