عنوان مقاله:

Open pit limit optimization using dijkstra’s algorithm

محل انتشار:

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خلاصه مقاله:

In open-pit mine planning, the design of the most profitable ultimate pit limit is a prerequisite to developing a feasible mining sequence. Currently, the design of an ultimate pit is achieved through a computer program in most mining companies. The extraction of minerals in open mining methods needs a lot of capital investment, which may take several decades. Before the extraction, the pit limit, which influences the stripping ratio, damp locations, ore processing site and access routes, should be designed. So far, a large number of algorithms have been developed to optimize the pit limits. These algorithms are categorized into two groups: heuristic and rigorous. In this paper, a new approach is presented to optimize the pit limit based on Dijkstra’s algorithm which is based on mathematical relations. This algorithm was implemented on a 2D economic graph model and can find the true optimal solution. The results were compared with those from the dynamic programming (DP) algorithm. This algorithm showed to have less time complexity compared to the dynamic programming algorithm and to be easier to write dynamic computer programs.

کلمات کلیدی:

Graph Theory, Open Pit, Dijkstra Algorithm, Optimization. Dynamic Programing