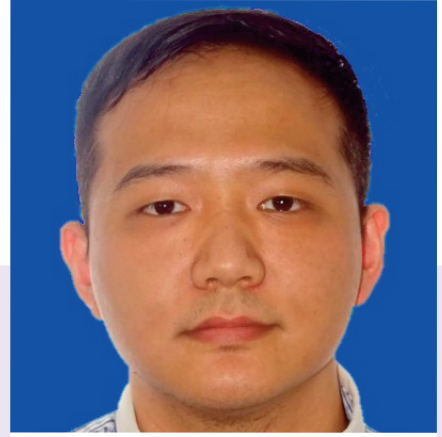




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Speaker 7



Xiaoan Yang

Prediction of mechanical properties of low-carbon hot rolled plate based on machine learning method

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ABSTRACT:
Prediction of mechanical properties as a function of chemical composition and hot rolling process parameters is important to the steel metallurgy industry; this is especially true for the yield to tensile ratio, a clear predictor for plastic collapse. In this study, a series of machine learning methods including shallow neural networks and decision tree approaches are applied to consider yield to tensile ratio using industrial datasets.

Sensitivity analysis (feature learning) is applied at the initial stages of building machine learning models and this allows the importance of features, not merely in terms of linear correlations to be ranked. As a result of sensitivity analysis the key impact features to control the yield to tensile ratio could be derived from massive industrial inputs. With the integration of statistical methods and data-driven models, prediction of yield to tensile ratio could be achieved and the key influential parameters Mn and Nb concentration identified.



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