Role of Artificial Intelligence in the Field of Mechanical Engineering

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EDITORIAL NOTE

Artificial intelligence may be a branch of applied science that deals with the automation of intelligent behavior and machine learning. Computer programs supported machine learning can independently find solutions for brand spanking new and unknown problems with the assistance of algorithms.

For technology, AI is in particular a chance to keep up worldwide leadership. This not only good for engineering science companies and their customers, but also holds considerable potential for using materials and energy more efficiently, taking better decisions and mastering challenges like scarcity of resources and global climate change. If, on the opposite hand, industry doesn't achieve exploiting the opportunities offered by AI, the leading role of European engineering companies will definitely be lost to competitors from other technology world regions. The mixing of AI into applied science is therefore an absolute must for companies, research and policy makers.

In the future, even simple monotonous tasks, which are often repeated, may be better applied or supported by AI-based solutions, like checking invoices or necessary quality checks. Therefore, more and more engineers and computer scientists are needed to develop these systems and produce them to product maturity. As a result, new jobs are increasingly being created in industry.

Mechanical engineering also faces up to the responsibility related to the introduction of latest technologies - whether as a guarantor of machine safety or as a dialogue partner for social aspects. It combines a large style of advanced technologies to convey machine the power to find out, adapt, make decisions and display behaviors not explicitly programmed into their original capabilities. Different Areas: Robotics Speech Recognition automatic face recognition 3 navigation mapping motion planning beholding.

Machine learning is employed, as an example, to examine surfaces or textures in quality assurance using image processing methods and features a high potential to create image processing more efficient. Another example is that the process optimization of complex machines: Here, sensor-data-based machine learning can provide valuable information to shorten commissioning times and find out unknown sources of error.

Technology is basically ready for the market; first experience and best practices do exist. Even technology companies are able to tap significant benefits through the employment of information, machine learning and other AI procedures. Algorithms can speed up processes or take over completely, help employee's access knowledge and relieve them of creating decisions.

In engineering science, AI brings with it a serious change: data-based business models also will become attention of future value creation in industry. In an exceedingly data-based economy, however, ethical issues are of fundamental importance. This concerns the question of human-machine interaction in addition because the question of information sovereignty. In industrial use, computer science also offers considerable advantages in producing more resource-efficiently and sustainably and in maintaining innovation leadership in technology.

Machine Learning (ML) may be a powerful tool, at the start of an initial stage, it's necessary to contemplate the opportunities and risks and to measure and quantify the prices and benefits always with a clearly defined objective. In industry, we mainly depend upon quantitative rather than qualitative statements when working with conventional systems. Together with data formats and therefore the required connectivity with uniform standards, data content and also the issue of its links to individuals are important criteria for further processing and handling.

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