



Mission and vision

Mission: Promote knowledge of advanced technologies, connecting students with the industry through educational and innovative activities. At the same time, develop innovative solutions for mining, through research and collaboration, seeking to optimize processes, improve efficiency and safety in the sector.

Vision: To be a reference in the dissemination of knowledge on emerging technologies in mining, showing the transformations that technological advances will bring to the sector and promoting a more sustainable, safe and innovative future. In addition, to create an innovative solution that addresses the needs of mining, applying advanced technologies to improve the efficiency and sustainability of the sector.

Aim

The first event of the CIS-TIM student chapter brought together students, academics and professionals to discuss the impact of artificial intelligence on the transformation of the mining industry. During the meeting, key topics such as automation, security and innovation were addressed, highlighting how these technologies are rethinking processes and fostering positive change in the sector.

The event inspired attendees to feel an active part of this technological evolution, showing concrete examples of how companies are adapting their teams and processes to these new tools. In addition, it emphasized how tasks that were previously performed manually are now executed more efficiently and safely using advanced software.



Topics Covered

During the first CIS-TIM event, three key themes that are transforming the mining industry were addressed: automation, safety and innovation. More details on these topics are given below:

- **Automation:** Ignacio Muñoz (Product Marketing Manager - Industrial Solutions at ABB) commented on how artificial intelligence is being implemented in automation. This is a highly relevant topic, as AI is becoming a key tool to make operations more efficient and provide greater security for both human capital and machinery. This has allowed mining companies to increase productivity, as well as improve health and safety at work, especially considering that mining is a high-risk activity. Thanks to new technologies in mining, it is possible to have constant monitoring of the status of machinery and people within the organization. Even some processes carried out by these assets in mines or dangerous places can be automated, improving efficiency and reducing risks.
- **Innovation:** Rodrigo González Guerra (Founder of Minverso and HoloXR) explained how MINVERSO is applying artificial intelligence within its processes, offering an innovative vision for the mining industry. AI makes it possible to optimize processes, predict failures and analyze large volumes of data in real time. Through advanced algorithms, it can predict the behavior of equipment, improve efficiency in mineral extraction and reduce operating costs. In addition, it facilitates the automation of dangerous tasks, improving worker safety and minimizing risks. With the integration of technologies such as machine learning and predictive analysis, mining is transforming into a more agile, precise and sustainable sector.
- **Safety:** Juan José Porras (Founder & CEO of Coline Data) explained that safety in mining allows for constant monitoring of working conditions, detecting risks in real time. Through sensors and predictive algorithms, AI can identify equipment failures before they occur, avoiding accidents and reducing downtime. In addition, by automating dangerous tasks, workers' exposure to high-risk environments is minimized. These technologies contribute to creating a safer and more efficient work environment, protecting both people and machinery.

TIM-2024 Event: "Safety, Automation, and Innovation in the Mining Industry" – Marketing and Procurement Department

As the Marketing and Procurement Department, we are responsible for purchasing the supplies for the coffee break, preparing the cost spreadsheet, photographing the event from various angles, and promoting it on social media in the days leading up to the event.

COFFEE BREAK



Image 1: Coffee Break. Source: TIM.

EVENT



Image 2: Event. Source: TIM.

Table 1: Coffee Break Supplies Table.
Source: TIM.

COFFE BREAK				
Comida	Cantidad	Total	Estado	Entrega
Café	1	\$2.460	comprado	súper
Te	1	\$2.000	comprado	súper
Jugos	4	\$5.960	comprado	súper
Mini muffins	30	\$7.500	pagado	19-nov
Mini trufas	30	\$6.000	pagado	19-nov
mini donas	30	\$9.000	pagado	19-nov
canapes	50	\$22.000	pagado	20-nov
empanadas	50	\$24.000	pagado	20-nov
tapaditos	50	\$26.000	pagado	20-nov
brochetas de frutas	-	\$15.998	comprado	feria
Servilletas	3x40	\$1.000	comprado	súper
Vaso polipapel	150	\$4.800	comprado	-
1 kg de azúcar	1	\$1.000	comprado	súper
Endulzante	1	\$0	no comprado	súper
Agua embotellada expositores	3	\$2.370	comprado	súper
Palito revolador de café	1000	\$2.990	comprado	-
TOTAL		\$133.078		

Table 2: Welcome Kits Table. Source: TIM.

KITS DE BIENVENIDA				
Producto	Cantidad	Total	Estado	Entrega
Stickers	200	\$19.180	pagado	19-nov
Folletos	100	\$16.800	pagado	19-nov
Galvanos recuerdo	3	\$88.140	pagado	18-nov
	TOTAL	\$124.120		



Event organization

To ensure the proper development and organization of the event, a detailed schedule was drawn up to allow time and activities to be managed efficiently. Below is the event program with its respective activities and those responsible.

Table 3: Event schedule. Source: TIM.

Start	Term	Issue	Presenters / Speaker
3:30 p.m.	4:00 p.m.	Home - Arrival of attendees	-
4:00 p.m.	4:10 p.m.	Opening - Welcome	Benjamin Pizarro
4:10 p.m.	4:20 p.m.	Introduction teacher guide	Rodrigo Munizaga
4:20 p.m.	4:25 p. m	Video AI in new technologies	Explanatory video
4:25 p.m.	4:55 p.m.	" Automation "	Ignacio Munoz
4:55 p.m.	5:05 p.m.	Musical intervention	Francisco Pavez Aguilera
5:05 p.m.	5:35 p.m.	" Security "	Juan Jose Porras
5:35 p.m.	5:45 p.m.	Musical intervention	Claudia Retamal
5:45 p.m.	6:15 p.m.	" Innovation "	Rodrigo Gonzalez Guerra
6:15 p.m.	6:35 p.m.	AI in the Mining Industry - Question Panel	Speakers / Moderator
6:35 p.m.	6:40 p.m.	Acknowledgements	Melissa Carvajal
6:40 p.m.	7:20 p.m.	Cocktail	

Work team

The event was made possible by a team of people in charge of various functions. Below are the collaborators and their respective responsibilities during the event.

Table 4: Event assignments. Source: TIM.

Name	Activity
Gabriel Osorio	Seating arrangement
Kaytlin Neira	Seating assistant
Sebastian Romero	Seating arrangement
Bastian Tobar	Cocktail Management - Photographing
Angela Henriquez	Cocktail Management - Photographing
Javiera Recabal	Cocktail Management - Photographing
Leandro Rebolledo	Cocktail Management - Photographing
Claudia Retamal	Musical Intervention



Augustin Miranda	Cocktail Management - Photographing
Isidora Parra	Registration Assistant
Leonardo Espinoza	Registration Assistant - Music Intervention Assistant
Maria Apala	Assembly and management Cocktail
Isidora Escobar	Guidance Assistants
Andres Villarroel	Guidance Assistants
Isidora Medina	Seating assistant
Emiliano Chepillo	Management Cocktail - Orientation Assistants - Stand Management
Ignacio Vazquez	Management Cocktail - Orientation Assistants - Stand Management
Margarita Munoz	Cocktail assembly and management - TIM event management
Cypriana Papuzinski	Management TIM event
Elisa Munoz	Management TIM event
David Zuniga	Management TIM event
Fernanda Jara	TIM event management - Taking photos and videos.
Melissa Carvajal	TIM event management - Exhibitor closing event
Benjamin Pizarro	TIM event Management - Exhibitor Introduction Event
David Vargas	TIM event management - Control desk manager

Topics addressed by the exhibitors

One of the highlights of the event was the participation of expert exhibitors. Below is a list of the topics to be discussed by each exhibitor.

- Speaker: Ignacio Muñoz.
 - Qualification: ABB (Company) Vision on Future Technologies in Mining.
 - Topic: Automation.
- Speaker: Juan José Porras.
 - Topic: Security.
- Speaker: Rodrigo Gonzales Guerra
 - Topic: Innovation

Attendees and companies present

The first CIS-TIM seminar brought together students, academics and professionals interested in exploring the impact of artificial intelligence, the technology that is transforming the mining industry. During the event, three typical topics relevant to the sector were discussed: automation, security and innovation, highlighting their role in the evolution towards a more technological and self-sustaining mining.

For the first event, a register of seminar attendees was kept, allowing participants to be identified by their IEEE affiliation. Below is a breakdown that distinguishes between those who are part of this organization and those who are not:

Table 5: Attendees at the event. Source: TIM.

Attendees 1st CIS-TIM Event	
IEEE Assistants	26
General Assistants	45
Total	71

There was a high participation of non-IEEE attendees, which is significant for us. This demonstrates that our first event achieved the interest of the general public, highlighting the relevance of the topics addressed, such as automation, security and innovation. In addition, the presence of prominent exhibitors in the field.

In addition, an invitation was extended to various companies in the mining sector that are implementing artificial intelligence in their operations. Below is a list of the participating companies and a brief description of their application of AI within the mining industry in their company:

Table 6: Companies at the event. Source: TIM.

Invited companies implementing AI	
Company	Description
ABB	It is implementing artificial intelligence (AI) to help both commercial and industrial buildings revolutionize their energy management and cope with rising peak-time electricity rates. The company has included two new AI-powered applications in the ABB Ability™ Electrical Distribution Control System (EDCS) : Energy Forecasting and Intelligent Alerts.
MINVERSE	It uses a framework that supports the virtual relationship of the mining ecosystem through technologies such as AI.
COLINE DATA	It uses artificial intelligence and optimization algorithms to provide data analysis services that improve productivity. Its focus on predictive maintenance helps prevent machinery failures, reducing downtime and costs.



VIEW MINERAL	This amazing tool uses artificial intelligence to identify minerals and measure copper grade
GEOLOGY	Discovery of economic exploration targets using data, through the development of Artificial Intelligence models.
APRIMIN	Association of Industrial Suppliers of Mining. No use of AI.
LEIND	Robot Atom was the host during the day and attendees were able to interact with him and the laboratory team. Leind , this robot uses AI for its performance.

Finally, we present a list of the exhibitors who participated in the first CIS-TIM event. Below is a brief description of their areas of work and how they are integrating artificial intelligence into their projects.

1. **Ignacio Muñoz (Product Marketing Manager - Industrial Solutions - ABB)**: With extensive experience in industrial automation, he focuses on optimizing processes and driving efficiency. Teamwork is the driving force behind his approach, as he believes that collaboration leads to the best solutions.
2. **Rodrigo Gonzalez Guerra (Founder @Minverso & @holoXR)**: He has more than a decade of experience developing innovative solutions for the mining and construction industries. He uses advanced technologies such as Building Information Modeling (BIM), Internet of Things (IoT), Artificial Intelligence and Virtual Reality to create immersive and interactive environments that simplify and optimize complex processes.
3. **Juan José Porras Martínez (Founder & CEO Coline Data)**: He is the co-founder and CEO of Coline Data, a company dedicated to predictive maintenance and data analysis in machinery to increase availability and productivity. He has experience in research and development of hardware and software focused on solving industrial problems and increasing productivity in the mining industry.



Conclusions

The first CIS-TIM event was a real success, giving attendees the opportunity to immerse themselves in the fascinating world of artificial intelligence applied to mining. The topics addressed, such as automation, safety and innovation, proved to be highly relevant, and the presence of leading experts and companies created a unique space for learning and collaboration. What was most notable was the large participation of people not affiliated with the IEEE, reflecting a growing interest by the sector in how AI is revolutionising the mining industry. This event was not only a meeting place for professionals in the sector, but also a boost for the adoption of innovative technologies that improve both operational processes and safety at work. It undoubtedly marked an important milestone on the road to a more connected and innovation-oriented community in mining.