

AICA | SCHAEFFLER

Enabling Autonomous Learning of Assembly Operations

Schaeffler and AICA introduce intelligent robots in production to automate complex industrial processes, using force feedback and reinforcement learning.

THE CHALLENGE

Schaeffler has automated the assembly of gearbox stages, which proved to be uneconomical to scale due to the limitations and efforts of conventional robot technology. The complexity of this task, with parts that move unpredictably, required skills similar to manual assembly. The AICA technology gave the robots intelligence and tactile sensitivity, making the automation of processes such as gearbox assembly economical and efficient. This was an opportunity for Schaeffler to demonstrate the advanced capabilities of AICA. With the help of Reinforcement Learning and closed-loop force control, the robot learned to perform the assembly process safely and autonomously - without manual programming. This reduced the integration time and minimized adjustments to production changes.

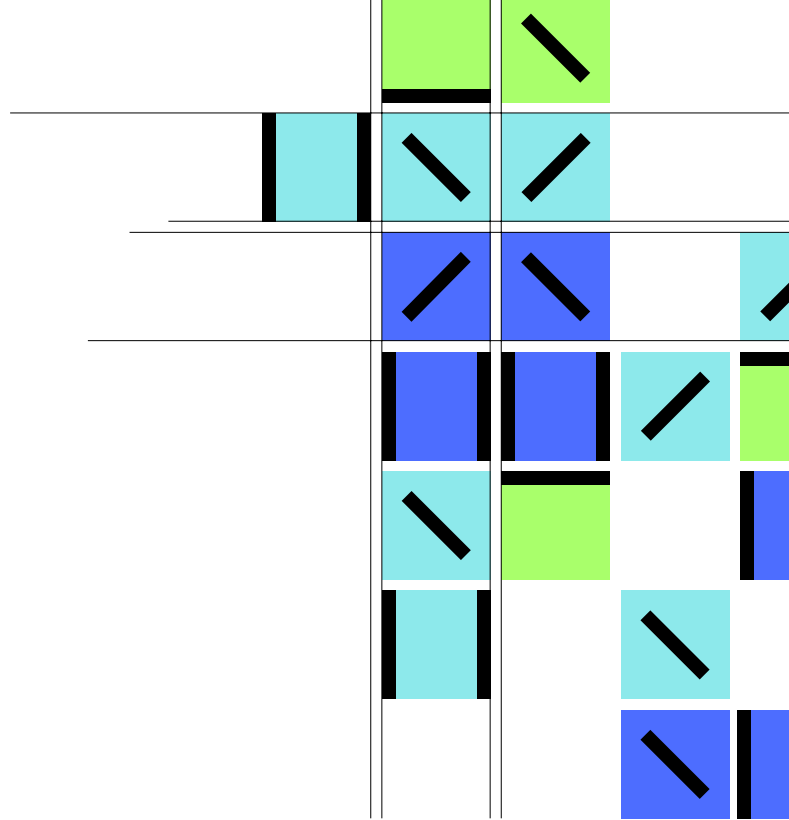
THE SOLUTION

AICA combined Reinforcement Learning capabilities, force control, and dynamic motion, allowing Schaeffler to automate the assembly in three simple steps: teaching, learning, and deploying. The AICA tech team and Schaeffler innovation team closely collaborated, starting with a Proof-of-Concept, followed by a pilot project, and then the deployment in production.

THE OUTCOME

Schaeffler and AICA were able to explore the new possibilities of robotics and automate tasks that would previously have required an extensive amount of time and effort. AICA's solution enabled rapid implementation: autonomous training reduced the development time to just a few hours. Together, the teams achieved an increase in performance: all stability, quality and efficiency requirements placed on the series process were achieved. The entire process was completed in less than a week. The first pilot project in series production satisfied the segment and the development team. This opened the door for further projects and collaboration!

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AICA

WEBSITE
aica.tech

FOUNDED
2019

HEADQUARTERS
Prilly, Switzerland

NO. OF EMPLOYEES
10-50



AICA simplifies robot integrations and programming to save time, resources, and money.

The AICA platform combines robotics, sensor technology & artificial intelligence to enhance connectivity and facilitate the development of industrial applications. Further key aspects are the modularity and hardware independence of the platform.

ABOUT STARTUP AUTOBAHN

STARTUP AUTOBAHN powered by Plug and Play is an open innovation platform that provides an interface between innovative tech companies and industry-leading corporations. The basis of the program is the partnership that develops between startups and the corporate business units. The two entities hold an equal footing from the get-go: together they evaluate the potential for a joint venture, move forward to pilot the technology, and work to achieve the ultimate goal – a successful production-ready implementation. Designed with the intention to exceed startup acceleration, STARTUP AUTOBAHN powered by Plug and Play moderates a community for collaboration with a focus on implementable results. Over the years, the platform has successfully cultivated over 400 projects with more than 300 startups since its founding in 2016.

ACKNOWLEDGEMENTS

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