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Ensemble methods applied for NOx prediction in deep underground mine

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Mining industry is facing hazardous gas emissions problem all the time. During the work shift crews are using wheeled vehicles powered by diesel engines, which are considered as the main source of nitrogen oxides (NOx) in underground mines. Although the diesel engine manufacturers provides information on how many gas is generated, the mining company needs to predict NOx emissions from many LHDs working in dynamical regimes. Research was focused on 2 ensemble methods – Bootstrap Aggregation (Bagging) and Least-Square Boosting (Boosting). Both proposed approaches combine multiple weak models into single, strong result. Acquired information could be used as input data for ventilation system, what will result in better management of the mining and reduce the air pollution in the workplace resulting in better planning the work and increase safety.