Harnessing Advanced AI for Streamlined Reporting and Decision-Making In Mines

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Abstract

The integration of AI in the mining industry can lead to a significant paradigm shift, particularly in handling and analyzing big data from mines. This paper introduces an innovative application developed by the author that leverages OpenAI's capabilities to transform how mining data is processed and interpreted. Moving beyond the conventional reliance on complex graphs and tables, the application developed by the author offers a more intuitive, conversation-based approach to data analysis.

To achieve this, the application efficiently gathers and organizes extensive data from routin daily activities in open-pit mines, such as drilling and blasting operations, manpower deployment, loading and hauling activities, as well as machinery operational metrics, including working, standby, and breakdown hours, along with the reasons for the delays.

The core innovation of the application lies in its use of OpenAI's advanced algorithms for analyzing the aforementioned data, which grows significantly over time. Instead of navigating through dense and often convoluted traditional data visualization formats, users interact with the system using simple, natural language queries. This approach simplifies the analysis of complex mining data, allowing users to ask questions and receive detailed, accurate responses as though they are engaging in a normal conversation. This feature demystifies data analysis, making it more user-friendly and less time-consuming.

Moreover, the paper extends its scope to other vital aspects of mining engineering, such as planning and design. Utilizing OpenAI's analytical capabilities, it assists in refining decision-making processes, optimizing operational strategies, and identifying future challenges. This includes considerations regarding the cost of implementing OpenAI, methods to reduce these costs, the time required for analysis, and the accuracy of the results.

In essence, this paper represents a groundbreaking advancement in mining data analysis. By harnessing the power of OpenAI to interpret complex data through simple dialogues and by developing an application, it sets a new standard for efficiency, accessibility, and intelligence in the mining sector.