



THE PINE CHRONICLE

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FACULTY DESK

VR/AR technologies for Safety Management

Managing people's safety and health, particularly at work, is challenging and strenuous. In many industrial and service sectors, automated production systems and complex and hazardous socio-technical systems require effective human-machine interaction (HMI). Complex operating procedures, work incompatibility, and inadequate training are significant issues in HMI. For example, in the steel industry, crane operators working from elevated platforms at height, in construction sites, operators performing their jobs where continuous interaction among man, machine and material movement is occurring, and similarly surgeons performing critical operations in the operation theatre. Traditional techniques employed for visualization and interaction with these complex operations tend to be ineffective because of their limited learning horizon, absence of real-time experience, and expensiveness.

Industry 4.0 has given the opportunity to gather and analyze real-time data to improve interactions among operators, systems, and tasks. This technology is powered by integrating sensors, machines, and products through a cyber-physical system using internet-based protocols. It helps manufacturers to address the dynamic demands using automated and adaptable machinery. The vision of Industry 4.0 has successfully addressed some issues like big data analysis, human-machine interactions, remote sensing, autonomy in equipment, and connectivity between machinery, solving which productivity can be improved and cost can be minimized. Currently, the Industrial revolution, i.e., Industry 4.0, has moved ahead of interconnectivity and digital manufacturing. Intelligent environment for an increase in productivity through the integration of smart digital devices with real-time data analyzing systems and digitized physical products into the digital ecosystem are recently added feathers in Industry 4.0. In the wake of industrialization, workplace conditions, and work practices have deteriorated owing to inexperience, unskilled and ignorant workforces employed. So, knowledge about appropriate way of interacting with machines and working environment can be imbibed amongst workers through training modules regarding technological advancements.

In a workplace, the interaction between workers and machines is very important as it reflects on the productivity of the manufacturing system. Two possible issues which are evident from this interaction are ergonomics and behavioral issues. Ergonomic

issues include the operator's hand coordination, body posture with respect to the machine, and movement in the workplace. Behavioral issues are related to ignorance of workers about operation procedures, lack of concentration in work, and communication gap between supervising authorities may lead to incidents. Application of modern technologies in modelling workplace safety and designing prevention strategies have successfully answered these issues in recent futures. Traditional approaches like accident causation theories are helpful to analyze the root causes that lead to accidents in the manufacturing system. Static analytic methods like fault tree analysis (FTA), monte carlo simulation (MCS), and failure mode effect analysis (FMEA) are helpful for predicting the causes of accidents in a particular situation. Virtual reality (VR) and augmented reality (AR) are two major dimensions of Industry 4.0, which has successfully addressed the issue of human-machine interaction (HMI). Application of VR/AR nowadays makes it possible to reconstruct, simulate and visualize the accident scenario and find the causes in real-time. It is widely applicable in the chemical, mining, construction, healthcare, and manufacturing industries.

Emerging VR/AR-based training has given a platform to develop perceptual experience and cognitive ability for problem-solving and decision-making under complex stressful situations without exposing personnel to real-time hazardous or environmental conditions. Dangerous, impractical, and expensive scenarios in the real world are achievable nowadays owing to the courtesy of VR/AR simulators. From firefighter trainee, construction workers, and underground coal miners to medical surgeons, these simulators enabled us to gain real-world experience in a virtual environment. The application of VR/AR technology is an essential step towards improving workplace safety performance by virtue of its ability to recreate and analyze

ABOUT NUKSA

Nuksa The Pine Chronicle is the monthly news magazine of IIMShillong.

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working conditions using an advanced computer graphics technique. Application of VR/AR in this domain is significant specifically for hazard identification, situational awareness, inspection and maintenance, and safety education and training. Further, training in an immersive VR/AR environment will unfold unsafe working conditions and unsafe practices, errors in decision making, and hazards present at the workplace, which can be assessed with respect to time, cost, and resources.

In the future, Industrial revolution will demand better computational means to process large volumes of information in lesser time. So, Industry 5.0 will be beneficial for organizations for improvement in productivity and safety. Some of the major improvements essential for occupational safety are mentioned below.

- Human-machine interaction studies can be improved by focusing more on interdisciplinary research.
- Improved workplace layout and appropriate machine design can reduce occupational accidents and enhance safety at the workplace.
- Incorporation of new technology base training methods for the workers for skill improvement.
- Physical and mental abilities of the workers should not be overlooked during work distribution.
- Occupational safety module must have virtual task analysis, cognitive analysis of workload.

Emotion sensors, eye trackers, and adaptive interfaces should be installed at the workplaces to perform workers' behavioral analysis.



Prof. Krantiraditya Dhalmahapatra

TIMELINE



Prof. Pradeep Kumar Dadabada enlightened the entrepreneurs of Meghalaya in a session on "Digital Transformation for MSME" at the National Workshop organized by MSME, Govt. of India.

Gen-Next Democracy Network Programme



IIM Shillong hosted delegates from the 8th batch of the "Gen-Next Democracy Network Programme" organized by the Indian Council For Cultural Relations (ICCR).

Under the program, young leaders from International democracies got acquainted with India's culture, heritage, and the "Idea of India" by showcasing India's contributions towards addressing global issues through its democratic worldview.

Business Leadership Summit



Indian Institute of Management Shillong organized Business Leadership Summit x Learning on the Green Turf on the 4th and 5th of March 2023. Business Leadership Summit (BLS) is the annual flagship event of IIM Shillong. It hosts industry stalwarts across domains, including Consulting, Finance, Marketing, Systems & Analytics, Human Resources, and Operations. The event is a joint effort by various clubs and committees of the institute, and the sessions conducted are enthralling and cover the latest, most important industry trends. The theme for this year's event was "Youth, Managerial Competence and National Growth".

The event kicked off with an Inauguration Ceremony on the 4th of March, with Mr. Dhruv Sharma, Senior Economist at World Bank, and Ms. Dhruvarakha Sriram, Chief of Generation Unlimited, Youth Development and Partnerships at UNICEF India, as the Keynote Speakers. They covered essential topics on Indian economic conditions and the development of opportunities for the Youth of the Nation for better growth and success of the Nation.

Day 1 saw Panel Discussions across Marketing, Systems & Analytics, and Human Resources domains.

Day 2 started on a solid note with the Consulting Panel followed by the Operations panel. For the last panel discussion of BLS 2023,

the Finance panel took to the stage. Across panels, we saw various eminent personalities as speakers, including CEOs, Directors and other dignitaries from various top organizations.

The two-day event helped broaden the minds of the young, aspiring managers who will be the future of our Nation. Experts from all domains brought excellent ideas to the stage and led thought-provoking discussions, making the Business Leadership Summit 2023 a grand success.

Nirvana

NIRVANA, The Annual Cultural Festival of IIM Shillong was conducted by the Cultural Committee of IIM Shillong. It is one of the biggest and most awaited cultural events in Northeast India. It was a fun-filled and exciting experience for everyone involved. The two days festival was a celebration of music, dance, literature and art. The festival provided a platform for young and talented students to showcase their skills and creativity.



The festival featured a variety of events, including musical performances, dance competitions and poetry slams. The events were designed to cater to a wide range of interests and passions, and provide something for everyone.

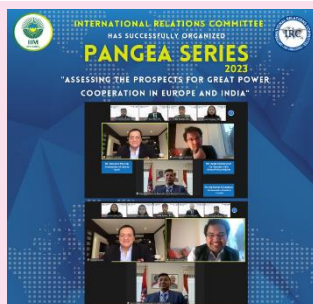
Apart from the competitions, Nirvana also featured two exciting 'Pronites' where renowned artists perform for the audience. Nikhil D Souza, the popular singer-songwriter, performed on the first pronite. His soulful voice and melodious tunes captivated the audience and left them wanting more. The other pronite featured DJ who specialized in EDM music. His electrifying beats and energetic performance got the audience grooving and dancing the night away.

NIRVANA will surely be remembered as one the highlights of this year, and the students can look forward to a much grander edition of NIRVANA, the next year.

Pangea Series

The International Relations Committee of IIM Shillong is delighted to share that we organised the first edition of our event titled "Pangea Series" on Feb 28, a panel discussion in which notable dignitaries from various fields in International relations share their experiences

The topic for this year was "Assessing the Prospects for Power Cooperation in Europe and India".



The panelists were Mr. Dinesk K Patnaik, the serving Ambassador of India to Spain and Mr. Raj Kumar Srivastava, the serving Ambassador of India to Croatia. The event was moderated by Mr. Arpit Chaturvedi, Co-founder and CEO of Global Policy Insights.

The insightful discussion shed light on the opportunities and challenges for power cooperation between Europe and India. The panelists shared their valuable perspectives on the potential areas of collaboration and the need for a coordinated approach to address global challenges.

Farewell and Holi celebration



The Cultural Committee of IIM Shillong organized the Farewell and Holi Celebrations. The event was designed to bid adieu to the final-year students and to welcome the festival of colors - Holi. The Holi celebrations were hosted on both the campuses of Nongthymmai and Umsawli, which all the students and faculty members attended, and it was a perfect way to mark the end of the academic year.

The **TOON-TASTIC FAREWELL** began with a FLEX DROP revealing the theme, which was followed by a FLASHMOB performed by the juniors. Later, the stage was set up for MR. & MS. FAREWELL, which included entertaining events. The seniors wholeheartedly participated and charmed the crowd the entire time. The DJ Night came next, during which everyone gave it their all on the dance floor. The delectable FAREWELL DINNER hosted by the Hostel Committee of IIM Shillong brought the evening to a close.

The following day was Holi, and for the celebrations, the Cultural Committee had arranged for speakers, colors, and water guns and ensured a safe and enjoyable Holi experience for everyone. The students had a great time as they smeared each other with colors and drenched each other with water. The vibrant colors added to the festive spirit, and the lunch as well as refreshments were a treat to have in addition to the music and dancing.

The next day started with the MEMORY LANE, which was a sentimental journey through the past for the seniors, the Cultural Committee created a pathway filled with all the cherished memories of one's life lived in these two years. The seniors relived the moments that made them happy, sad, and everything in between. The final part of the farewell involved SIGNING THE T-SHIRTS. Some wrote heartfelt notes, while others drew doodles or included funny inside jokes. The atmosphere was filled with laughter and emotions as everyone took their turn to sign the T-shirts, which would be cherished as a keepsake for years to come.

The Cultural Committee thanked everyone for their participation and support as the celebrations drew to a close. The Farewell and Holi celebrations were a great success. The event will be remembered and be a testament to the hard work and dedication of the Cultural Committee.

Legacy Cup



As the graduating batch passes the baton to their successors, they leave behind a legacy.

To celebrate this legacy, the sports committee of IIM Shillong organizes the legacy cup. The legacy cup provides a platform to show the unity of both the batches and battle one last time before the senior batch leaves.

This year's legacy cup included Badminton, Basketball, Chess, 4x100 Relay race, Throwball, and Volleyball.

PGP22 won 4 events- Basketball, Chess, Throwball, and Volleyball while PGP21 won Badminton and Relay race.

CONGRATULATORY NOTE



Team Republic of Restless consisting of Nitin Kaushik, Rahul Sharma and Aayushi Dubey of PGP 22 were declared the 2nd Runners Up of boAt's maiden case study challenge – **boat Wavemaker's Challenge Season 1**.

The competition was open to all full-time undergraduate and postgraduate students across India and saw over 21,000 registrations. The participating teams had to work on a real-life business challenge, and emerge as winners. We extend our heartiest congratulations to the Team Republic of Restless of IIM Shillong.



Nagar Official Language Implementation Committee (Ka-1), Indian Institute of Management Shillong was awarded a certificate for commendable work in implementation of Official Languages Policy during 2021-2022.



IIM Shillong congratulates the participants of Reliance TUP 8.0 for winning the "TUP Idea Generator Award" by submitting the maximum number of ideas amongst the participating Campuses.

