

# National Conference On



## APPLICATIONS, PROMISES AND CHALLENGES OF ARTIFICIAL INTELLIGENCE IN MINING INDUSTRY

<https://aiengfest.mbmalumni.org/landing/>


**26<sup>th</sup>-27<sup>th</sup> July, 2025**

**Institution of Engineers, Engineers Bhawan  
Jodhpur**



**: ORGANISERS:**

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## National Conference On

# APPLICATIONS, PROMISES AND CHALLENGES OF ARTIFICIAL INTELLIGENCE IN MINING INDUSTRY

To keep up with the new technology modernization and the profit in shake of investors and stakeholders and importantly for the nation, and to ensure health and safety mining industry needs to approve new-age autonomous technologies and intelligent system in mining field. Integration of Artificial Intelligence, Machine Learning, Internet of Things (IoT) and Automation are the keys to the 4th revolution in mining industry. Many entrepreneurs & big Business groups have already set up their footprint in the area and some are looking forward to utilize these natural resources with use of advance technologies in current market scenario and future need of civilization.

The MBM Engineering College Alumni Association in collaboration with Rajasthan Chapter-Jodhpur of Mining Engineers' Association of India (MEAI) is organizing its 1<sup>st</sup> National conference on **'Applications, Promises and Challenges Of Artificial Intelligence In Mining Industry'** on **26 -27<sup>th</sup> July 2025** at Jodhpur.

The MBM Alumni Association was founded in 1976 during the Silver Jubilee Celebration of our esteemed college. The Association boasts 17 chapters in India and 4 chapters in America and Canada, with new chapters in Boston, Los Angeles, and Pali (near Jodhpur) soon to be added. MBM Engineering College, a prestigious and time-honored engineering institution in India, was founded on August 15, 1951. The college is acclaimed for its rigorous academic environment and has a history of nurturing high-caliber engineers. These engineers have made substantial contributions to India's technological progress, particularly in areas like Space, IT and Atomic Energy. The Government of Rajasthan has now elevated the college to a Multi-Disciplinary MBM University.

Mining Engineers' Association of India (MEAI) was founded in 1957 & having it Head quarter at Hyderabad, proudly represents all professionals serving the minerals and mining industry in India. MEAI has a membership strength of more than 6400 spread in 27 regional chapters across the country. Association advances the mining community through information exchange, knowledge sharing and professional development. Its Rajasthan Chapter-Jodhpur was founded in 2006 and conducted various activities for mining fraternity in the western part of Rajasthan & organized International and National level conferences/workshops.

### Event Profile

Although being one of the most profitable sector mining industries is one of the riskiest investments. Mining, as is known, is always carried out against earth forces and therefore, involves one of the most hazardous working conditions- dusty, noisy, under risk of strata movement, gas emission, rock burst to name a few. In the era of Internet, AI is becoming one of the most promising saviours to mining Industry as it provides fast and accurate on-site decisions reducing the errors.

Automated mining involves removal of human labour from the mining process and replace it with full or partially automated equipment or techniques. Automation is the practical integration of

Artificial Intelligence, IoT and Robotics. Automation may be the key to reduce the overall cost and throughout while still maintaining the safety and integrity. (i) Enhanced consistency and continuity of mining systems, enhancing over-all mine productivity (ii) Increased resource throughput and resource quality (iii) Improved equipment-performance (better fuel efficiency, reduced unscheduled maintenance etc.) (iv) Improved safety and security for personnel through reducing exposure and removal from hazardous and risky areas. (v) Better vehicle utilization.

Around the western and advanced world, following practices are revolutionizing the mining world which now the India is grappling to brace as in today's globally competitive era, adoption of latest technology is the only saviour. Some of domains of mining where AI has great potential include:

- Autonomous Haulage
- Automated Drillers and Intelligent Drilling Systems
- Drones
- Inspecting Robots
- Autonomous Stockpile Management
- Environment Monitoring
- Predict Dust Concentration
- Personal Tracking and Monitoring
- Health Monitoring
- Roof Support Monitoring
- Machine Maintenance
- Rock Surface Monitoring
- Rock burst Prediction
- Slope Stability Analysis
- Fly rock analysis and Blasting Pattern Analysis
- Goaf Stability Analysis, etc.

The National Conference on '**Applications, Promises and Challenges of Artificial Intelligence in Mining Industry**' will provide a forum to focus on latest technological solutions for effective and safe exploration and mining in the current production driven resource environment. These technologies cover a diverse range of topics, including mining technology, drilling and blasting engineering, geotechnical applications, mineral processing, mine management and economy, environmental risk assessment and management, mining and local development, mined land rehabilitation, water management and hydrogeology, regional Geology and tectonics, spatial engineering for monitoring natural resources and environment change, GIS and remote sensing for natural disaster monitoring, risk mapping and revisualization, natural resources monitoring and management, mine occupational safety and health. The Conference will provide a common platform for the latest Internet technology- AI and the Industry and academia to meet and discuss solutions for achieving safe and profitable mining in the production-oriented market. The main objective of this Conference is to address the measures, mechanisms and policies that are indispensable to exploit minerals more efficiently in future. The specific aim is to see how India can utilize advanced technology to thrive and stay ahead and also identify technology areas

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where advances can improve energy efficiencies, increase productivity and reduce wastes from mining activities.

### Theme

The sessions will present the case studies & advanced work in the themes below. The presented papers will also be preserved in a hardbound Proceedings of the Conference. The conference will cover many topics on the following themes:

**Mineral Exploration:** Exploration Technologies, Satellite, airborne geophysical and geochemical analysis, Drone applications, Data acquisition and modeling, etc.

**Mine Development:** Latest Boomer based linear development, Laser based alignment techniques, Feasibility studies, Risk assessment, Computer aided Mine Designing and Planning, Project commissioning, etc.

**Mine Production domain:** Mine software, Remote and tele-remote-control system, Extraction technologies, Environment studies, and Mine operation and management. Innovative Mining Technology & Mineral Processing, Telecommunications, Artificial Intelligence and Internet Application in Mineral and Fuel Industries.

**Mining Activities:** Mine infrastructure, Overburden stripping, Mining equipment and vehicles, Influence of international initiatives, Environment Improvements/remediation, Infrastructure development for mine, and Mine Health & safety initiatives, issues and challenges.

**Sustainable mining towards Vikshit Bharat:** Digital Mining, Robotics in Mining, Coal Gasification, Blast Free Mining, mining towards De-carbonization & Net Zero waste, Cyber security in mining, Mineral reforms, etc.

**Mine Surveillance:** leverages computer vision and machine learning to enhance safety and efficiency by enabling real-time monitoring, hazard detection, and predictive maintenance, ultimately reducing risks and improving operational outcomes. mineral transportation encompasses autonomous haulage, route optimization, predictive maintenance, and real-time monitoring for safety and efficiency, ultimately reducing costs and improving operational performance.

According to the World Economic Forum the calculated investment on digital initiative would be \$420 billion in the next decade. In April 2017, economist McKinsey claimed that data analysis and robotics is going to save in between \$290 and \$390 billion for oil, thermal coal, iron ore, copper and natural gas across the globe. Artificial intelligence is also going to save a lot of cash flow and lives in the coming years in mining. "Mining is not everything but without mining everything in nothing" (Max Planck). Mining sector plays a very important role in economic development (neglecting the resource-curse hypothesis concept, which pretty much depend upon the governance). So, with right governance and expect planning artificial intelligence is undoubtedly going to be one of the keys to unlock the full potential of mineral extraction and to ensure safety of workers.

### Call for Paper:

**Abstracts** of paper on subject theme in English of not more than 300 words should be submitted by e-mail as word document (Times New Roman font- size 12, single space) with full contact

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details by 15<sup>th</sup> May, 2025. Full paper should be between 5000 -6000 words and are due by 15<sup>th</sup> June, 2025.

### Exhibition:

An exhibition will be held at the conference venue. Interested parties may forward their requirement of space latest by 15<sup>th</sup> June 2025.

**Participation Fees:** Cube Space Rs. 4000 per Sq. Mt. (minimum 9 Sq. Mts.), GST Extra

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\*GST shall be additional

### Registration Fee:

**All Delegate : Rs 10,000/- per delegate**

**Note: Early bird discount 25% (Registration before 15<sup>th</sup> June 2025)**

Payment may be made by draft / Cheque in favor of Mining Engineers' Association of India, Jodhpur

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