عنوان مقاله:

A comparison of fuzzy rule-based expert system andMultiple regression analysis in modeling of drilling andBlasting in mines

محل انتشار:

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خلاصه مقاله:

Modeling of Sungun copper mine's drilling and blasting parameters which islocated in (East Azerbaijan- Iran) is the main aim of this paper. To improve theprocess of designing the blasting parameters, fuzzy theory has been used. Adoptingwith vague data and modeling non-linear functions with high complexity and inprinciple lack of certainty and definiteness in mine designing have been the mainreason of using fuzzy logic. Fuzzy theory has been modeled in multiple inputmultipleoutputs and does not have any limitation in the number of variables. Aftergathering the mine data, ۱۶ input and ۳ output variables were selected. For Sungunmine C-Means Clustering type was used. By modeling these parameters andclustering the outputs in the next stage, the Projection of membership functions ofoutput onto input spaces will be gained and the Rule base will be made. The createdmodel is an Expert system which is expandable and improvable by blasting experts.The data gained of the fuzzy model is compared with the experimental data and themodel error and required optimizing can be performed. Finally to validate the fuzzymodel multiple regression was used and the error of two methods in modeling werecompared and the fuzzy model had a very better result.

کلمات کلیدی:

modeling, blasting, fuzzy model, multi-variable regression, validating.

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