AGILE ROBOTS

Turning research into real-world applications: Connecting AI to the physical world

all about automation Chemnitz, 01.10.2025
Jue Wang

About Agile Robots

Agile Robots is a world-class provider of next-generation automation solutions.

By combining artificial intelligence and robotics, we make industries smarter, more flexible, and more efficient.

Founded in Munich in 2018 by renowned robotics researchers from the German Aerospace Center (DLR), we've grown into a global leader in intelligent robotics solutions.

+10,000
solutions deployed

+2,300
colleagues worldwide

+300
patents

+1,000
R&D specialists

+10,000 m^2
laboratory space

+60
nationalities

+15
global sites

Global sites

Germany

Munich
Agile Robots
International HQ, R&D

idealworks
HQ, R&D

Franka Robotics
HQ, R&D

audEERING
HQ, R&D

Kaufbeuren
Agile Robots
Production

Franka Robotics
Production

Gemmingen
BÄR Automation HQ, R&D, Production

China

Beijing
Regional HQ, Production, R&D

Changsha
Office

Chongqing
Office

Harbin
Office

Kunshan
Production

Shenzen
Production

Zhengzhou
Production

India

Bangaluru
Regional Headquarters

Chennai
Production

Better together

AGILE ROBOTS

audEERING®

audEERING

Audio-based AI technology for multiple sectors, such as automotive and robotics (since 2025)

BÄR

BÄR Automation

Automated guided vehicles and customized automation and assembly technology solutions for logistics and production (since 2023)

FRANKA ROBOTICS

Franka Robotics

Force sensitive robotic arms for research and disruptive applications (since 2023)

idealworks

Idealworks

Robotics ecosystem with intelligent automation platform and mobile robot portfolio for diverse industries and use cases (since 2023)

Our portfolio

Diana 7

Thor series

Yu 5 Industrial

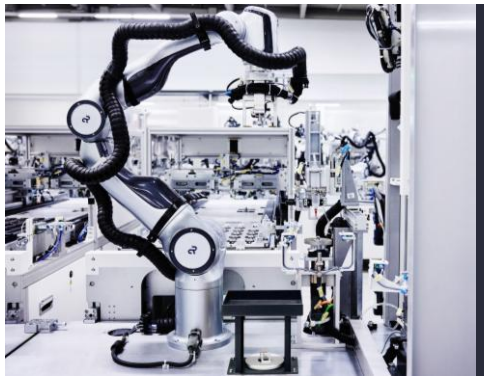
Agile Hand

Mobile platforms

AgileCore & AgileAI

Target industries

AI & technology



Consumer electronics

Automotive

Medical & healthcare

Logistics

Other applications

Robotik Challenge 2025

Transformation Hub Leitungssatz & ARENA2036

The goal

The automated production of partial wire harnesses.

The task

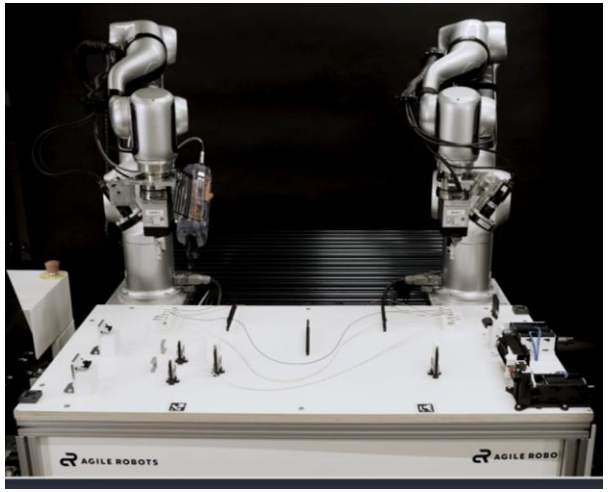
Inserting five wires, ranging from 0.13 to 1.5 mm^2 in size, into four different connectors.

The challenges

- Flexible wires
- Tiny parts
- 0.1 mm tolerance
- Almost no prior automation in the field

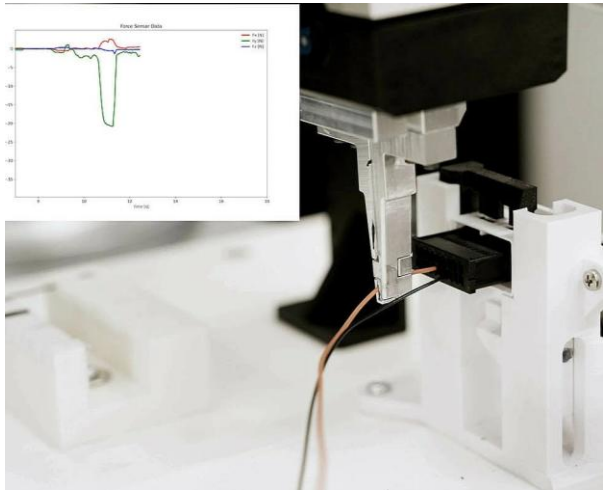
Winner in the category
“Cost-efficiency“

Robotik Challenge
The setup



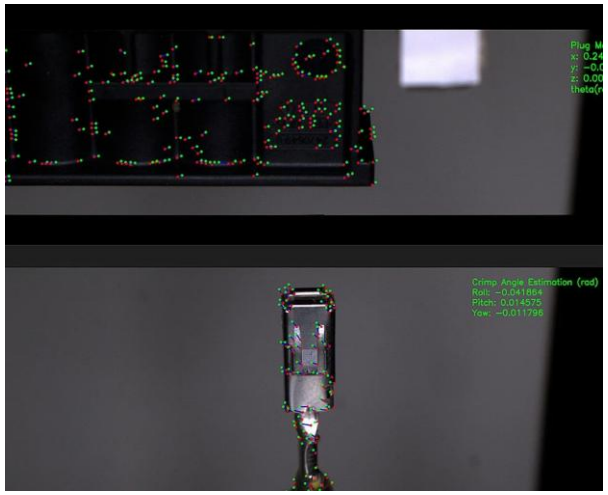
Hardware

- 2x Diana7
- 2x 2D cameras
- 2x Force torque sensors



Force control

- Admittance requires sub-mm precision



AI and geometry: Hybrid vision approach

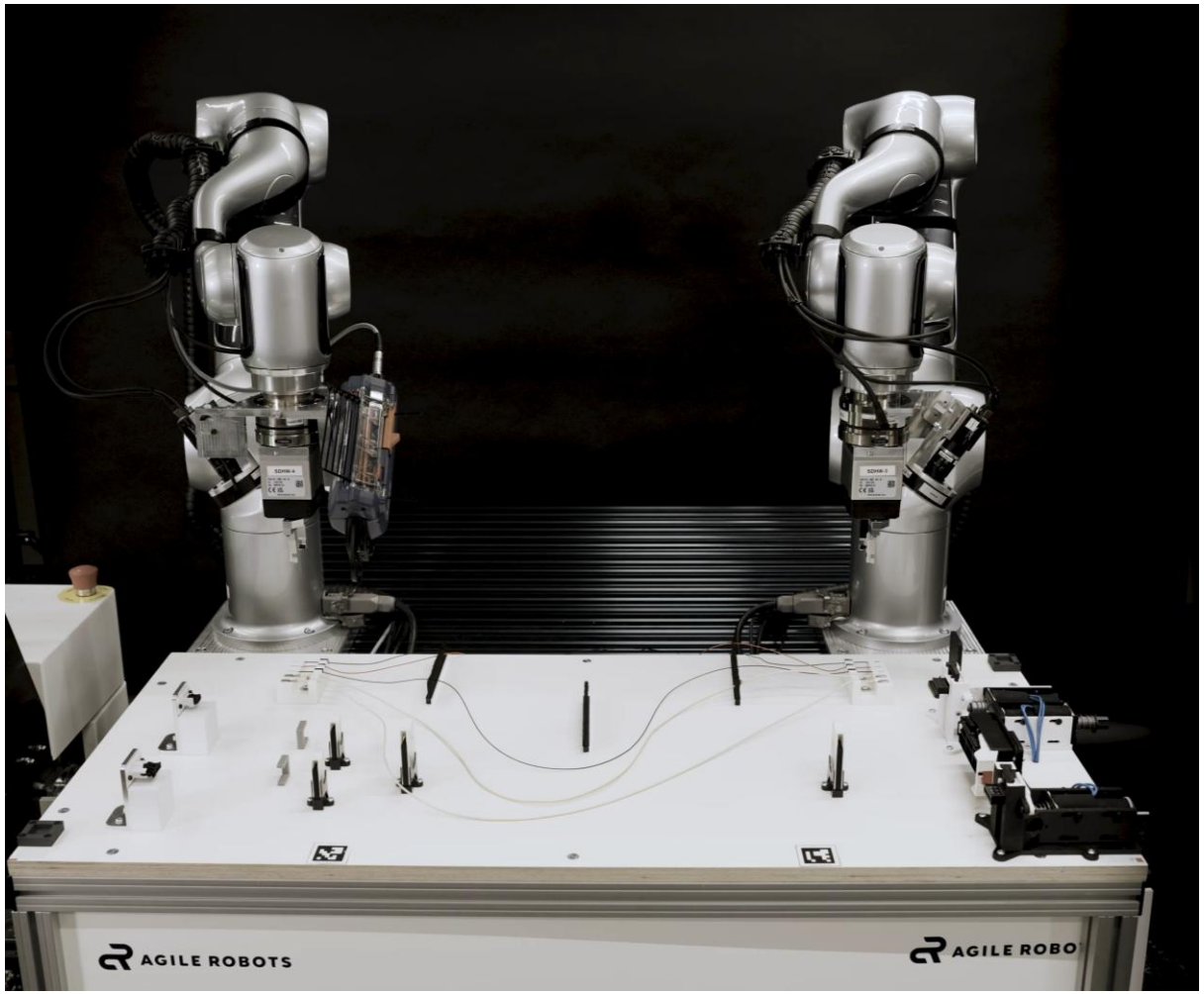
- SuperPoint for feature detection
- LightGlue for feature matching
- Trigonometry and PnP for 6D pose estimation

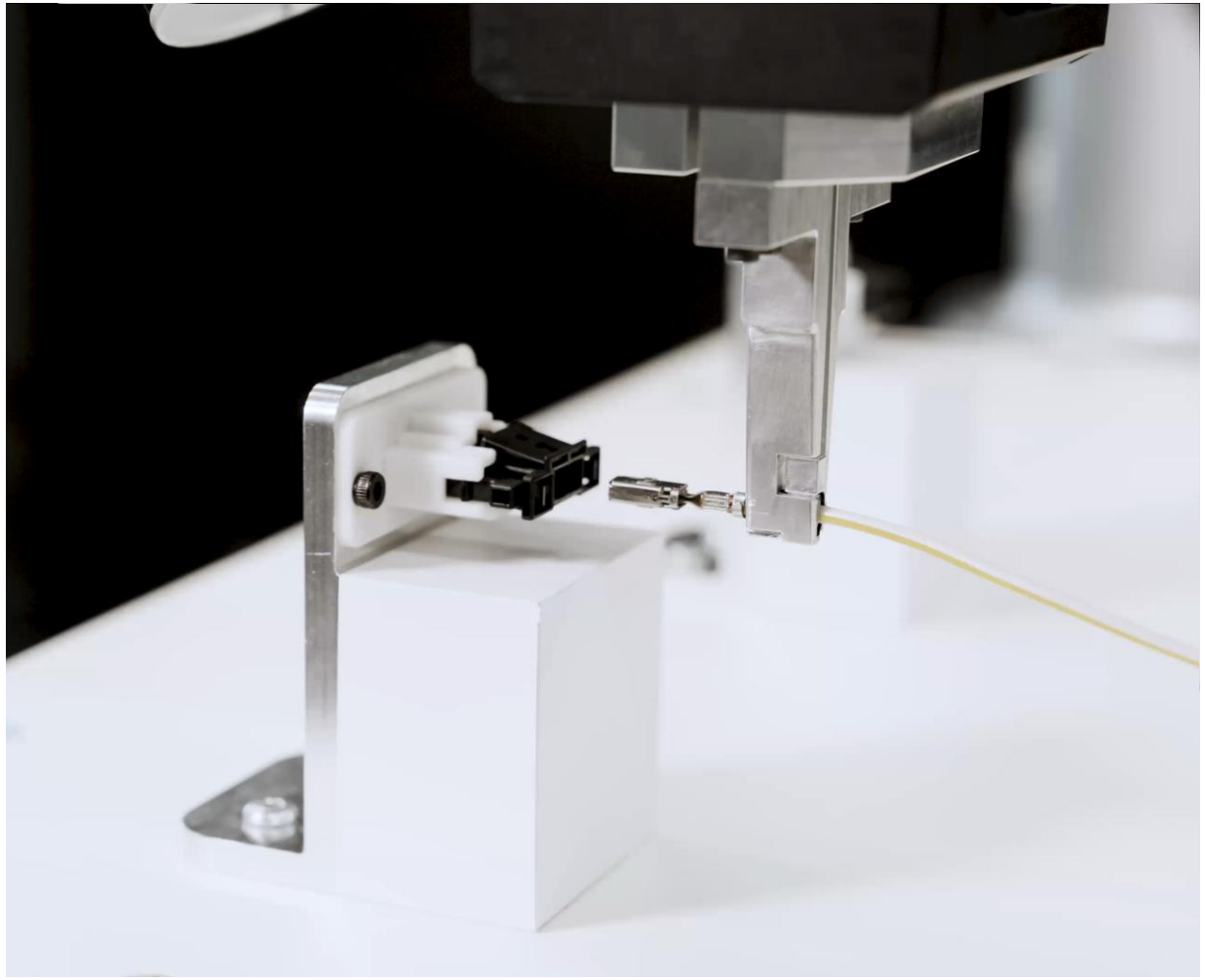
AgileCore

- Integration of vision, force and skills
- Reliable runtime, safe execution

Robotik Challenge

The implementation – cycle time: 2:25 min





From research to real-world application

The role of AgileCore

The software platform AgileCore abstracts **hardware complexity** and enables **skill reusability** across diverse scenarios such as logistics, assembly, and inspection.

Key learning & transfer

- State-of-the-art feature matching is ready for industry
- <200 ms for feature matching & pose estimation
- No need for precise camera calibration
- Research showcase becomes foundation for real-world automation

AgileAI – AgileCore's AI assistant

AI-driven server maintenance demo at automatica 2025

AI-powered perception and planning

Gemini Robotics-ER detects hard drives and derives the next steps

AgileAI as orchestrator

Translates AI outputs into reusable robot skills (grasping, pulling, inserting)

AgileCore runtime

Ensures safe and reliable execution on the robot (force and speed limits, error handling)

Result

From natural language input to concrete physical actions on the server in real time

AI in intraglogistics

Step 1 – Open the box

- Cut box lid
- Tool change: from cutter to suction
- Remove lid

Step 2 – Depalletization & relabelling of small box

- Pick with suction
- 3D vision to detect box position
- Read/identify existing label
- Print & apply new label

Step 3 – Store on shelf

- Place box on shelf
- Dynamic slotting & path planning


Driving industries forward
Come meet us at
Booth 1-100B

AGILE ROBOTS

Thank you!

Get in touch!

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