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Soft Sensor-Based Artificial neural Networks and Fuzzy Logic. Application to Quality Monitoring in Hot Roling

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Abstract : On line monitoring is an important domain particularly in the complex processes where the characteristic of the product quality is difficult to measure directly. soft sensor based modeling and monitoring techniques can be considered as an alternative to solve such complex problem. We consider in this work a contribution for product quality monitoring in hot rolling. Data mining and modeling based artificial neural network (ANN) is used to determine optimal model. Deviation between optimal and actual condition characterized by dynamic properties of residual are used as a tool to compute a quality index in basis of the fuzzy reasoning. Application in hot rolling shows that this approach can be recommended as part of a tool of on line quality monitoring and classification.

Keywords : Artificial Neural Networks, Fuzzy reasoning, On-Line Quality Control, Quality Classification, Hot Rolling Process.