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Towards predictive quality in production by applying a flexible process-independent meta-model

Junjie Liang[a,*], Lukas Pelzer[c], Kai Müller[d], Simon Cramer[a], Christoph Greb[d], Christian Hopmann[c], Robert H. Schmitt[a,b]

[a]*RWTH Aachen University, Laboratory for Machine Tools and Production Engineering, Campus-Boulevard 30, 52074 Aachen, Germany*
[b]*Fraunhofer Institute for Production Technology IPT, Steinbachstraße 17, 52074 Aachen, Germany*
[c]*RWTH Aachen University, Institute for Plastics Processing, Seffenter Weg 201, 52074 Aachen, Germany*
[d]*RWTH Aachen University, Institut für Textiltechnik, Otto-Blumenthal-Straße 1, 52074 Aachen, Germany*

* Corresponding author. Tel.: +49-241-80-26940; fax: +49-241-80-22359. *E-mail address:* j.liang@wzl.rwth-aachen.de

Abstract

Predictive Analytics is increasingly applied as a basis for decision-making in product and process optimization of manufacturing companies. In this context, Predictive Quality enables companies to make data-driven predictions of product quality, with data integration being one of the most significant challenges. This paper provides insights into exemplary applications of a flexible process-independent meta-model to integrate data for multi-step manufacturing processes. Three application use cases from different production domains are presented, demonstrating the meta-model's applicability for Predictive Quality applications in manufacturing companies without restrictions regarding the product or manufacturing process.

Keywords: Predictive Quality; Process Data; Production Data; Meta-Model; Data Analytics