FEM/AI Models for the Simulation of Precision Grinding

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Simulation of grinding is a topic of great interest due to the wide application of the process in contemporary industry. Up to date, several modelling methods have been utilized in order to accurately describe the complex phenomena taking place during grinding, the most common being the finite element method and artificial intelligence techniques, e.g. soft computing methods. The present paper proposes a new hybrid model for precision grinding, more specifically the combination of finite elements with neural networks. The model possesses the advantages of both the aforementioned methods, for the prediction of several grinding features that define the outcome of the process and the quality of the final product.

Keywords: Grinding, Modelling and Simulation, Finite Element Method, Neural Networks

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