PRESS RELEASE
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Human-centered Decision Support System for Fault and Error Management on the Shopfloor

Research Project "HUMEUS" is Intended to Support the Digitization of Production

In the future, employees in production will receive better support in making decisions in fault and error situations. This is the aim of the planned research project "HUMEUS – Humanzentriertes Entscheidungsunterstützungssystem für das Stör- und Fehlermanagement auf dem Shopfloor [Human-centered decision support system for fault and error management on the shopfloor]". The research project deals with the question of how a human-centered decision support system based on methods of Artificial Intelligence (AI) should be designed so that the most efficient cooperation between human and system can be guaranteed.

The research group Augmented Intelligence at the Laboratory for Machine Tools and Production Engineering (WZL) at the RWTH Aachen University is working together with the Institute for Digitization at the University of Applied Sciences Koblenz to develop a decision support system based on the human-centered design approach, which generates possible options for action from company data, such as in Enterprise Resource Planning (ERP) and Manufacturing Execution Systems (MES), using AI-based methods. The information on these options for action will be made available in a human-centered and user-specific manner.

Cooperation partners and companies for the "HUMEUS" project wanted

For the industry-oriented research project, cooperation partners from industry are sought, who are interested in the fundamental question and the realization of this system, for example by test implementation in their own production. Especially for small and medium-sized enterprises (SMEs), this offers an opportunity to advance the digitization of their own production with relatively low investments.

Enablers from the fields of Artificial Intelligence, Data Science, Image Processing and UX/UI Design can join the research project as cooperation partners. In addition, user companies, which plan to increase flexibility and agility in production, to realize an intelligent information provision in production and thus an improvement of the short-term decision-making ability of the employees or which have a general interest

Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University

Stefanie Strigl (M.A.)
Head of Press and Public Relations

Campus-Boulevard 30
52074 Aachen
GERMANY

+49 241 80-27554
s.strigl@wzl.rwth-aachen.de
www.wzl.rwth-aachen.de

in the use of AI to increase efficiency in production, are also wanted as cooperation partners.

At the beginning of the project, realistic scenarios for fault and error management will be defined with the companies. Together with data scientists of the WZL, possible data sources for feeding the AI algorithms and possible applications of the decision support system will be identified. Subsequently, the necessary algorithms for generating the options for action (immediate measures) for classifying the individual situation and for interaction with the employees at the human-computer interface are developed. Using the algorithms from the field of AI, models are trained, which are tested in a first prototype.

The planned start of the project is July 1, 2021. Members of the project-accompanying committee will have the opportunity to steer the research process and benefit first-hand from the research results. In addition, they will have the chance to test and use the developed decision support system in their own company on site.

Until November 15, 2020, interested companies, who wish to participate in the research project as user companies or in the area of software development and user interface design in the project-accompanying committee, can contact Sascha Thamm.

Contact at WZL
Sascha Thamm, M. Sc.
+49 15172921969
s.thamm@wzl.rwth-aachen.de

Laboratory for Machine Tools and Production Engineering

The Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University enhances the innovative strength and competitiveness of the industry with trend-setting basic research, applied research and the associated consulting and implementation projects in the field of production technology. In the research fields of manufacturing technology, machine tools, production engineering, gear technology as well as production metrology and quality management, practical solutions for rationalizing production are developed with industrial partners from a broad range of branches

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