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2019 Hanover Trade Fair

Data@Hand – optimizing processes in the most various applications with AI

At Booth A30 in Hall 6 at the 2019 Hanover Trade Fair the Fraunhofer Institute for Computer Graphics Research IGD will be presenting Data@Hand, a basic automated data analysis technology for a variety of application scenarios. Data@Hand detects deviations from the normal operation of a machine, a component or a production installation - and can also be used in medicine. It optimizes processes on the basis of artificial intelligence using principles of machine learning.

This is what the future could be like: A company directly incorporates a sensor unit that analyzes data and detects anomalies into each installation it produces. The installations are sold throughout the world, and as soon as they are in operation they transmit their data to a common cloud. In this way all installations throughout the world can learn from each other how normal operation should proceed. If there is a deviation this is recognized, even if this unknown pattern has never occurred in the individual installation. "What's special about this is that we can react to operating conditions that have never yet arisen before and have a system that is constantly evolving. Through learning by itself it recognizes normal operating conditions and deviations" explains Dr. Mario Aehnel, Head of the Department "Visual Assistance Technologies" at the Fraunhofer IGD in Rostock.

Optimum algorithm incorporation for every customer

Data@Hand is an information and data tool for humans in working processes which is aimed at process optimization and is based on the principles of machine learning and artificial intelligence. It supports the analysis of complex data volumes but leaves the specific decisions on how to react to anomalies to the professional expert. Through individually addressed questions Data@Hand ensures optimum algorithm incorporation for every customer. In the same way as, for example, vital data of a patient, machine data from production can be evaluated more quickly. Analysis can not only take place via a powerful server-based platform, but also on ultra-small systems directly at the machine or patient.

Data@Hand can also be connected to existing AI tools and data processing platforms (MES/ERP) or be used for visual data formatting, by way of Plant@Hand3D or Health@Hand, for example. Customers can therefore work using systems they are already familiar with.

Editorial Notes

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Live data analysis at the Hanover Trade Fair

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At the Hanover Trade Fair scientists from the Fraunhofer IGD will show how a real additional value can be generated from a pure data collection through intelligent analysis with Data@Hand and the visualization of critical conditions. In an example demonstration the operating conditions in a compressor unit will be modified to different degrees and the machine parameters of temperature, vibration and power uptake will be analyzed. The recognition analysis runs on the directly connected sensor unit. With these data, anomalies and new operating influences are identified in real time. As soon as the operating behavior deviates from normal a warning is given. With the obtained data, not only the causes of problems can be analyzed, but it is also possible to predict what contributes to reducing maintenance costs.

At the 2019 Hanover Trade Fair the technology can be tested live on the trade fair exhibit from April 1 to 5, 2019 at the joint Fraunhofer booth A30 in Hall 6.



Picture : Data@Hand detects deviations from the normal operation of a machine.

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