



Press Release

INTECH 2024: TRUMPF enhances the design process with AI

iAssist, a new AI-based software, analyzes the potential for improving assemblies and suggests suitable design strategies // Companies can elevate part quality and reduce the workload on designers

Ditzingen, Germany, March 14, 2024 – At this year’s in-house INTECH exhibition, TRUMPF is unveiling an initial version of a solution that provides designers with support based on artificial intelligence (AI). The iAssist software analyzes improvements to assemblies and suggests ways of realizing this design potential. All designers need to do is upload the STEP file for the assembly. In a couple of seconds, the AI-based software analyzes the data and generates a result. “With iAssist, designers can achieve very good results much quicker,” says Jörg Heusel, R&D manager for sheet metal design at TRUMPF. “Instead of improving the parts by means of trial and error, the software automatically shows where the greatest potential for optimization lies. This generates better results and helps companies become more efficient.” During analysis, iAssist also takes economic factors into account and shows, for example, how material can be saved or production steps eliminated.

Optimate and KIT as development partners

On this project, Heusel’s team is working with Optimate, a start-up company spun off from TRUMPF, and the Karlsruhe Institute of Technology (KIT). The iAssist solution uses AI algorithms from Optimate to improve individual components and an algorithm trained by TRUMPF to optimize the assembly as a whole. For this purpose, Heusel and his team have classified over 2,000 assemblies in terms of their potential for optimization. In parallel, KIT students are using iAssist to improve the design of assemblies. TRUMPF then uses this data to further train the AI. “Working with the KIT students has demonstrated the advantages of iAssist,” says Heusel. “After just two or three passes with iAssist, most students, even beginners, were starting to achieve very good results.”

Customer data helps improve results

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At present, TRUMPF is making iAssist available free of charge to all interested users. “Customers can use the software to optimize their components,” Heusel explains. “We, in turn, can then use their data to further train the AI and continuously improve the quality of its analysis.” TRUMPF now has further plans for the software: to connect the design data for components with production data from the machines used to manufacture them. “If, for example, there’s a problem with the cutting process during production, the software automatically analyzes whether a design error is the root cause,” says Heusel. “If that is the case, iAssist takes this information into account during the analysis.”

The TRUMPF in-house exhibition INTECH will take place from 9 to 12 April at the high-tech company in Ditzingen.

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Optimized components

The iAssist software shows how to optimize the design of assemblies and manufacture them more efficiently (source: TRUMPF)



Improved results

With iAssist, even designers with little experience can rapidly achieve very good results (Source: TRUMPF)



About TRUMPF

TRUMPF is a high-tech company offering manufacturing solutions in the fields of machine tools and laser technology. The Company drives digital connectivity in the manufacturing through consulting, platform products and software. TRUMPF is a technology and market leader in highly versatile machine tools for sheet metal processing and in the field of industrial lasers.



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In 2022/23, the company employed some 18,400 people and generated sales of about 5.4 billion euros. With over 80 subsidiaries, the TRUMPF Group is represented in nearly every European country as well as in North America, South America and Asia. The company has production facilities in Germany, France, the United Kingdom, Italy, Austria, Switzerland, Poland, the Czech Republic, the United States, Mexico and China.

Find out more about TRUMPF at www.trumpf.com

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