CHITKARA UNIVERSITY

Res Novae

Research and Development News CURIN and CRIO

Vol. 2024, Issue 1
January – March

HIGHLIGHTS

- Five-day event to celebrate the National Science Day 2024
- Short summaries on Top 5 research papers
- Invited talks by our researchers at multiple external forums
- Our researchers serving as guest editors for prestigious international journals
- Multiple workshops and seminars on different contemporary topics

COVER STORY

Recipe for Progress: Collaboration is a Key Ingredient to Foster Research, Innovation, Entrepreneurship, and Industry-Intervention

INSIGHTS CURIN

Prestigious Award Won by Centre for Water Sciences

169 RESEARCH PUBLICATIONS | 64 PATENTS

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Editorial

I want to begin by congratulating the entire team of the Centre for Water Sciences (CWS), CURIN, Chitkara University for winning a prestigious award in the category of Innovation in Water Technology. In the Insights section of this issue of Res Novae we have discussed the details of the tremendous research work being done by CWS for over a decade now, which is creating good social impact.

This issue has also covered a story on National Science Day 2024, which Chitkara University celebrated over a period of five days through numerous activities. The initiative was led by a team from CURIN. Additionally, CURIN organized several hands-on workshops, training programs, seminars, etc. that benefitted a large number of students and faculty members.

Many researchers from CURIN are immensely contributing to the research eco-system worldwide by publishing in the top journals of the world, serving as guest editors of prestigious journals, holding leadership positions in flagship conferences, delivering expert talks at several reputed forums, etc. You will find details related to each of these topics in the current issue of the newsletter.

A lot of our success stories are the outcome of meaningful collaborations that we have been able to build across the world. You will find detail of our diverse collaborations that different groups of CURIN have been able to form in order to foster research, innovation, entrepreneurship, and industry involvement that will benefit all stakeholders.

I hope you will enjoy reading this issue of our newsletter. Please write to us with your feedback and comments.

Happy Reading!

Sagar Juneja, PhD
Editor, Res Novae

Recipe for Progress: Collaboration is a Key Ingredient to Foster Research, Innovation, Entrepreneurship, and Industry-Intervention

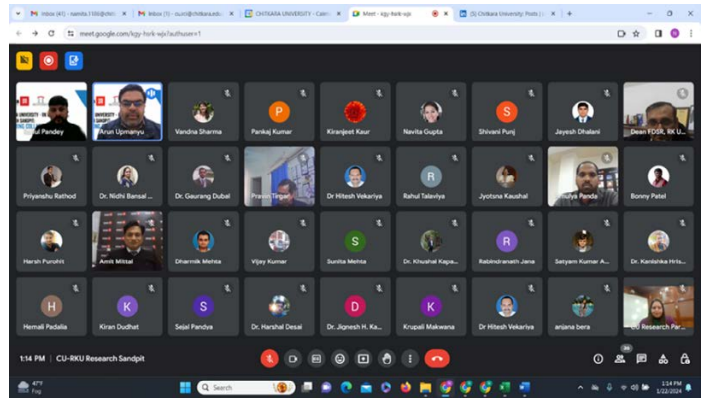
Chitkara University has always been a strong advocate for forging meaningful collaboration to make swift progress that benefit all stakeholders. Different teams at CURIN are working in their own capacities to build impactful partnerships to boost research, innovation, entrepreneurship, and industry-contributions initiatives of the university. The details of many such activities conducted by different groups of CURIN during January – March 2024 have been featured in this story.

Research Collaboration Initiatives of Chitkara University

The Research Collaboration Initiatives (RCI) team of Chitkara University comprising Dr. Amit Mittal (Pro-VC, Research Programs), Dr. Rahul Pandey (Assistant Professor, CURIN), and Namita Sharma (Manager, CURIN) is committed at forging meaningful research collaboration with like-minded institutions within India as well as abroad. Below are the details of some of the key initiatives taken by this team during January – March 2024.

Signing of MoU with RK University, Gujarat to Foster Joint Research Efforts

A collaborative Research Sandpit took place on January 22, 2024, involving 15 faculty members from Chitkara University belonging to Applied Sciences Department, Chitkara College of Pharmacy and Chitkara School of Health Sciences and a similar number from RK University Rajkot, Gujarat. The program buzzed with collaborative energy as minds converged and ideas sparked, transforming it into the crucible of innovation. Each participant brought forth a distinct viewpoint, enhancing the collective brilliance of the scientific community. From engaging discussions to hands-on exploration, the Research Sandpit epitomized the essence of collaborative research. Together, we aim to mold the future of science and healthcare, one breakthrough at a time. Both institutions expressed interest in organizing similar sandpits in other disciplines and departments.

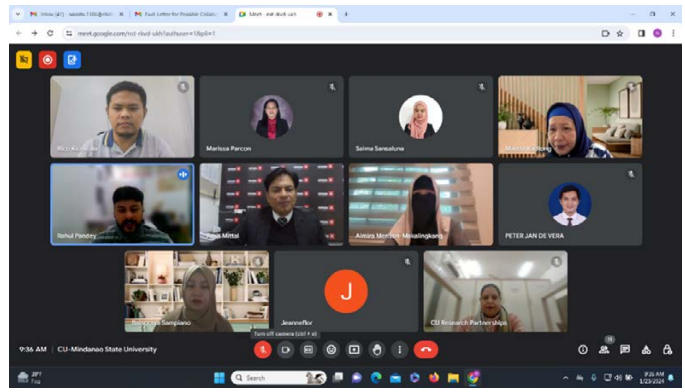


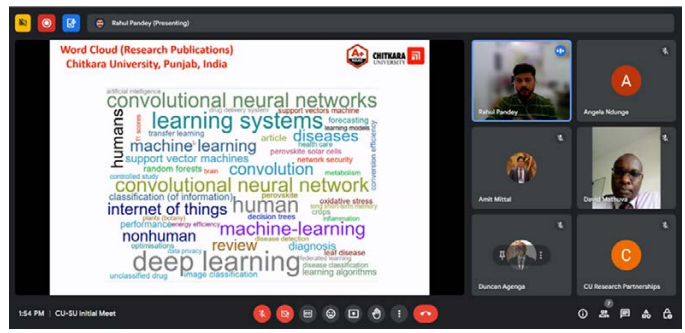
Looking at the synergy between the two institutions, the above exercise was immediately followed by a signing of MoU between Chitkara University and RK University on January 25, which aims at bolstering research collaboration and fostering academic excellence. This partnership marked a significant milestone in our shared commitment to advancing knowledge and innovation in various fields. The key areas of collaboration outlined in this MoU are Joint research projects and initiatives; Organization of conferences, workshops, and seminars; Sharing of research facilities and infrastructure; Joint publication and dissemination of research findings.

Meeting with Mindanao State University, Philippines

A successful virtual meeting was conducted between Chitkara University and Mindanao State University, Philippines on January 23, 2024. The meeting has opened doors for exciting research collaboration between the two institutions. Teams

from both universities connected seamlessly, delving into the possibilities for joint publications, hybrid-mode faculty exchanges, and numerous collective research ventures. This partnership signifies a remarkable step forward in nurturing global alliances and pushing the boundaries of knowledge dissemination. United we are primed to catalyze innovation and offer valuable insights to academia and society.



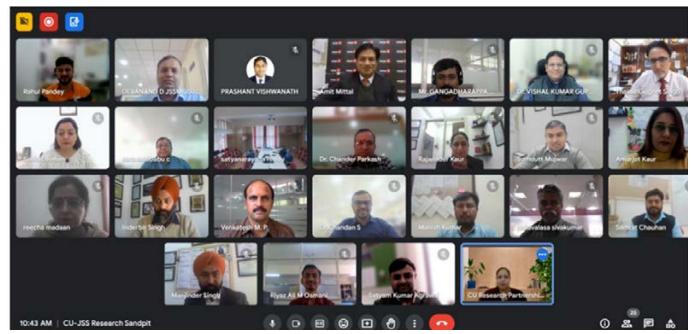


Meeting with Strathmore University, Kenya

An online meeting was conducted to unveil the exciting prospect of research partnership between Chitkara University, India and Strathmore University, Kenya on February 19, 2024. Both the universities delved into shared interests, sparking discussions on potential collaborations across an array of fields ranging from technology, innovation, and entrepreneurship to business management, and healthcare. Witnessing shared enthusiasm and zeal for creating impactful change through collaborative research was truly invigorating. This inaugural meeting served as a launchpad that will foster meaningful collaboration in the coming future.

Research Sandpit with JSS Academy of Higher Education and Research

Gathering brilliant minds from the College of Pharmacy, a research sandpit held on February 23, 2024, between Chitkara University and JSS Academy of Higher Education and Research, Mysuru, Karnataka, buzzed with creativity and collaboration. Researchers from both the institutions united to explore pioneering ideas and establish meaningful partnerships. The event's seamless organization underscores the potency of research collaboration in propelling innovation.



Visit of Professor from Iowa State University, USA

Dr. Sekar Raju, Gary and Margaret Pint Faculty Fellow and Chair, Department of Marketing and Associate Professor, Ivy College of Business, Iowa State University, USA visited Chitkara University on March 11, 2024, and delivered an expert talk on the topic Unlocking the Secrets of Publishing in Leading Journals, which was an enlightening experience for all involved. Dr. Raju's profound insights into academic publishing provided attendees with invaluable knowledge, from navigating submission processes to mastering peer review. His expertise truly illuminated the path to publication success, leaving everyone inspired and better equipped for academic research pursuits. Further, Dr. Raju had a one-to-one meeting with the Vice-Chancellor, Pro Vice Chancellor (Research Programs), Office of International Affairs and RCI Team and there were discussions on a variety of mutually beneficial topics.

Activities for Enhancing the Innovation Quotient of University and Curating Industry-Academia Collaboration

DST funded centres at Chitkara University, namely NewGen IEDC and Technology Enabling Centre (TEC) have been working for the past four years to promote spirit of innovation and industry-academia collaboration for joint projects, technology commercialization, industry interventions, etc. Headed by Dr. Sagar Juneja (Associate Director, Research) and with able support from Chanpreet Singh (Project Manager) and Lovit Kumar (Assistant Manager), NewGen IEDC has supported over 100 innovative projects so far and TEC has enabled close to 30 industry-academia joint projects. Below are the details of the key activities that were carried out by NewGen IEDC and TEC in Q1, 2024.

Indo-African Academia-Industry Meet on Health Innovations

A one-day Indo-African Academia-Industry Meet on Health Innovations was organized by TEC in association with the Healthcare Management Department, Chitkara Business School, Chitkara University on March 11.

Forty healthcare leaders from Africa attended this meet and over 50 presenters showcased their innovations and products related to healthcare. These presenters included 21 industries from the region, and as many as 20 students and faculty innovators and entrepreneurs.

The idea was to provide a platform to the Indian industries, start-ups, and academic innovators to explore possibilities of taking their products to the African markets. Additionally, the second key objective was to provide a platform for the academic innovators working in the healthcare domain to interact with the healthcare industries and explore ways to collaborate for joint development of technologies and commercializing academic technologies. Furthermore, the event served as a great networking platform for the professionals working in the healthcare domain, as close to 150 delegates from Chitkara University and around attended the exhibition and learned about the latest innovations happening in the field.

TEC Sponsored a Conference on Advanced Diagnostic Techniques

TEC sponsored the 12th International Conference on Advanced Diagnostics Techniques that was organized by Chitkara School of Health Sciences (CSHS), Chitkara University on the theme Innovations and Latest Trends in Diagnostics and

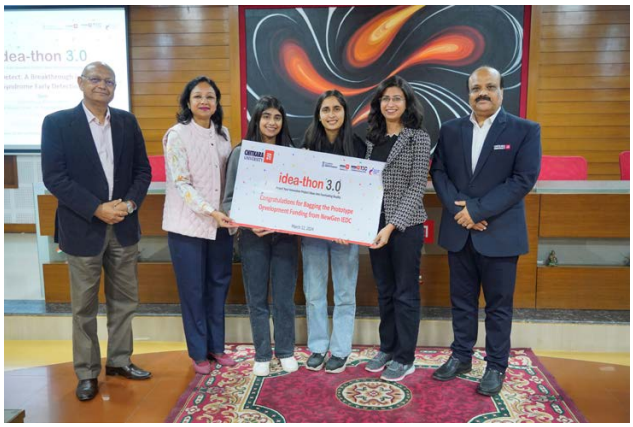
was inaugurated by Dr. Archana Mantri – Vice Chancellor, Chitkara University, Punjab and Chief Coordinator, Chitkara University TEC. The key focus areas of the conference included 'Innovations in Lab Diagnostics and Advances in Medical Imaging' and 'AI and Digital Health Diagnostics' and it witnessed participation from leading institutions including National Agri Biotechnology Institute, Panjab University, PGIMER, Homi Bhabha Cancer Hospital & Research Centre, Fortis Hospital, Redcliffe Labs, etc. Among the many sessions and activities of the conference including expert talks, paper presentations, poster presentations and workshops, one of the key activities from TEC perspective was demonstration of working projects/models on PCR, MRI, Incubators, etc. Dr. Sagar Juneja and Dr. Sunita Mehta – Assistant Professor, CURIN, evaluated those projects. The conference was convened by Dr. Sonika Bakshi (Dean, CSHS), while Dr. Navita Gupta (Associate Professor, CSHS) and Dr. Abhilasha Sood (Assistant Professor, CSHS) were the organizing secretaries.

TEC Facilitated an Industry Consultancy for the Hospitality Department

TEC has been working closely with the industries and industry associations of Patiala region. Through one of our industry networks, we got an opportunity to work with the Rajindra Gymkhana & Mahendra Club (RGMC) for conducting training programs for their staff to improve food and beverage service. After a couple of rounds of discussion, Chitkara College of Hospitality Management (CCHM) bagged this two-month project on conducing basic and advanced level training modules for RGMC staff. Mr. Amit Vashishth (Principal, Chitkara School of Hospitality) and Dr. Ravi Dandotiya (Associate Professor, CCHM) led this project.

Seven Projects have been Awarded Prototype Development Funding through Idea-Thon 3.0

Chitkara University NewGen IEDC & TEC concluded the 3rd edition, Idea-Thon 3.0 hackathon on March 12, 2024, in a result declaration ceremony wherein seven projects out of eighteen finalists were awarded prototype development funding. The results were declared by Dr. Archana Mantri.



Idea-Thon 3.0 was launched in October 2023 with a theme Propel Your Innovative Project Ideas into Fascinating Reality, and it received 48 submissions that were carefully evaluated by the committee. Of those 48 ideas, 18 were selected for presentation in the jury round that was held for over two days on March 1 and 2.

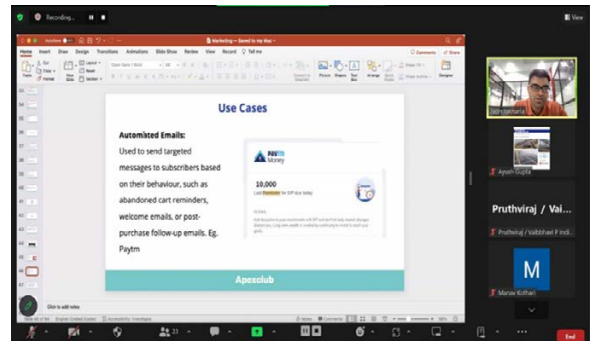
The jury was comprised of industry professionals and entrepreneurs who were carefully selected considering the topics of the projects. Industry interventions played a significant role in deciding if the projects meet feasibility, budgetary and commercial viability requirements. Additionally, top innovators from within the organization also featured on the jury panel. The jury for Idea-Thon 3.0 included Dr. S.N. Panda (Pro-VC, Research, Chitkara University), Rajneesh Garg (Managing Director, India Circuits Pvt. Ltd.), Pushpinder Singh (CTO, Ambiente Technologies Pvt. Ltd.), Vipul Duggal (Founder and Managing Director, Pastiche Energy Solutions), Sumit Grover (Proprietor, Genesis Controls), and Sanjay Bhatnagar (Visiting Faculty, and Head Technology Commercialisation, Chitkara University).

Convened by Dr. Sagar Juneja with able support from his team members, Chanpreet Singh and Lovit Kumar, from last three years, Idea-Thon has been serving as a dynamic platform for students to showcase their innovative ideas having significant commercial potential. The primary goal of this competition is to foster and refine those ideas and elevating them to a stage where participants can pitch for prototyping funding. This platform not only sparks creativity and problem-solving skills among students, but it also provides a valuable opportunity to transform those ideas into tangible outcomes.

Activities to Promote Entrepreneurial Spirit Through Expert Sessions by Leading Entrepreneurs

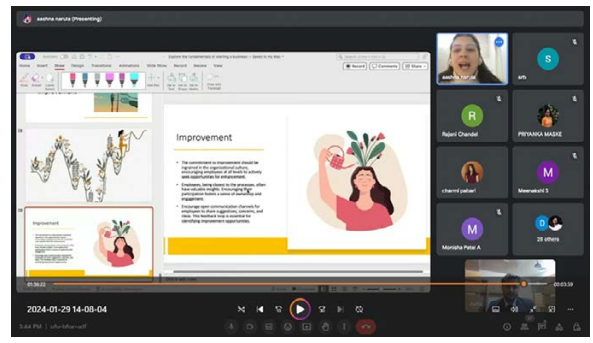
Chitkara Innovation Incubator Foundation (CIIF) led by Dr. Adarsh Aggarwal (Professor, and VP, CIIF) and Dr. Neeraj Kumar (Associate Professor and Sr. Incubation Manager), has been supporting entrepreneurs from all over the country since 2015. CIIF, being a Government of India recognized Technology Business Incubator, has incubated start-ups from diverse fields including Agritech, Healthtech, Edtech, SAAS, Fintech, etc. Below are the details of activities carried out by CIIF in Q1 2024 to advance entrepreneurial ecosystem.

- A session titled Deep Dive into Effective Digital Marketing Strategies for Startup Founders was conducted on January 6, 2024, as part of the Chitkara Xcelerator Program and it aimed to equip startup founders with practical insights and strategies to bolster their digital marketing efforts. Jatin Jakhar - Co-founder, WorkIndia and Apexclub was the guest speaker who shared his expertise with the audience. He provided in-depth analysis of various digital marketing tactics, covering social media marketing, email campaigns, search engine optimization, and data-driven approaches. His insights were geared toward helping startups gain a competitive edge in the market. The event witnessed participation of 36 startups, who engaged enthusiastically with the content and actively participated in the discussions.



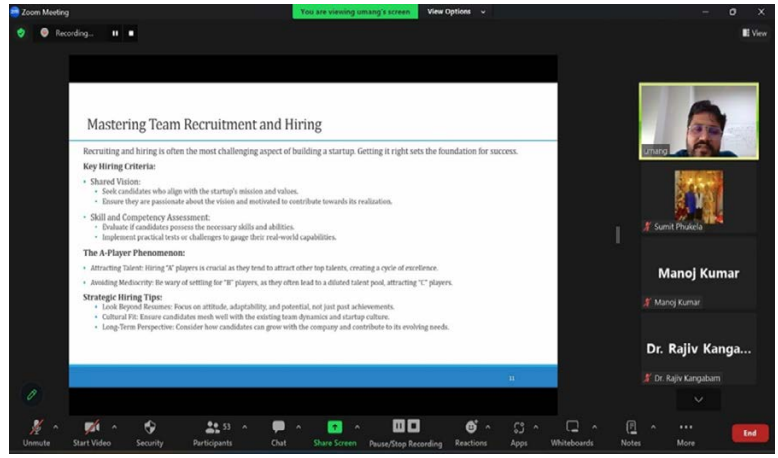
- Further as part of the Chitkara Xcelerator Program, a session titled Attracting Talent through ESOPs was held on January 13. The speaker was Samir Sanghvi - Co-founder, In.Corp Advisory Services Pvt. Ltd., who shared his insights on strategies for startups looking to attract and retain top talent using Employee Stock Ownership Plans (ESOPs). A total of 20 startups participated in the event and benefitted from it. His session covered various aspects of implementing ESOPs effectively, helping startups understand how to leverage them as a powerful tool for talent acquisition and retention.

- On January 29, CIIF organised a session featuring Dr. Aashna Narula, a prominent entrepreneur, psychologist, and mental health advocate, as a distinguished speaker on the topic Explore the Fundamentals of Starting a Business. The program aimed to empower aspiring women entrepreneurs who were keen to start their ventures. Dr. Aashna's presentation focused on the fundamental principles crucial for launching and nurturing a successful business. Participants gained insights into the intersection of mental health and entrepreneurship, emphasizing the importance of resilience and commitment to innovation. The interactive session allowed attendees to pose questions, fostering a

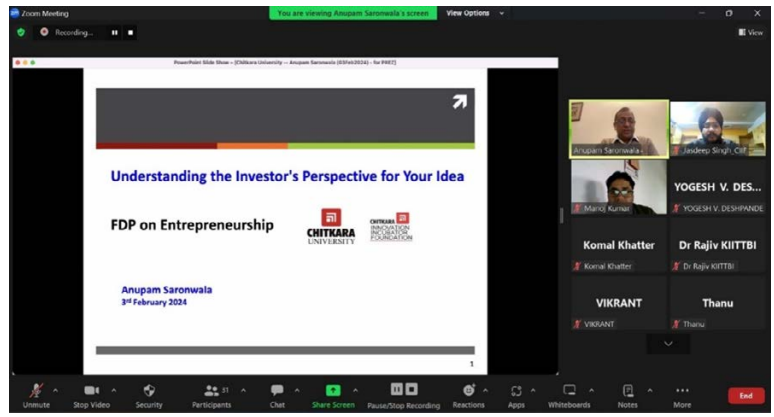


dynamic exchange of ideas. The event facilitated networking opportunities, allowing participants to connect with like-minded individuals and build a supportive community. Dr. Aashna's engaging style and ability to simplify complex concepts left a lasting impression on the audience, inspiring many to embark on their entrepreneurial journeys with renewed confidence. Further, Dr. Aashna's willingness to share her personal experiences and challenges resonated with the participants and it built a sense of camaraderie.

- A faculty development program titled Team Building and Leadership featuring Umang Agarwal, who is heading Grow Indigo, as a keynote speaker was organized on January 30 and was attended by 50 participants. The virtual platform buzzed with anticipation as participants logged in from different corners of the world, eager to glean insights from Umang's extensive expertise, who commenced the session with an invigorating introduction, seamlessly weaving personal anecdotes and professional wisdom to establish rapport with the audience. His dynamic presentation style and contagious enthusiasm immediately set the tone for an engaging and insightful discourse. Throughout the session, Umang delved into the intricacies of team dynamics and leadership, elucidating the pivotal role they play in fostering organizational success. Drawing from his rich reservoir of experiences, Umang shared real-world examples and practical strategies, elucidating how effective communication, trust-building, and empowerment are vital ingredients for nurturing high-performing teams. Participants were encouraged to actively engage in discussions, pose thought-provoking questions and exchange valuable insights. The interactive nature of the session facilitated meaningful exchanges, with participants gaining valuable perspectives from both Umang and their peers. Finally, participants departed with a renewed sense of purpose and a toolkit of actionable strategies to enhance their leadership skills and cultivate cohesive and high-performing teams.



- On February 3, yet another faculty development program was organized that was titled Understanding the Investor Perspective for your Ideas. Delivered by Anupam Soranwala – Advisor, Mentor and Angel Investor, the program was attended by faculty members from diverse backgrounds. Anupam Soranwala captivated the audience from the outset, drawing upon his wealth of experience to provide a comprehensive overview of the intricacies involved in securing investment for entrepreneurial endeavours. He delved deep into the mindset of investors, elucidating the critical factors that influence their decision-making processes. From market trends and competitive landscapes to financial projections and team dynamics, attendees gained a nuanced understanding of the multifaceted considerations that shape investors' sentiments. Furthermore, the session facilitated an interactive dialogue, allowing participants to pose probing questions and engage in meaningful discussions with Anupam Soranwala. Furthermore, the impact of the session extended beyond mere knowledge acquisition, serving as a catalyst for inspiration and empowerment among faculty members aspiring to foster innovation and entrepreneurship within their academic communities.



Research@CURIN

Top Research Papers of the Quarter by CURIN (Published during January – March 2024)

Faculty members and research scholars from CURIN publish high-quality research articles in top peer-reviewed journals and conferences. In this section of the newsletter, we select high impact research papers from CURIN and attempt to discuss them in the form of short summaries.

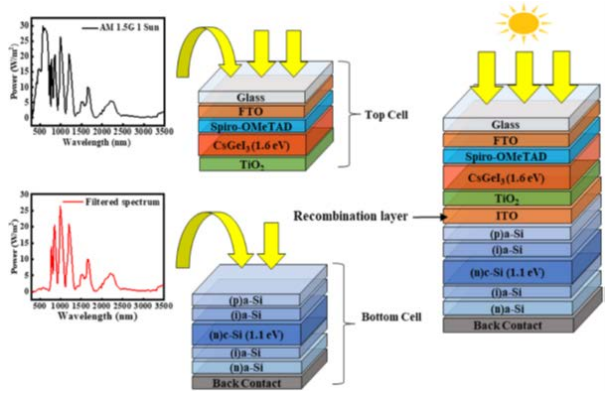
The researcher papers discussed in this issue are the ones that were published during January – March 2024. The complete list of publications by CURIN faculty members and scholars during this period is available in a separate section.

Design of a new perovskite tandem solar cell for sustainable and high-efficiency solar technologies

By: Shivani, JRF, CURIN

This article is based on the research paper titled 'Design principles of crystalline silicon/CsGeI3 perovskite tandem solar cells using a combination of density functional theory and SCAPS-1D frameworks' published by Dr. Rahul Pandey and Dr. Jaya Madan from CURIN, Chitkara University, Punjab in Elsevier journal entitled Solar Energy Materials and Solar Cells.

In the realm of photovoltaic research, the allure of perovskite solar cells has steadily grown since their inception in 2009. Their journey, marked by a remarkable surge in efficiency and the advent of cost-effective fabrication techniques, has captivated researchers worldwide. In a recent manuscript, the exploration of CsGeI3's optoelectronic properties through first-principle computations unveiled a bandgap of 1.6 eV, setting the stage for groundbreaking insights. Leveraging this data, device simulations using SCAPS-1D tool unveil a tandem solar cell architecture, with CsGeI3 and c-Si serving as top and bottom cell absorbers, respectively. The standalone performance of each cell dazzles with PCEs of 18.31% and 10.15% for the top and bottom cells, respectively, under specific conditions. However, it's the symbiotic dance of these cells in a tandem configuration that truly steals the spotlight, showcasing a remarkable PCE of 28.43%, along with notable improvements in FF, Jsc, and Voc. Delving deeper, the study meticulously analyzes the influence of various factors such as Rs, Rsh, and defect states on the photovoltaic parameters, offering valuable insights into performance optimization. Moreover, the validation of the tandem architecture's J-V characteristics through a semi-analytical model adds a layer of robustness to the findings, paving the way for the design of eco-friendly, lead-free perovskite/c-Si based tandem devices with unparalleled photovoltaic prowess. In essence, this manuscript not only signifies a milestone in solar energy research but also serves as a beacon guiding future endeavors towards sustainable, high-efficiency solar technologies.



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Deep dive into image dehazing techniques

By: Dr. Ayush Dogra, Assistant Professor, CURIN

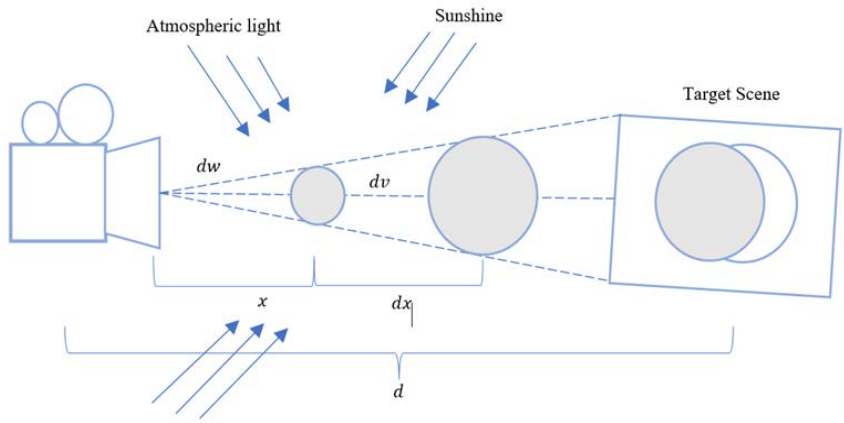
This article is based on the research paper titled 'Recent advances in image dehazing: Formal analysis to automated approaches' published by Dr. Vinay Kukreja and Dr. Ayush Dogra from CURIN, Chitkara University, Punjab in Elsevier journal entitled Information Fusion.

The article investigates the sphere of image dehazing by emphasizing its role in refining images captured under hazy

conditions to restore contrast and color fidelity which is considered as a foundational step termed as dehazing for advanced computer vision applications. The presence of haze in the atmosphere due to various particulate matter such as aerosols, dust, chemicals, and minute water droplets significantly compromise image quality by scattering and refracting light, which in turn, distorts the transmission of light from objects to the camera. Also, the degradation worsens with distance as well as intensified by atmospheric illumination that creates formidable challenges to capture clear image in hazy environments.

To explore this domain comprehensively, the researchers employed a systematic approach that includes the utilization of three prominent online databases: IEEE Xplore Digital Library, ScienceDirect (SD) and Web of Science (WOS). These platforms were chosen for their capacity to facilitate both basic and advanced search queries and their extensive coverage of scientific literature in computer science and related disciplines.

The paper further meticulously evaluates a variety of image dehazing techniques by categorizing them into model-based, transform-based, variational-based and learning-based algorithms. In addition to this, it offers a detailed examination of evaluation methodologies that covers both full-reference and no-reference metrics to enable comparison across different dehazing techniques.



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Coming to the pros and cons of the concept, image dehazing presents a plethora of benefits across diverse contexts and uses, and this study outlines the innumerable advantages documented in research literature. It holds the potential to intensify visibility in surveillance operations, enhance the quality of remote sensing imagery, facilitate navigation for autonomous vehicles etc. Despite all these advantages, the study also acknowledges limitations regarding the scope and type of databases used due to the reliability of researchers on standard online search engines to find relevant articles. These databases sometimes do not capture every development in the rapidly evolving field. However, the study also discusses the problem associated with image dehazing like need of expertise across multiple fields that includes signal processing to recover scene details and meteorology to understand haze conditions. This interdisciplinary nature makes developing effective dehazing techniques difficult as it necessitates a comprehensive understanding of both the technical aspects and the environmental factors that contribute to image degradation.

Based on these considerations, the paper outlines future directions for budding researchers that they should focus on the development of standardized evaluation methods, improve real-time processing capabilities, and create more adaptive algorithms to handle diverse environmental conditions. Thus, the findings offer valuable insights for professionals and budding researchers to seek an understanding of image dehazing techniques and their applications. The complete analysis clearly shows that no single method is universally effective, and each one has its own advantages and limitations. This accentuates the need for ongoing research in haze removal techniques to address diverse conditions and challenges.

Greener and cleaner earth: Redefining consumerism for sustainability

By: Dr. Sridhar Manohar, Assistant Professor, DRC-CBS

This article is based on the research paper titled 'Redefining green consumerism: A diminutive approach to market segmentation for sustainability' published by Dr. Sridhar Manohar from DRC CBS, Chitkara University, Punjab in Springer journal entitled Environmental Science and Pollution Research.

The purpose of this research is to identify homogeneous groups of customers across India, and cluster them based on the usage of green products. Understanding the demographics, social and cultural groups, and their buying behaviors help in suggesting the firms on using green packaging, renewable resources, and innovating products incorporating SCAMPER effect. The major contribution of this study is in identifying the key components that play a pivotal role in green purchase decisions of the customer. The identified micro-customer groups help the firms in determining the correct tool to target, personalize, and brand their product/services that indirectly helps in profit, growth, and sustainability. This also helps in limiting wastage and environmental hazards. Non-probability criterion-

based sampling technique was used in collecting the data across India through various online platforms like LinkedIn, Twitter, and Facebook.

Numerous important aspects impacting green consumer behaviour were shown by the results of the exploratory factor analysis, which were then followed by the discriminant and cluster analyses. The main elements that were shown to be the most significant include green purchase intention/behaviour, green habit, green cultural awareness and attitude, and interpersonal impact. This implies that major factors influencing the development of green consumerism include people's routine activities, attitudes toward green culture, societal influences, and purchasing habits. Additionally, the research identifies two discrete groups of environmentally conscious consumers, (a) 'Green Dads,' which correspond to generation Y men, and (b) 'Green Janes,' which correspond to generation Z women. The data reveals that the main factors setting these two clusters apart are social media marketing and subjective norms. This is an indication that it is crucial to comprehend how various demographic groups relate to environmental issues and how marketing methods catered to their tastes might successfully change their behaviour. Behavioural patterns, psychographics, external marketing cues, and demographics are only a few of the many elements that are important for consumer profiling. Marketers may create focused tactics to appeal to green consumer market segments by utilizing these insights.

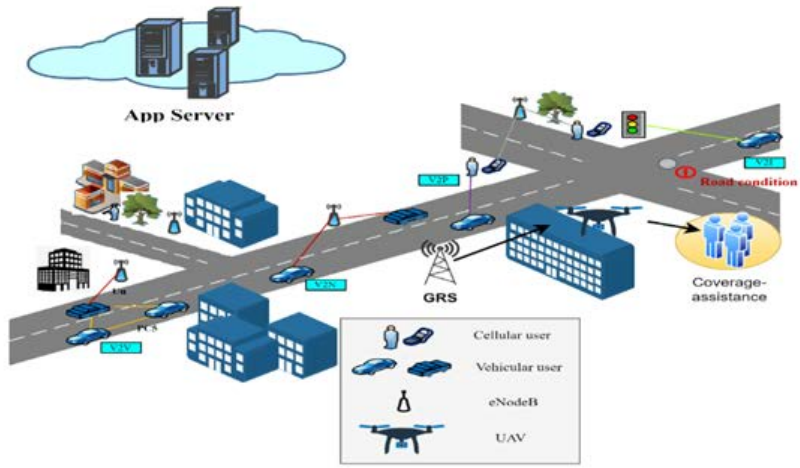
The study's focus on small-scale factors for comprehending ecological behaviour points to the need for a sophisticated strategy for green market segmentation. This method acknowledges that a person's environmental attitudes and behaviours are influenced by a variety of contextual, social, and personal elements. Marketers can more effectively customize their messaging and products to appeal to the wide range of motives and preferences among the green consumer base by paying close attention to these characteristics. In a nutshell, this study advances our knowledge of green consumer behaviour and stressed upon the value of customized marketing tactics in encouraging environmentally friendly behaviour. Businesses may effectively match their initiatives with the beliefs and desires of environmentally conscious customers by acknowledging the complex relationship between environmental consciousness and consumer decision-making.

Improving vehicular connectivity in the internet of vehicle (IoV) system

By: Dr. Shalli Rani, Director and Professor, CURIN

This article is based on the research paper titled 'UAV-assisted partial co-operative NOMA based resource allocation in C2VX and TinyML based use case scenario' published by Dr. Garima Chopra and Dr. Shalli Rani from CURIN, Chitkara University, Punjab in the IEEE Internet of Things journal.

Smart cities have been transformed by the development of the Internet of Vehicles (IoV), which has allowed for vehicle connectivity for traffic information dissemination and safety. However, there are resource limitations when it comes to completing time-sensitive applications like safety alerts via cellular vehicle-to-everything (C-V2X). In ultra dense networks (UDNs), this study proposes a nonorthogonal multiple access (NOMA)-based resource allocation for C-V2X. The function of TinyML in unmanned aerial vehicles (UAVs) has also been covered in this article and a use case scenario is provided to illustrate it. Furthermore, given the suggested system, a generalized equation for scheduling time fraction is constructed. By allowing for high-speed users and UAV scenarios, the suggested framework optimizes power distribution and improves performance in obstructed areas. Numerical analysis confirms the effectiveness of the NOMA-based strategy for improved C-V2X, showing a roughly 85% throughput gain over conventional systems. The conclusion of this article identifies issues that remain unsolved and recommends topics for further research. These include researching collaborative learning among UAVs through federated learning techniques, creating novel



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algorithms that optimize for resource-constrained environments, producing benchmark data sets and evaluation metrics specifically for UAVs, and researching the moral and legal implications of using UAVs equipped with TinyML in public spaces.

Understanding the academicians' perspective in HEIs on online learning

By: Dr. Urvashi Tandon, Associate Professor, DRC CBS

This article is based on the research paper titled 'Values enhanced technology adoption (VETA) concerning online learning in higher education institutions: Academician's perspective in India' published by Dr. Urvashi Tandon, DRC CBS, Chitkara University, Punjab in Springer journal entitled Education and Information Technologies.

E-learning has many dimensions that draw attention from different perspectives, and it is a well-known medium of training and education in industry and academia. Due to pedagogical shift in the available software coupled with technological infrastructure, e-learning has become more engaging and entertaining. The ease of access and positive outcomes have resulted in a greater adoption of e-learning among various learning verticals. Therefore, students as well as educators need to learn and develop skills in dealing with the upcoming challenges to give a new shape to the learning system.

When it comes to accomplishing the Sustainable Development Goals (SDGs) and putting the National Education Policy (NEP) into action in Indian HEIs, e-learning becomes an essential component. Hence, this research has been carried out with an objective to validate the model theorized by Schwartz's (2012) on values in e-learning adoption among academicians. Further, this research attempts to understand how these values impact the perception about technological, social, and personal factors that further lead to adoption of e-learning. Though the universities and organizations have made significant investments in digital learning technology in recent years, learners may still reject it. While past studies have acknowledged and incorporated customs, there is still a need for a comprehensive examination of the influence of values. Values, being the individual-level manifestation of customs, have substantial impact on the adoption of technology.

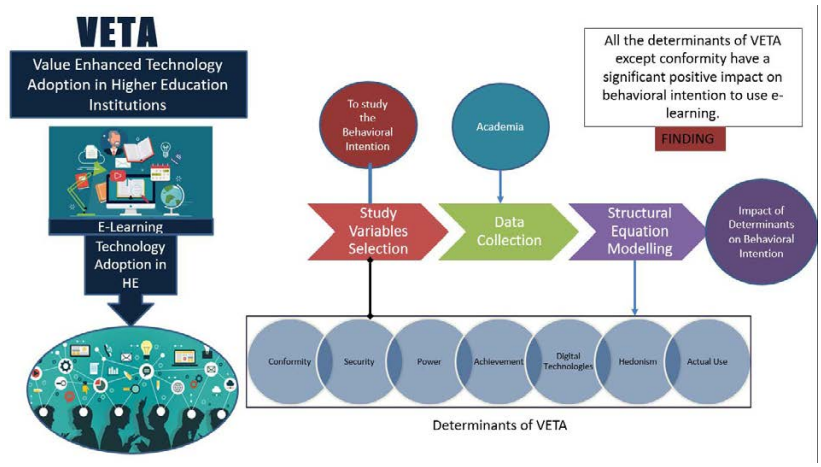


Illustration is borrowed from the published paper

We conducted this study due to the limited reported research on the impact of values on the adoption of e-learning. We focused on Values Enhanced Technology Adoption (VETA) model's impact on the users' intention to use e-learning. This research confirms that values like Security, Power, Achievement and Hedonism are the key components in facilitating acceptance of e-learning in the HEIs in India. Values were categorized and validated to understand their relative significance in comparison to others. The results indicated that Hedonism is the strongest value as compared to others, thereby reflecting on the fun and excitement which academicians experience while delivering the online content. Other values like Achievement and Security also emerged significantly which reflects that online learning platforms need to incorporate stringent security features in their e-learning modules. Interestingly, Conformity had insignificant impact indicating that lack of reinforcement may have negative impact on e-learning adoption.

Apart from values, this research offered a novel approach in validating the moderating effect of digital technologies. Further, the findings suggested maintaining confidentiality of e-learning systems and providing adequate e-learning resources so that academicians can deliver the best content through e-learning platforms and feel a sense of achievement.

Five-day Science Carnival Organized by CURIN to Celebrate National Science Day 2024

February 28 marks the celebration of National Science Day, as we come together to honor the marvels of innovation and discovery by Sir (Dr.) C V Raman. The National Science Day is celebrated each year to commemorate the discovery of scattering of light, in 1928, later called as 'Raman Effect', for which Sir (Dr.) C V Raman was awarded Nobel Prize in Physics. Theme-based science communication activities are carried out all over the country on this occasion to stress upon the importance and contributions of science. This year`s theme was Indigenous Technologies for Viksit Bharat.

As India embraces the spirit of indigenous innovation and technological advancement, CURIN, Chitkara University, Punjab organized a five-day Science Carnival from 26 February to March 1 to inspire and empower the next generation of scientists, engineers, and innovators. The program was organized in collaboration with the Punjab State Council for Science & Technology (PSCST) and National Council for Science and Technology Communication (NCSTC) division of Department of Science and Technology (DST). Through collaborative efforts and inclusive initiatives, this unique program sought to propel India towards a future of scientific excellence and societal progress.

The carnival featured a lot of events including science talks, competitions designed to showcase the creative minds of our budding scientists, science fun activities, visit of school students to the university campus, hands-on workshops, poster-making competition, declamation contest, model making on the theme best-out-of-waste, and science quiz. The program was very inclusive in nature, and it appealed to a diverse group of science buffs.

Several faculty members from the university delivered talks in this program. Dr. S N Panda - Pro-Vice Chancellor (Research), delivered an expert talk on Indigenous Technologies for Viksit Bharat. He emphasized on the importance of leveraging knowledge of technology and practices for sustainable development of India; Dr. Manish Sharma - Director (Research), CURIN, talked about The Emergence of 5G Technologies; Mr. Manav Bansal - Chief Happiness Officer, conducted an interactive science-for-fun session titled The Science of Happiness; Dr. Satyam Kumar Agrawal - Professor (Research), CURIN conducted hands-on experiments on DNA Isolation, Gel Electrophoresis, Microscopy, etc. at the Centre for in-vitro Studies and Translational Research (CVSTR). Dr. Satyam was also the coordinator of the program.

Dr. Amanpreet Kaur - Assistant Professor (Research), CURIN, delivered a talk on Explore the Potential of AR/VR in Science Education; Dr. Anchal Thakur - Assistant Professor (CSE), delivered a lecture on Revolutionary Impact of Electronic Biosensors in Disease Diagnosis; and Mr. Vibhor Jain - Manager Incubation, CIIF, discussed about Startup Problem Statement Exploration.

Furthermore, students from nearby schools were invited to the campus and they were taken to different labs of the university to incline them toward science. Short videos on Women in Science were also showcased to the participants.

The program culminated in a valedictory ceremony that was presided over by Dr. Archana Mantri - Vice Chancellor, Chitkara University, Punjab, who enlightened the participants with her words and presented prizes to the winners of different activities. Monika Sharma won the 1st prize in Poster Making Competition, Sushmita Jain won the Declamation Contest, Karunya Gupta stood 1st in Model Making Competition, and Anchal Dogra bagged the 1st prize in Science Quiz.

The Energy and Resources Institute (TERI) Awarded the Centre for Water Sciences (CWS), CURIN, Chitkara University

3rd Water Sustainability Awards (2023-24) | CWS was honored in the 'Innovation in Water Technology' category

Centre for Water Sciences (CWS), CURIN, Chitkara University was established in March 2019 with the primary goal of establishing a central facility on campus to carry out water-related research, testing, analysis, and consultancy in the field of water sciences. In addition to research, it is an NABL accredited lab for water testing. CWS is headed by Dr. Jyotsna Kaushal – Professor, CURIN, Chitkara University.

The seeds of CWS were sown more than a decade ago when Dr. Jyotsna Kaushal altered her research area from chemistry to water research for social causes. She along with her team progressively explored & identified the key areas where community-based research work was targeted. The main areas of testing and study at the centre include drinking water and industrial wastewater, as well as raising public awareness about the necessity of clean water, water conservation, recharging, etc.

CWS also led the development of a low-cost earthen pot titled Swachh Neer, which has been patented. Filtered water from Swachh Neer has been analysed, both at internal and external NABL labs where physio-chemical parameters were tested and found to be within the acceptable limits of BIS. The idea was generated after conducting a survey of five adopted villages (by Chitkara University) where it was found that low-income groups do not have access to clean water. To validate the utility of Swachh Neer, 50 units were distributed to the interested villagers.

The CWS team also developed a hybrid system which can be used for different applications such as adsorption and degradation of contaminants (azo dues, fluoride, and heavy metals) from wastewater. Their team has also undertaken the initiative of spreading awareness on wastewater management among common people, both in rural and urban areas.

Sustained efforts of CWS in the field of water sciences got them a lot of visibility, citations, and accolades from different agencies and institutions. CWS has received the most recent honor from The Energy and Resources Institute (TERI), New Delhi. TERI is an independent, not-for-profit, knowledge-driven institute dedicated to advancing transition towards a cleaner and sustainable future. On March 21, 2024, TERI bestowed the Centre for Water Sciences (CWS), CURIN, Chitkara University with an award in the 'Innovation in Water Technology' category at the 3rd Water Sustainability Awards (2023-24). CWS was awarded for its contribution in using innovative technologies for addressing the threat to water resources.

The awards ceremony was hosted by TERI in collaboration with the United Nations Development Programme (UNDP) and the Ministry of Jal Shakti, Government of India. Dr. Archana Mantri - Vice Chancellor, Chitkara University, Punjab, and Dr. Jyotsna Kaushal, graciously accepted the award on behalf of Chitkara University at the prestigious event held at India Habitat Centre, New Delhi. With a plethora of patents and publications in esteemed journals, the Centre for

Water Sciences is at the forefront of advancing knowledge and innovation in the realm of water sciences.

CWS team expresses its deepest gratitude to the Honorable Dr. Ashok K Chitkara - Chancellor, Chitkara University and Honorable Dr. Madhu Chitkara - Pro-Chancellor Chitkara University for providing opportunities and ambiance to work on the development of water solutions under UN's Sustainable Development Goal - 6 (SDG 6).

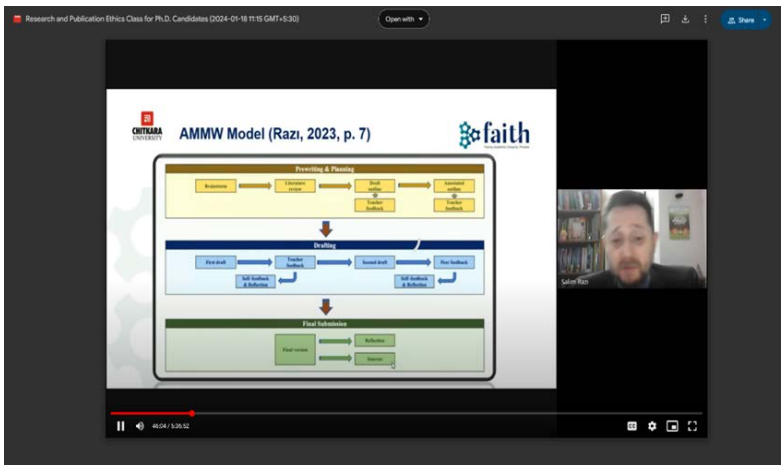
World Water Day 2024 Celebrated

World Water Day 2024 was celebrated by CWS and on this occasion, an expert talk was delivered by Dr. Jyotsna Kaushal to the students of Psychology department on this year's theme, Water for Peace. Additionally, a hands-on training on water testing techniques was also conducted, which was attended by the students of Health Sciences.

Initiatives of Doctoral Research Centre (DRC), Chitkara Business School (CBS) to Benefit PhD Scholars and Faculty Members

3 Seminars, 2 Workshops | Individual Contributions | PhD Completion

A Seminar on Ethical Use of Artificial Intelligence in Scholarly Publishing



To improve the quality of research in any field of enquiry, the domain of knowledge needs to keep up with the times. An effort was made by DRC, CBS to enrich the young faculty members and research scholars in business management and social sciences by providing them a comprehensive understanding of ethical considerations surrounding the use of artificial intelligence in scholarly publishing. This one-day seminar was held on 18 January 2024, and it was delivered by Dr. Salim Razi, Canakkalen Onsekiz Mart University, Türkiye. 45 research scholars and faculty members of the university attended the session, which featured discussion on potential of AI to improve content discovery, expedite peer review procedures, and streamline editing workflows. Further, there were discussions on ethical and moral issues associated with the use of AI in scholarly publishing.

A Seminar on Philosophical Intricacies of Ethical Research

On the same day, a seminar on Philosophical Intricacies of Ethical Research was delivered by Dr. Sumanta Datta, Postgraduate & Research Department of Commerce, St. Xavier's College, Kolkata, which was attended by 43 research scholars and faculty members. It aimed at making scholars understand the intricate details of research ideologies. They were able to understand the diversity of different research philosophies like positivism, post-positivism, and pragmatism. They are also equipped with the knowledge of addressing the challenges in research design and adopting multi-faceted approaches in research projects.

Five -day Workshop on Navigating the Intricacies of Research and Publication Ethics

A team of faculty members from DRC, CBS including Dr. Niti Chatterjee, Dr. Mohit Taneja, and Dr. Seema delivered a five-day workshop on Navigating the Intricacies of Research and Publication Ethics, that was attended by 53 PhD scholars and faculty members. The program was intended to teach budding researchers about research ethics and make them aware about misconducts in research. The participants were also able to comprehend COPE, WAME, and other best

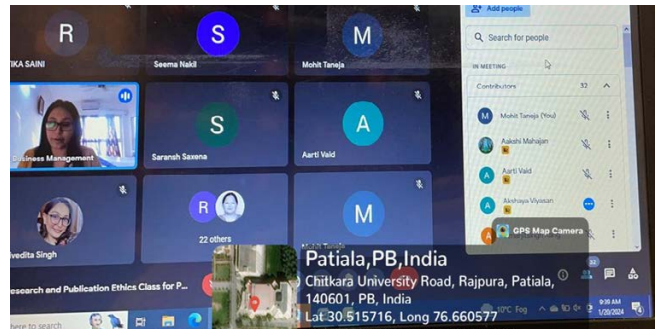
practices/standards-setting programmes and guidelines. Another major focus area of the program was to conduct a detailed discussion on the identification of predatory and cloned journals. They were advised to choose respectable conferences and journals for publishing their good quality research and at the same time stay away from unscrupulous publishers.

Seven-day Workshop on Understanding the Roots of Good Research: From Research Problem to Hypotheses Development

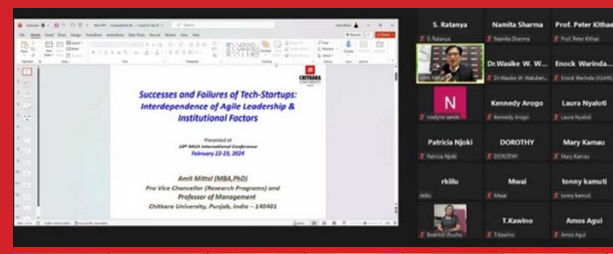
A seven-day workshop on Research Methodology was organized by DRC, CBS from 19 to 25 February 2024. The resource persons for this workshop were Dr. Urvashi Tandon and Dr. Arun Aggarwal from DRC-CBS, and it was attended by 36 research scholars and faculty members of Chitkara University. This program aimed at equipping the participants with research skills and methodologies essential for scholarly pursuits. The resource persons laid emphasis on research process, research design, systematic literature review, choosing adequate sample, questionnaire design and hypotheses development. Several case studies and practical exercises on diverse topics were discussed and it was a great learning experience for the research scholars and budding researchers who were provided with in-depth knowledge and useful tools to improve research problem identification skills. A conducive environment created through this program provided a platform for future research partnerships and academic successes by promoting possibilities for networking and multidisciplinary collaboration.

One-day Seminar on Practical Insights into the Journey of a Research Scholar

This unique seminar on Practical Insights into the Journey of a Research Scholar was delivered by Mr. Dhirendra Kumar Tiwari-IAS, Additional Chief Secretary, Government of Punjab, who is currently doing his PhD from Chitkara University, Punjab. Held on February 23, 2024, it was attended by 34 research scholars and faculty members. He shared his personal experiences of doing PhD at Chitkara University and completing different milestones, including preparation and presentation of research proposal, timely completion of deliverables, having an open and transparent dialogue with the supervisor to seek his/her advice, and explore ways of building collaboration.



Individual Contributions



Dr. Amit Mittal - Pro Vice-Chancellor, Research Programs, Chitkara University delivered a keynote address at the 10th MUA International Management and Leadership Conference, hosted by The Management University of Africa (Kenya) on 22-23 February 2024. The theme of the conference was leadership, innovation, and sustainability. Numerous attendees from different parts of Africa especially from East Africa were present. Dr. Mittal shared his research on 'Successes and Failures of Tech-Startups: Interdependence of Agile Leadership and Institutional Factors' offering invaluable knowledge and actionable strategies to drive a positive change.

Dr. Amit Mittal was also invited as a resource person by Maharishi Dayanand University, Rohtak (Haryana) for one-week workshop on Advanced Statistical Tools and Methods in Research, which was held from 29 January to 1 February 2024.

He was also invited as a resource person in NEP Orientation and Sensitization Program at Malaviya Mission Training Centre (MMTTC), M.D. University, Rohtak on 4 February 2024. In another online refresher course organized by Centre for Professional Development in Higher Education (CPDHE), UGC Malaviya Mission Training Centre (MMTTC), University of Delhi for university and college teachers on March 21, Dr. Amit Mittal was invited as a resource person to deliver a lecture on Research in the Area of Community Engagement.

Dr. Amit Mittal served as the guest of honour and participated in a thought-provoking panel discussion on The Role of AI in Marketing at the prestigious International Conference on Marketing Research 2024 held on 15-16 March 2024, and hosted by Loyola Institute of Business Administration, Chennai, India in partnership with Albers School of Business & Economics, Seattle University, USA. Dr. Mittal also served as a Conference Co-chair in the International Conference organized by Neville Wadia Institute of Management Studies and Research, Pune in March 2024 on the theme Business Resilience and Sustainability.

PhD Completion

PhD completion is a significant event that marks the culmination of years of committed study, labour, and academic success for doctoral candidates. It is a celebration of their academic success and the formal awarding of the highest degree. Seven PhD candidates in Business Management successfully completed their final defense during 1 January – 31 March 2024. These scholars were from diverse fields including academia, industry, public sector, and start-up world.

Individual Contributions of CURIN Faculty Members

Guest Speakers | Guest Editors | Expert Speakers | Conference Chair | Co-Chair | Reviewers | Session Chairs

Expert Sessions on Contemporary Topics

Prof. (Dr.) P.K. Khosla - Pro Vice-Chancellor (Research), CURIN delivered several expert sessions on contemporary topics for different departments of the university that immensely benefitted the students and faculty members alike. The details of these sessions are as follows.

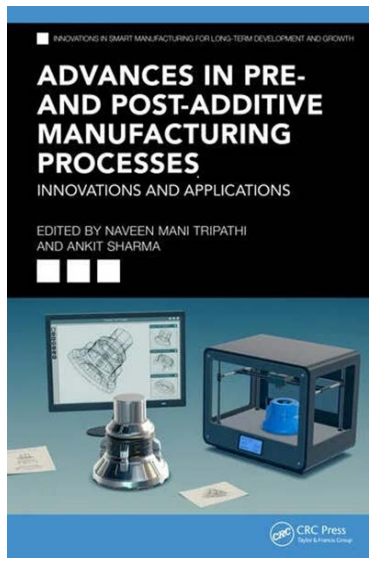
- Prof. Khosla delivered an expert session on Strategies in Project Acquisition: Competence Building and Leveraging Disruptive Technologies for Uniqueness, in the one-week faculty development program titled Unlocking Potential: Maximizing Impact via Technology Transfer Publications, Consultancies & Intellectual Property Management, which was organized by the Department of Computer Science and Engineering (CSE) from January 2 to 4, 2024. He empowered the participants with actionable strategies to navigate the evolving landscape of technology-driven project acquisitions. Crucial aspects of competence building and leveraging disruptive technologies to enhance project acquisition strategies were discussed in detail. His insights provided a roadmap for attendees to enhance uniqueness and innovation in project pursuits.
- On January 12, Prof. Khosla delivered a thought-provoking expert talk titled How IoTs were Compromised to Bring Down the Global Internet, at the Department of Logistics and Supply Chain Management (SCM), Chitkara Business School, Chitkara University. This engaging session drew attendees from the MBA (SCM) program, including students and faculty members. Prof. Khosla shed light on the vulnerabilities of IoT devices and the implications of compromised IoT systems on global internet infrastructure. The case study of Mirai attack elucidated the devastating impact of IoT attack. Through compelling insights and real-world examples, the critical importance of IoT security measures in safeguarding digital ecosystems was highlighted.
- Prof. Khosla delivered an engaging expert talk on AI-driven Systems at Upstream and Downstream of Optometry at Chitkara School of Health Sciences, Chitkara University, on March 1, 2024. His presentation explored the innovative applications of AI and attendees gained valuable insights into the transformative potential of AI technologies in optimizing patient care and enhancing diagnostic precision. It was explained how the emerging technologies being developed by Neuralink will offer many exciting solutions to the eye diseases.

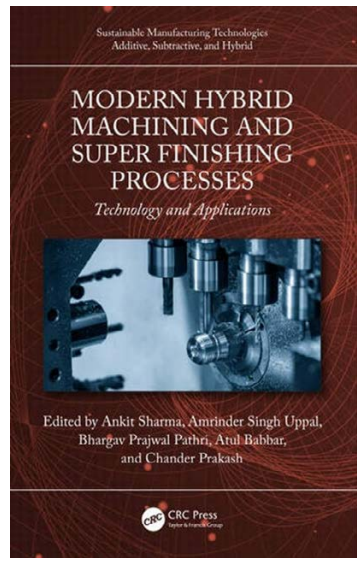
Book Series on Next Generation Manufacturing Processes

Dr. Ankit Sharma - Associate Director (Research), CURIN, Chitkara University has started an exciting book series with the American Society of Mechanical Engineering (ASME) Press. There are several other editors in the series from different institutions. The series would cover state-of-the-art manufacturing solutions by incorporating artificial intelligence, automation, IoT, machine learning, cloud

computing, data analysis, edge computing, cyber security, digital twin, sustainable development goals, digital manufacturing, industry 4.0, augmented reality, virtual reality, and machine learning domains. Titled as Next Generation Manufacturing Processes, this book series to foster new innovative breakthroughs in the domain of manufacturing processes and it will unite top professionals from academia, industry, research, and societal organizations to write high-quality books and proceedings for practicing engineers, researchers, and students.

Additionally, Dr. Ankit Sharma has recently published two books with CRC Press, Taylor and Francis Group, USA. The titles of these books are 'Advances in Pre- and Post-Additive Manufacturing Processes: Innovations and Applications' and 'Modern Hybrid Machining and Super Finishing Processes: Technology and Applications'.





Contribution to Several International Conferences Around the World in the Capacity of Organizing Committee Member

Dr. Ayush Dogra – Assistant Director, Research, CURIN, has been associated with several international conferences around the world in different capacities including one of the organizing chairs, one of the session chairs, one of the co-chairs, one of the publication chairs, member of the technical program committee, etc. The names of these conferences are IEEE International Conference on Contemporary Computing and Communications (March 2024, India), International Conference on Engineering Education and Information Technology (May 2024, China), International Conference on Intelligent Perception and Computer Vision (May 2024, China), International Conference on Intelligent Systems and Pattern Recognition (June 2024, Turkey), International Conference on Bioengineering and Computer Aided Systems (July 2024, China), International Conference on Intelligent Traffic and Transportation (September 2024, Italy), International Conference on Intelligent Manufacturing and Cloud Computing (November 2024, China), and International Conference on Automation, Robotics and Computer Engineering (December 2024, China).

Dr. Dogra has been selected as a Member of the Editorial Board for The Open Neuroimaging Journal. He has been performing the role of the Executive Guest Editor for the Journal on Current Medical Imaging for the year 2024. He has also received an Outstanding Reviewer Award from Biosciences Biotechnology Research Asia.

Partner Editors in the Long Term Partnership with SNCS Journal of Springer Nature

Springer Nature Computer Journal (SNCS) got into a long term partnership with Chitkara University. Through this partnership, we have a dedicated peer reviewed space in the journal in which we can carry out multiple special issues. Titled as Technology Enabling

Centre (TEC), this partnership is led by Dr. Rajnish Sharma (Vice Chancellor, Chitkara University, H.P.) and Dr. Sagar Juneja (Associate Director, Research, CURIN) in the capacity of partner editors.

The 4th edition of International Conference on Computing, Analytics, and Networks (ICAN 2024), being led by Dr. Rajnish, Dr. Sagar along with a team from Department of CSE, Chitkara University, Dr. Monit Kapoor, Dr. Rishu Chhabra, Dr. Darpan Anand, and Dr. Sunil Kumar, features SNCS journal as an exclusive publication partner. The papers from this flagship conference of Chitkara University will be published in the two special issues of SNCS journal.

Additionally, Dr. Rajnish and Dr. Sagar from Chitkara University are the core team members of IEEE Region 10 Conference titled TENSYMP 2024, which will be held in New Delhi, India this year. While Dr. Rajnish is the Organizing Chair, Dr. Sagar is a member of Technical Program Committee. It is noteworthy that Honourable Dr. Madhu Chitkara - Pro Chancellor, Chitkara University, is one of the patrons of this prestigious IEEE conference of the Asia-Pacific region.

Invited Talk on the Framework of Student Project Management

Dr. Arun Upmanyu - Professor, CURIN delivered an expert talk on the Framework of Student Project Management on March 5 at Rayat Bahra Hoshiarpur Campus, Punjab, which was a unique opportunity to interact with the young brains and offer ideas gained through years of experience. The Applied Sciences department of the host institution planned this event to educate students on the complexities of project management in academia and encouraging a culture of structured learning and skill building. It was attended by 150 second year B. Tech. students who were keen to gain practical insights into project management approaches. Students were actively engaged in the session as they shared their project ideas and asked questions, leading to constructive discussions that promoted collaborative learning.

रयात बाहरा कालेज में प्रोजेक्ट मैनेजमेंट सेमिनार

होशियारपुर। रयात बाहरा इंजीनियरिंग कालेज के एप्लाइड साइंस विभाग द्वारा प्रोजेक्ट मैनेजमेंट पर सेमिनार का आयोजन किया, जिसमें विभाग के छात्रों ने हिस्सा लिया। कार्यकारी प्रिंसीपल डा. ज्योत्सना, प्रभारी प्रो. बृजेश सिंह की अध्यक्षता में सेमिनार का आयोजन किया गया। फ्रेमवर्क ऑफ स्टूडेंट प्रोजेक्ट मैनेजमेंट विषय पर आधारित सेमिनार में विषय के माहिर डा. अरुण उपमन्यु ने छात्रों को बताया कि प्रोजेक्ट मैनेजमेंट विशिष्ट लक्ष्यों को प्राप्त करने और विशिष्ट समय पर विशिष्ट सफलता मानदंडों को पूरा करने के लिए एक टीम के काम की शुरुआत, नियोजन, निष्पादन, नियंत्रण और समापन का अभ्यास है। उन्होंने कहा कि एक प्रोजेक्ट विशेष रूप से लाभकारी परिवर्तन लाने का एक अस्थायी प्रयास है, जो विशिष्ट लक्ष्य, उद्देश्यों और उद्देश्यों को पूरा करने के लिए एक विशिष्ट उत्पाद, सेवा या परिणाम को परिभाषित करना है। डा. अरुण ने कहा कि व्यवहार में विशिष्ट उत्पादन दृष्टिकोणों के प्रबंधन में विशिष्ट तकनीकी कौशल और प्रबंधन रणनीतियों के विकास की आवश्यकता होती है। इस मौके पर प्रो. नीरू जंवाल, प्रो. रुपिंदर कौर के अलावा छात्र और समस्त स्टाफ मौजूद था

Visit to CAIR Lab, DRDO

The project team from CURIN, Chitkara University working on a DRDO project, including Dr. K.R. Ramkumar (Professor), Dr. Amanpreet Kaur (Assistant Professor), and Taniya Hasija (JRF) visited Centre for Artificial Intelligence & Robotics (CAIR), DRDO, Bangaluru for a progress presentation and demonstration from February 27 to March 1. The software and hardware implementation status of the project was discussed in detail with the core team of CAIR, DRDO.

CURIN Faculty Members as Reviewers and Session Chairs in Several International Conferences

Dr. Vatsala Anand and Dr. Mudita (Assistant Professors) acted as reviewers in the 2nd IEEE International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (January 2024, India).

While Dr. Vatsala also acted as a reviewer in the IEEE International Conference on Contemporary Computing and Communications (March 2024, India), Dr. Mudita reviewed papers for two more conferences namely 5th IEEE International Conference on Computing, Power, and Communication Technologies (IC2PCT 2024) and 2nd International Conference on Disruptive Technologies. Dr. Bhanu Sharma (Assistant Professor) also reviewed papers for IC2PCT 2024. Additionally, Dr. Bhanu reviewed papers for 11th International Conference on Reliability, Infocom Technologies, and Optimization (March 2024, India) as well and she chaired a paper presentation session in International Conference for Innovation in Technology 2024.

Dr. Sonam Mittal (Assistant Professor) served as a reviewer in IEEE ICICACS 2024 organized by the IEEE Bangalore Section (February 2024, India).

Dr. Amanpreet Kaur (Assistant Professor) chaired a paper presentation track titled Innovative and Disruptive Technologies in the 5th International Conference on Computing, Power, and Communication Technologies 2024. Around 20 research papers based on AR, VR, HCI, AI, IoT and cyber security were presented in the session.

Activities Carried Out by CURIN Faculty Members and Scholars

Events Organized | Events Attended | Paper Presentations in Conferences

Events Organized

Workshops Conducted by CUCIF

Chitkara University Central Instrumentation Facility (CUCIF) conducts skilling workshops for the students. The details of those workshops conducted in Q1, 2024 are as follows.

- A workshop titled Give Shape to Your Ideas with 3D Designing was conducted on January 24, which was attended by 20 students. Through this program, students got hands-on exposure to AutoCAD and Autodesk Fusion 360. It was delivered by Sahil Mehta (Project Manager, CURIN) along with his team.
- A workshop on Recognition of Human Emotions using EEG Signals was conducted on February 7, 2024, to train students on the fundamentals of EEG signals and how these signals can be utilized in different modern-day applications by detecting human emotions. The workshop was delivered by Anjali (PhD scholar) and it was attended by about 15 undergraduate students.
- To give glimpses of immersive technology and virtual reality to the students, a workshop titled Interactive VR Experience of Museum using Oculus Quest-1 was conducted on January 25, 2024, and it was repeated again on February 27 and March 1 for different sets of students. In these workshops students learned about the basics of Unity 3D Game Engine and C# (Sharp) Programming. They use this knowledge to design VR applications, especially games for VR headsets. These workshops were delivered by Shinnu Jangra (PhD Scholar). A similar workshop titled Architects' Nexus: Crafting Virtual Spaces in the Metaverse was conducted by Shinnu on March 6 for the students of Architecture department, and another workshop titled Creating Vibrant Vistas in the Virtual World using VR was conducted on March 21. In total, close to 100 students benefited from these workshops.

Educational Visit of School Students to Our University Campus

Embarking on the exciting journey of discovery, more than 300 vibrant students from Government Senior Secondary School, Tepla, Government High School, Thua, and Government High School, Pawa, visited Chitkara University, Punjab on January 30, 2024. This transformative visit not only offered moments of joy for these young students, but it also unveiled boundless opportunities for learning, leaving an indelible mark on each young mind, igniting a flame of curiosity that shall illuminate their academic journey ahead. This educational visit was organized and coordinated by Dr. Bhanu Sharma - Assistant Professor, Immersive and Interactive Technology Lab (IITL), CURIN.

One-day Workshop on Virtual Reality

IITL, CURIN in collaboration with the Department of Communication Design, Chitkara University, Punjab conducted a one-day hands-on workshop titled Possibilities in the World of Emerging Technology - Virtual Reality. Held on February 26, it commenced with an introduction to immersive and innovative technologies including Augmented Reality (AR), Virtual Reality (VR), Metaverse, and Mixed Reality by Dr. Bhanu Sharma (Assistant Professor) and Dr. Amanpreet Kaur (Assistant Professor), who shared their insights about different tools and technologies including Unity3D, Blender, Autodesk Maya, Unreal Engine, etc. Sheena Angra (PhD Scholar) and Sanchit (M.E. Scholar) conducted hands-on sessions on Unity 3D, providing participants with practical experience. In the afternoon session, students were guided by Shivam Sharma (Senior Game Developer), Akarsh (Developer), and Sheena Angra for VR app development. The workshop aimed to equip participants with practical skills and knowledge in VR, empowering them to explore the possibilities of using immersive technology in their domain.

Institutional Bio-Safety Committee (IBSC) Training cum Seminar

The Institutional Bio-Safety Committee (IBSC) at Chitkara University, Punjab, regularly conducts training and seminars for IBSC members, laboratory personnel and students using GMOs/rDNA materials, working with pathogens and bio-hazardous material. In this context, IBSC Training cum Seminar was organized on February 27. Members of the IBSC prepared a curated list of topics for the attendees, which featured a mix of lectures, quiz, and interactive sessions. Dr. Satyam Kumar Agrawal (Professor, CURIN and Member Secretary, IBSC) elaborated on the Role of IBSC in Students' Research. Dr. Kiranjeet Kaur (Associate Professor, Chitkara School of Health Sciences (CSHS)) discussed the Basics of Biosafety Lab. Dr. Navita Gupta (Associate Professor, CSHS) delivered a lecture titled Biosafety in Microbiological and Biomedical Labs: Practices for Handling & Disposal. Dr. Varsha Singh (Assistant Professor, CURIN) talked about Navigating Recombinant DNA Research: From Proposal Submission to Biosafety Regulations. The session was attended by IBSC members, PIs, and students working in the related areas from Chitkara College of Pharmacy, CSHS and Centre for in-vitro Studies and Translational Research and Centre for Life Sciences, CURIN.

Events Attended

AICTE Recognized FDP on AI/ML

Dr. Ayush Dogra – Assistant Director, CURIN, participated in the AICTE recognized FDP on AI/ML and Data Science for Industry 4.0, which was conducted by NITTTR, Chandigarh from January 29 to February 2. Prior to this, he also participated in the NPTEL E-Awareness Workshop conducted by IIT Madras on January 24, 2024.

Additionally, Dr. Dogra along with Dr. Vinay Kukreja – Director, Research, CURIN, played a pivotal role in organizing a pre-conference workshop on Innovations in Diagnostics using Machine Learning in Radiology and Imaging Technology on March 14, 2024. It was organized as part of the International Conference on Advanced Diagnostic Techniques (March 15-16, 2024) conducted by Chitkara School of Health Sciences in collaboration with the DST funded Technology Enabling Centre, CURIN.

Participation in the MACHAUTO EXPO 2024

A team from Chitkara University Technology Enabling Centre (CU-TEC) comprising Dr. Sagar Juneja, Chanpreet Singh and Parul Chawla attended the 13th edition of the annual exhibition, MACHAUTO EXPO 2024 on February 23, 2024, held at Ludhiana Exhibition Centre, Ludhiana, Punjab. The objective of attending this exhibition was to understand the requirements of the industry and to collaborate with the MSMEs of the region for working on joint projects.

Participation in the TEC Conclave

Department of Science and Technology (DST) organized the TEC Conclave 2024 on March 14, 2024, at DELNET, New Delhi with an objective to review the progress of 22 Technology Enabling Centres (TECs), which have been set-up by DST across the country. Close to 50 delegates composed of coordinators and co-coordinators from 22 TECs attended the conclave and made their presentations and showcased their cumulative work, achievements as well as future plans. The Expert Advisory Group (EAG) headed by Prof. Nalinaksh S. Vyas (IIT Kanpur) reviewed the progress presentations and gave suggestions. Shri Parveen Roy, Head of Technology, Translation and Innovation (TTI) Division, DST and Dr. Naveen Vashishta, Scientist F, NEB Division, DST were also present in the conclave.

From Chitkara University Technology Enabling Centre (CU-TEC), Dr. Archana Mantri - Vice Chancellor, Chitkara University, Punjab and Dr. Sagar Juneja, Associate Director (Research), Chitkara University, Punjab attended the conclave and delivered their progress presentation.

The conclave was coordinated by Dr. Krishna Kanth Pulicherla (Scientist E, DST).

One-day Workshop on Purification and Characterization of Phytoconstituents

A team from CVSTR, CURIN got an opportunity to attend a one-day SERB sponsored workshop on Emerging and Established

Techniques for Purification and Characterization of Phytoconstituents and Synthetic Molecules, which was held at Amity Institute of Phytochemistry and Phytomedicine, Noida on March 14. Dr. Satyam Kumar Agrawal (Professor and Head, CVSTR) along with his PhD scholars Monika Sharma and Pooja Kumari attended this workshop. Additionally, they also got an opportunity to meet with Prof. Dr. Hemanthkumar Manikyam, CTO, Svarn Herbals Pvt. Ltd., who is an eminent personality in this field. Dr. Hemanthkumar shared his valuable experiences that benefited them.

Online Faculty Development Programs (FDPs) Attended by CURIN Faculty Members

- Dr. Bhanu Sharma attended a five-day national level online FDP on Unlocking Industry Insights in Data Science from February 12 to 16. It was organized by Madanapalle Institute of Technology & Science, Andhra Pradesh. The sessions delved deep into the practical applications of data science across various industries, highlighting key methodologies and tools used to extract meaningful insights from complex datasets. Through interactive discussions and hands-on exercises, participants gained a comprehensive understanding of how data science drives decision-making processes, optimizes operations, and fuels innovation. The workshop not only sharpened technical skills but also provided valuable insights into the real-world challenges and opportunities in leveraging data for business success.
- Dr. Sonam Mittal attended a workshop on Start Research with Smart Artificial Intelligence Technology, by Global Institute of Statistical Solutions, Chennai (March 2-4). The program focused on enhancing academic capabilities through insights into AI tools and innovative applications of ChatGPT technology. She also attended a one-week FDP on Generative AI by D.Y. Patil College of Engineering, Pune (March 4-9).
- Dr. Vatsala Anand attended a one-week FDP on Visual Intelligence: Exploring Image Processing and Computer Vision, which was organized by CVR College of Engineering, Hyderabad (March 26-30).

Paper Presentations in Conferences

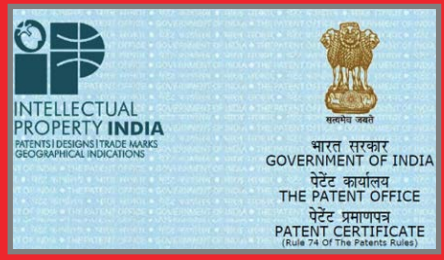
- Researchers and scholars from the VLSI Center of Excellence (VLSI CoE), CURIN, led by Dr. Rahul Pandey and Dr. Jaya Madan Assistant Professors-CURIN presented papers in several reputed conferences. The details are as follows.

  Savita Rawat presented two papers in the International Conference on Computer Communication and Informatics organized by Sri Shakthi Institute of Engineering and Technology (SIET), Tamil Nadu (January 29-31). These papers were titled 'Modeling Solar Cells Based on MAGeI3 Using Numerical Analysis with Different Levels of Defect Density in the Absorber Layer' and 'Exploring Optimal Acceptor Density for Enhanced Photovoltaic Performance in CsSnI3-Based Perovskite Solar Cells.

  Aniket Verma presented two papers at the conference on Innovative Practices in Technology and Management 2024, held at Amity University, Noida, during February 21-23, 2024. The papers were titled 'Engineering High-Efficiency CZTSSe Solar Cells: Investigating the Role of Absorption Layer Thickness and Doping Density' and 'Unveiling the Potential: DJ-2D/3D Perovskite Materials for Next-Generation Solar Cells'.

  Aniket Verma and Nikhil Shrivastav presented a research paper titled 'Maximizing Photovoltaic Efficiency: Thickness and Defect Density Effects on DJ-2D/3D Perovskite Solar Cell Performance' in the 3rd International Conference on Innovation in Technology organized by Visvesvarya Technological University (March 2024). In the same conference, Savita Rawat also presented a paper titled 'Simulating MAGeI3-Based Solar Cells through Numerical Analysis with Varying Absorber Layer Thickness'.
- Monica Dutta - PhD Scholar working under the guidance of Dr. Deepali Gupta - Professor, CURIN presented papers in the 14th International Conference on Cloud Computing, Data Science and Engineering (January 2024) and International Conference on Innovative Practices in Technology and Management (February 2024). Both conferences were organized by Amity University, Uttar Pradesh.
- Dr. Sonam Mittal presented a research paper titled 'Comparative Analysis of Various CNN Models for Lung Cancer Prediction' in the 3rd International Conference on Innovation in Technology 2024 that was organized by Vidya Sagar Institute of Technology, Bengaluru, India on March 4-6.
- Dr. Vatsala Anand presented a paper titled 'Cervical Net: An Effective Convolution Neural Network for Five-class Classification of Cervical Cells' at the 2nd International Conference on Device Intelligence, Computing, and Communication Technologies 2024 that was organized by Graphic Era University, Dehradun on March 15-16.

64 Patents Filed by CURIN Faculty Members and Scholars in Q1



The Patent Office has Granted **27 Patents** to Chitkara University in Q1, 2024.

A total of 238 patents *(including industrial designs)* have been filed by different departments of Chitkara University during January - March 2024, out of which 64 have been filed by CURIN faculty members and researcher scholars. The details of these 64 patents are given below.

S. No.	Title	Inventors	Application Number
1	A Device to Hold a Plurality of Sizes of Sample Vials for Ultrasonicator	Pooja, Vandna Sharma, Pankaj Kumar	202411015041
2	A Natural Chocolate Composition and a Method for Preparing the Same	Mansi Chitkara, Rohit Agnish, Naresh Kumar, Gulshan Dhillon	202411004696
3	AI and Blockchain based System for Institution Transport Management	Parineeta Dahiya, Jagdeep Sharma, Santosh Bali, Ishu Sharma	202411008448
4	Ambulance for Rapid Emergency Medical Service and Method Thereof	Rakesh Goyal, Harshdeep Singh	202411015049
5	An Enclosure for Covering and Handling a Hydrothermal Autoclave	Rajat Takkar, Vandna Sharma, Pankaj Kumar	202411015040
6	An Intelligent Emergency Response System	Amanpreet Kaur, Prabhkirat Singh	202411016865
7	An Intelligent IoT based Rescue System for Human Safety during Vehicle Accident	Meena Rani, Kalpna Guleria, Surya Narayan Panda, Swati Goel, Sanjeev Verma	202411018423
8	Animal Repulsing Apparatus	Anoop Kumar Singh, Bhisham Sharma	202411009325
9	Artificial Intelligent Helmet	Kanwarpartap Singh Gill, Madhav Sethi, Sheifali Gupta, Rupesh Gupta, Vatsala Anand, Neha Sharma, Rajesh Kumar Bansal	202411012969
10	Automated Robotic Utility Set for Individuals with Parkinson's Disease	Aashish Kumar, Sanya Sagar, Ravinder Pratap Singh	202411026898
11	Automatic Runout Detection in Cricket	Nikhil Shrivastav, Tripatjot Singh Arora, Jaya Madan, Rahul Pandey	202411003117
12	Autonomous Delivery Bike	Rakesh Goyal, Harshdeep Singh, Punam, Dhawal Goyal	202411014835
13	Blockchain and Web3 API-Based System for Alumni Management	Jagdeep Sharma, Ishu Sharma, Vanshika Pahuja	202411004460
14	Brain Fit Musical Therapy Device	Anjali, Gurjinder Singh, Shinnu Jangra	202411014834
15	Cloth Recognition and Washing Assistance System for Visually Impaired	Jagdeep Sharma, Ishu Sharma, Vanshika Pahuja	202411008668
16	Coordinated Rate Improvement System and Method for Ultra-Dense Networks using Adaptive Multiple Access Scheme	Garima Chopra	202411010481

17	Drishti Cum Drone	Bhanu Sharma, Jatin Kumar	202411004463
18	Edible All-Natural Candy Composition	Arvind Kumar, Mansi Chitkara, Chef Naresh Kumar, Chef Rohit Agnish, Rajwinder Kaur, Diksha Choudhary	202411026900
19	Food Recommender System based on User Preferences	Mudita, Deepali Gupta, Ramneet	202411023627
20	Gas Leakage Detection System using Internet of Things	Deepam Goyal, Deepali Gupta, Ramneet	202411026921
21	Gesture Control Device and Method Thereof	Sanjeev Verma, Gaurav Kumar Bansal, Akul Sikand, Dev Gupta	202411015419
22	Graded Copper Indium Gallium Selenide (CISG) Solar Cell	Shivani, Jaya Madan, Rahul Pandey	202411010482
23	Hardware Wallet for Cryptocurrency	Sonam Mittal, Ramkumar Ketti Ramachandran	202411023304
24	Height Adjustable Box File for Office Record Keeping	Anoop Kumar Singh, Bhisham Sharma	202411014833
25	Height Adjustable Projector Stand	Sanjeev Verma, Akul Sikand, Dev Gupta, Gaurav Kumar Bansal	202411020533
26	HVAC Control System and Method Thereof	Varun Jindal, Vinay Kukreja, Raj Gaurang Tiwari	202411003127
27	Hydrothermally Synthesized Nano-Dimensional Core-Shell Structured Cuo@ Cu(0) Material for Oxidation	Amulya Prasad Panda	202411004468
28	Implementation of Wireless Communication between FPGA and Smartphone using PMOD Bluetooth	Amanpreet Kaur, Vaneeta Bhardwaj, K.R. Ramkumar, Sudesh Mittal, Bhupendra Singh	202411005896
29	Iron Ore Slime Derived Magnetite Supported Ni for Selective Conversion of Furfural to Furfuryl Alcohol	Subhashree Mishra, Amulya Prasad Panda	202411004472
30	Miniaturized 1×2 Mimo Antenna Solution for 5g Communication	Anupma Gupta, Vipan Kumar, Manish Kumar Singla, Ekta Thakur, Ayush Dogra	202411007759
31	Multilayered Composite Building Block	Ranbir Singh Rooprai, Maninderjeet Singh	202411017112
32	Nutraceutical Enriched Banana Drink	K. Thirumalaiselvi, E.A.Mohamed Ali, Leema Nelson, C.Raja Babu, K. Krishnakumar	202411014831
33	OCR Integrated Reusable Notebook	Shivam Sharma, Nitin Kumar Saluja, Neha Tuli, Ananaya Bansal, Akarsh Anand Sinha, Archana Mantri	202411008442
34	Pashmina Shawl Quality Check Device	Kanwal Preet Kour, Deepali Gupta, Mudita Uppal, Malvinder Singh	202411023303

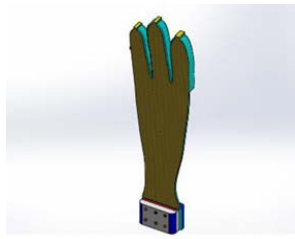
35	Planetary Mixer with Weighing Scale	Anup Kumar, Mansi Chitkara, Setu Sharma	202411012966
36	Pocobam Fabric ECG Gown	Kanika, Renu Ranjit Thakur, Amandeep Singh, Adarsh Kumar Aggarwal	202411005893
37	Portable Device for Melting the Ghee for Lighting Diya	Anoop Kumar Singh, Bhisham Sharma	202411012968
38	Precise and Portable RF based Spectroscopic Sensor for Liquid Adulteration Measurement	Nitika Dhingra, Nitin Saluja	202411023628
39	Rodent Deterring Device	Mudita Uppal, Deepali Gupta, Kanwal Preet Kour	202411026903
40	Self-Cleaning Hair Comb	Varun Jindal, Vinay Kukreja	202411000572
41	Shift Treads based Dynamic Staircase	Rajwinder Kaur, Madhav Khurana, Thakur Gurjeet Singh, Chanpreet Singh	202411018386
42	Smart Eye Protection Device for Digital Screen Work	Sanjeev Verma, Satwik Kanhere, Sukhmanpreet Singh Jaswal, Swati Goel	202411010480
43	System and Method for Displaying Content for Organizing and Presenting Information	Shinnu Jangra, Gurjinder Singh, Archana Mantri, Anjali	202411014832
44	System and Method for Implementing a Wi-Fi Module using a FPGA	Amanpreet Kaur, Vaneeta Bhardwaj, K.R. Ramkumar, Sudesh Mittal, Bhupendra Singh, Taniya Hasija	202411009324
45	System and Method to Detect Disease Identification in Agricultural Field using Wagon	Vinay Kukreja, Deepak Kumar, Ayush Dogra	202411026603
46	System for Improvement of Emotions in Verbal Communication	Muskan Chawla, Surya Narayan Panda, Vikas Khullar, Sunny Singh, S. Sreenivasa	202411026909
47	System for Integration of PMOD Wi-Fi Module using Field Programmable Gate Array (FPGA)	Amanpreet Kaur, Vaneeta Bhardwaj, K.R. Ramkumar, Sudesh Mittal, Bhupendra Singh, Taniya Hasija	202411023302
48	System using Polynomials on Field Programmable Gate Array (FPGA)	Ramkumar Ketti Ramachandran, Taniya Hasija, Amanpreet Kaur, Vaneeta Bhardwaj, Sudesh Kumar Mittal, Bhupendra Singh	202411010483
49	Tractor-Mounted Farm Machine to Transform Crop Waste into Value-Added Powder	Maninderjeet Singh, Nitin Kumar Saluja, Varinder Singh	202411018696
50	Vehicle Communication System and Method Thereof	Shalli Rani, Ishan Kumar, Kavy Goel	202411021682
51	Virtual Reality-based Simulation and Assessment System for Hydro-Meteorological Flood Modelling	Manisha, Puneet Bawa, Archana Mantri	202411004465
52	Wireless Automatic Irrigation System and Method Thereof	Nikhil Shrivastav, Jaya Madan, Rahul Pandey	202411003120
53	Wool Fabric Manufacturing System Maintaining Uniqueness of Traditional Manufacturing, and Method Thereof	Kanwal Preet Kour, Deepali Gupta, Mudita Uppal, Malvinder Singh,	202411011478

INDUSTRIAL DESIGN REGISTRATIONS

54. Gesture Enabled Trackpoint

By: *Naveen Kumar, Gaurav Kumar Bansal, Akul Sikand, Dev Gupta*

Application No. 410914-001



55. GPS Tracker Enabled Smart Shoes with Object Detection

By: *Archana Saini, Kalpna Guleria, Shagun Sharma, Somya Srivastav*

Application No. 406212-001

56. Hydroponic Bench

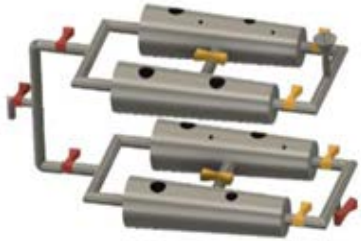
By: *Aarti Dangwal, Devesh Bathla, Arun Upmanyu*

Application No. 407339-001

57. Hydroponic System for Wastewater Treatment

By: *Jyotsna Kaushal, Rupinder Singh*

Application No. 412133-001



58. Multipurpose Smart Wallet

By: *Somya Srivastav, Kalpna Guleria, Shagun Sharma, Archana Saini*

Application No. 411919-001

59. Password Protected Box for Food Delivery

By: *Heranmoy Maity, Partha Khanra, Harjeet Singh, Manish Kumar Singla, Sudesh Kumar Mittal*

Application No. 407982-001

60. System and Technique for Solidifying Waste Fluids

By: *Aashish Kumar, Mukund Malik*

Application No. 411912-001

61. Toilet Unit Enabled Walker

By: *Sanjeev Verma, S.N. Panda, S. Sreenivasa, Pankaj Ramesh Natu*

Application No. 404526-001

62. Two-Wheeler Seat for Children

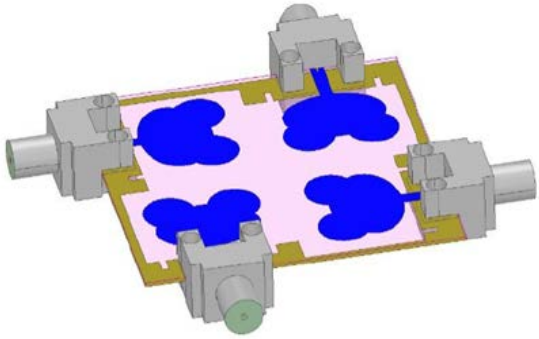
By: *Chanpreet Singh, Pawanjeet Kaur, Mohit Bagla*

Application No. 407340-001

63. Ultra Compact Mimo Antenna for Superwideband Applications

By: *Manish Sharma*

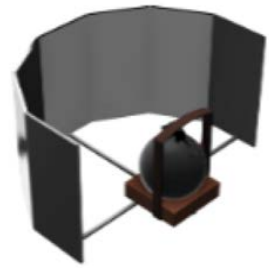
Application No. 412144-001



64. Virtual Reality System

By: *Rashpinder Kaur, Gurjinder Singh, Nitin Kumar Saluja, Debarshi Ghosh, Shivani Malhotra*

Application No. 406213-001



List of Publications

169 publications by CURIN in Q1

[1] A. Aggarwal, W. M. Lim, R. Dandotiya, and V. Kukreja, "Dark Tourism Through the Lens of Attachment Theory and Domestic Tourists," *Journal of Tourism Research*, vol. 26, no. 1, p. e2609, 2024.

[2] A. Bansal, R. Sharma, V. Kukreja, A. Singh, and S. Vats, "Sustainable PRS: A Hybrid DL-based Parcel Recognition Approach," in *14th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, pp. 1–5, 2023.

[3] A. Bansal, S. Vats, C. Prasad, V. Kukreja, and S. Mehta, "Bridging the Strawberry Cultivation Gap: Federated Learning CNN for Disease Detection," in *12th International Conference on System Modeling & Advancement in Research Trends (SMART)*, pp. 433–439, 2023.

[4] A. Bansal, S. Vats, C. Prasad, V. Kukreja, and S. Mehta, "Jute Health Decoded: Severity Level Analysis through Federated Learning CNN," in *12th International Conference on System Modeling & Advancement in Research Trends (SMART)*, pp. 203–209, 2023.

[5] A. Bansal, S. Vats, S. Mittal, V. Kukreja, and S. Mehta, "Strawberries at the Nexus of Tech: Federated Learning and CNN for Disease Severity Classification," in *12th International Conference on System Modeling & Advancement in Research Trends (SMART)*, pp. 440–446, 2023.

[6] A. Dagar, V. Kikan, A. Kumar, M. Sharma, and R. Gill, "A Novel Dual-Band Modified Inset-Fed Rectangular Antenna with Parasitic Structure and Different Slots for K-Band and 39GHz mm Wave Applications," in *International Conference on Sustainable Emerging Innovations in Engineering and Technology (ICSEIET)*, p. 115, 2023.

[7] A. Deshpande, N. Kaul, A. Mittal, H. Bhandari, and R. Raut, "Breaking Barriers: A Review of Career Transition Trends for Women," *The Open Psychology Journal*, vol. 16, no. 1, 2023.

[8] A. Gupta and U. Tandon, "Emergence of AI Enabled Smart Buildings in India: A Road Towards Sustainable Performance," *Global Knowledge, Memory and Communication*, 2023.

[9] A. Gupta, V. Kumar, M.H. Alsharif, P. Uthansakul, M. Uthansakul, V. Dhasarathan, M. Sharma, "Design and Performance Analysis of an L-Shaped Radiator and Defected Ground Antenna for Enhancing Wireless Connectivity in Brain Implants," *Heliyon*, vol. 10, no. 4, 2024.

[10] A. J Nair, S. Manohar, and A. Mittal, "Reconfiguration and Transformation for Resilience: Building Service Organizations Towards Sustainability," *Journal of Services Marketing*, vol. 38, no. 4, pp. 404–425, 2024.

[11] A. J Nair, S. Manohar, and A. Mittal, "Enhancing Customer Experience with Teleportation Technology: The Future of Travel and Tourism Industry," *Second International Conference on Smart Technologies for Smart Nation (SmartTechCon)*, p. 344, 2023.

[12] A. Khajuria, J. Kaushal, and S. Sudan, "Encapsulated Cobalt-doped Coconut Husk Biochar (Co@CHBc) for the Remediation of Anionic Dye from Wastewater," *Biomass Conversion and Biorefinery*, pp. 1-18, 2024.

[13] A. Khajuria, S. Sudan, and J. Kaushal, "Brief Overview of Biochar as Carbon Sequestration, Its Synthetic Techniques, Kinetic and Equilibrium Studies," *AIP Conference Proceedings*, vol. 2916, no. 1, 2023.

[14] A. Kumar, I. Sharma, K. Kaushik, and A. Choudhury, "Integration of Machine Learning Techniques for Intelligent Network Attack Detection," in *10th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, pp. 813–818, 2023.

[15] A. Kumar, M. Chitkara, and R. Thakur, "Tin Oxide Nanoparticles: A Review," *Nanoscience & Nanotechnology-Asia*, vol. 13, no. 6, pp. 27–36, 2023.

[16] A. Mittal, A. Aggarwal, K.K. Sharma, and A. Mantri, "Impact of COVID-19 on Psychological Wellbeing of University Employees: The Mediating Role of Coping Mechanism," *The Open Psychology Journal*, vol. 16, no. 1, 2023.

[17] A. P. Panda, U. Jha, S. A. Kumar, and S. K. Swain, "A Simplified and Affordable Arsenic Filter to Prevent Arsenic Poisoning: Lab-Scale Study and Pilot Experiment," *ACS ES&T Water*, vol. 3, no. 12, pp. 4092–4102, 2023.

[18] A. R. Dogra, P. Malik, V. Sharma, and P. Kumar, "Effect of Different Concentrations of Silicon Dioxide Nanoparticles on Electro-Optical and Morphological Properties of Homeotropic Aligned Liquid Crystal," *in AIP Conference Proceedings*, vol. 2916, no. 1, 2023.

[19] A. Rana, and A. Taneja, "Multi-IRS Aided Communication for Improved Performance in Massive IoT Network," In *First International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI)*, pp. 1-5, 2024.

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[21] A. Sandhu, A. Aggarwal, and N. Anand, "Exploring Role of Mindfulness to Reduce Bias in Visual Inspection Technolo-

gy," *AIP Conference Proceedings*, vol. 2916, no. 1, 2024.

[22] A. Sharma, D. Kumar, and V. Kukreja, "Boosting Crop Yield and Quality: Deep Learning-Based Multi-Classification of Wheat Eye Spot Disease," In *14th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, pp. 1-6, 2023.

[23] A. Singh, A. Kaur, and D. Gupta, "Trust Aspects in Usage of Web Cloud Computing for Website Development," *AIP Conference Proceedings*, vol. 2916, no. 1, 2023.

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