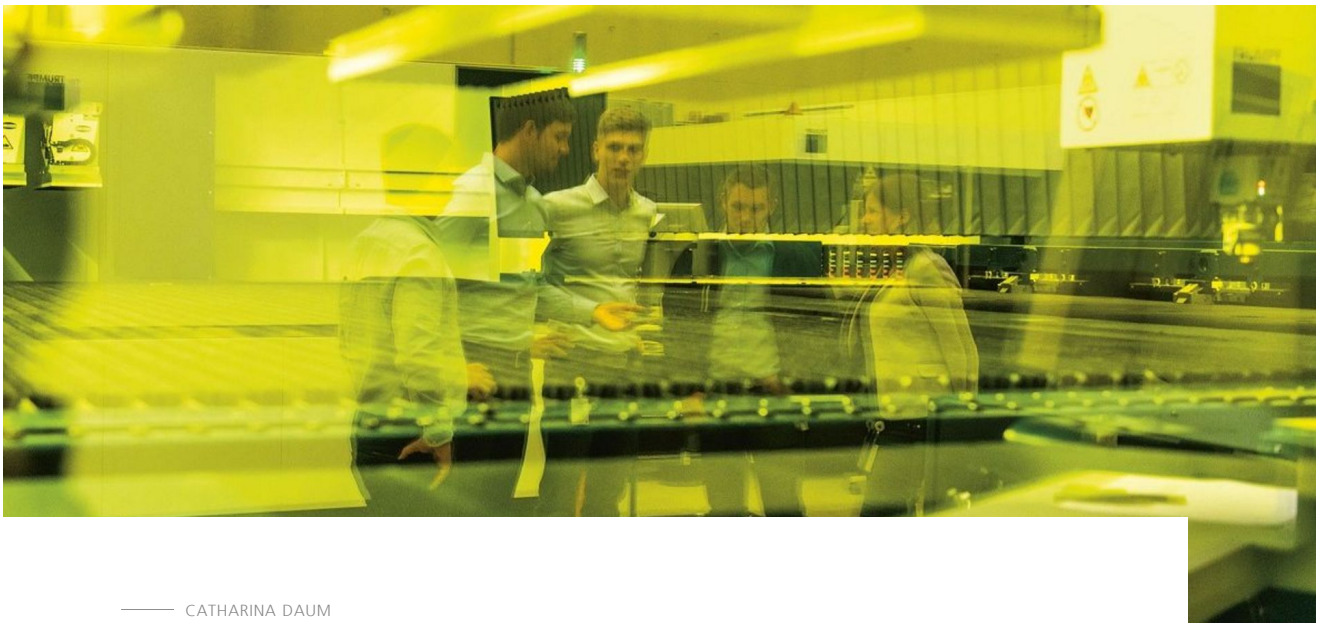


CATHARINA DAUM

With these projects, TRUMPF turns artificial intelligence into reality

When people hear the phrase artificial intelligence, they are often unsure what to make of it. Robots are what spring to mind in most cases – but the reality is much more complex. Artificial intelligence is a branch of computer science concerned with the automation of intelligent behavior and machine learning, an area in which self-learning algorithms play an important role.

Christoph Blömker is working on an AI solution. Together with his colleagues, he hopes to make the TruLaser Center 7030 even better. "Originally we didn't even intend to incorporate artificial intelligence in the TruLaser Center 7030. But then we realized we had reached the limits of what we could teach the machine with simple algorithms and manual data analysis, so a couple of years ago we decided that the fully automated machine needed to start teaching itself things, too," says Blömker.

The TruLaser Center 7030 is the first machine to bring together every aspect of the laser cutting process, from raw metal sheets right through to neatly stacked, finished parts. It features an automation unit with built-in sensors. These check whether the pins have successfully lifted cut-out parts out of the scrap skeleton so that the SortMaster Speed suction pads can grab hold of the parts and remove them. If a part gets stuck, the machine autonomously initiates a new attempt. The developers soon came up with the idea of making use of this information by collecting it from all the machines that are currently in operation worldwide. TRUMPF now runs an automated, centralized system that evaluates data on these various attempts – the ones that initially failed, and the one that eventually succeeds. The results of this data comparison can then be transferred from one machine to all the other machines of the same type. "Due to the complexity involved, the analysis of this data is the perfect candidate for applying self-learning algorithms," says Blömker. At the moment, the emphasis is on collecting the data. This will subsequently serve as a basis for analysis and machine learning.

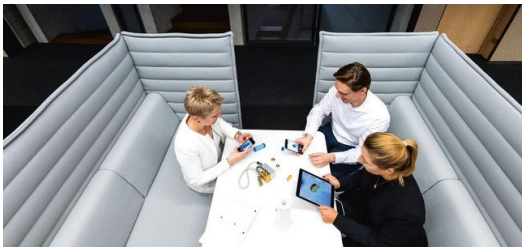
Photos as part of AI

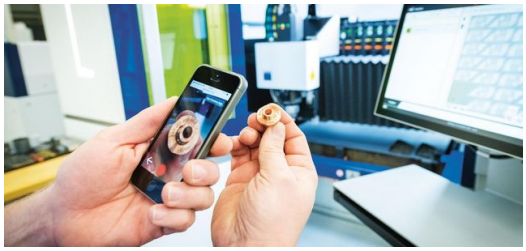
Fully automated laser machines are just one example of how TRUMPF is pushing ahead with artificial intelligence. Kathrin Pfaff – head of new and digital business services – has developed a solution with her team that transforms how replacement parts are handled. The application allows customers to identify products using a photo or camera scan. The application forms

part of the Easy Order app. The technology uses the photos to identify which part needs replacing. Users can then easily submit an order for the relevant parts through the Easy Order app.

The part recognition process works thanks to an artificial, neural network which TRUMPF populates with photos of the various items that can be ordered. "We're also planning to let customers submit images to help develop and enhance the database. The more feedback we get, the better it will work," says Pfaff. "Our app saves time and is particularly useful for new employees who are less familiar with TRUMPF machines."

The first parts to be incorporated in the new feature are laser consumables. The most frequently used parts were successfully added to the neural network in time for TRUMPF's INTECH in-house trade show. "Obviously, though, we're ultimately aiming to incorporate all 30,000 replacement parts," says Kathrin Pfaff. "The app is definitely smart enough to handle it."







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