

GANResilRob

Generative Adversarial Networks and Semantics for Resilient, Flexible Production Robots



Motivation The industry is already highly automated and possesses a large number of industrial robots, that are precise, fast and powerful. Nevertheless, the pandemic has shown a lack in another key area: flexibility. As the global supply chains collapsed, industrial production experienced significant difficulties. Companies were unable to make up for missing parts and materials or to quickly switch to new products with available components. An additional critical aspect was the lack of on-site workers due to pandemic regulations.

Goal The goal of GANResilRob is to make available the inherent flexibility of industrial robots by enhancing them with a combination of AI technologies such as machine learning, Generative Adversarial Network (GAN), AI-based semantic interpretation and intuitive task programming.

Intended Outcomes By using AI-technologies, the project intends to support rapid manufacturing of new products, reconfiguration of production lines in case of changing supply chains as well as to create intelligent robotic production cells for assembly and disassembly. To demonstrate it, GANResilRob has identified industrial applications that pose challenges in industrial automation: the assembly of vacuum chambers and the recycling or recovery of components from old cars.

Impact Main impacts of the project include: (1) increased resilience in French and German production industry, (2) reduction in CO2 emissions, due to the automated recycling of electronic or mechatronic components, (3) reduction of human contacts during pandemic crises by integration of remote-controlled task teaching.

Tags AI, industry, robotics, manufacturing and disassembly

3 YEARS
DURATION



March 2022 – February 2025

5 PARTNERS



France: Two-I SAS (lead), CNRS DR Centre-Est, Secma SA

Germany: FZI Forschungszentrum Informatik (lead), ArtiMinds Robotics GmbH

€ 2.7 MILLION
FUNDING



The total project costs amount to € 3.9 million, of which € 2.7 million will be funded.

CONTACT



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