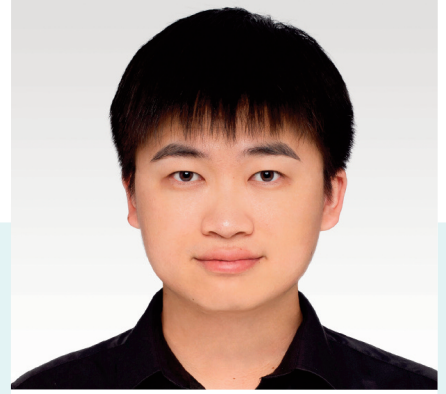




UNIVERSITY OF
LEICESTER

Poster 6

Ensemble learning for BOF Steelmaking end-point temperature prediction: A comparative analysis with neuron network



Jianbo Zhang

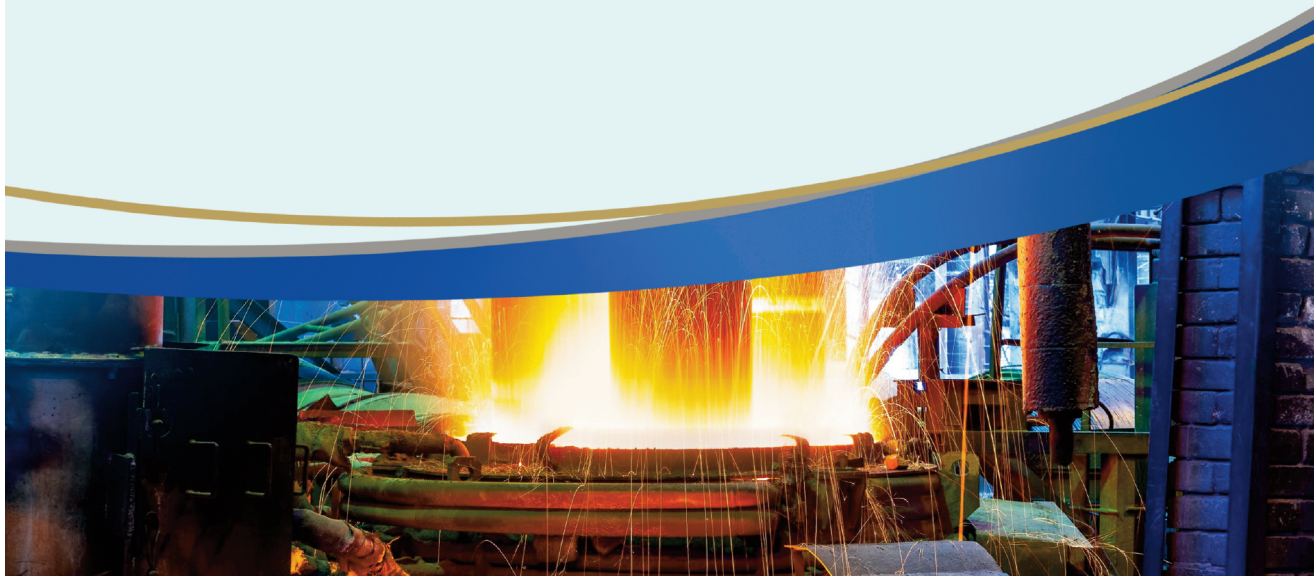
AUTHOR OF POSTER:
Jianbo Zhang

INSTITUTION:
University of Leicester

OTHER AUTHORS:
Maryam Khaksar Ghalati, University of Leicester
Professor Hongbiao Dong, University of Leicester

ABSTRACT:

Basic oxygen furnace (BOF) process is a global technique in the steelmaking industry. Optimising the BOF process is crucial for reducing carbon emissions, improving energy efficiency, and enhancing product quality. Machine learning became a strong tool to be attempted in industries recent years. Ensemble learning is a technique in machine learning that combines multiple models to improve the accuracy, robustness, and reliability of predictions. In this study, five machine learning models were established to predict BOF end-point temperature on a vast dataset comprising over 10,000 heats. These models were based on one neuron network algorithm which is multilayer perceptron and four ensemble learning algorithms including boosting algorithms (XGboost, lightGBM, Catboost) and bagging algorithm (Random Forest). A comprehensive comparison of all models was conducted, and the results showed that boosting algorithms performed better than other algorithms.



Organised by:



**Materials
Processing
Institute**



I·M·3
Institute of Materials,
Minerals & Mining

