

Press release, April 15, 2024

German Research Center for Artificial Intelligence (DFKI)

## **DFKI at Hannover Messe 2024: Focus on environmentally friendly industrial AI**

**The German Research Center for Artificial Intelligence (DFKI) will be presenting AI solutions for a sustainable economy at several booths. AI experts from the DFKI will participate in the supporting program with panels and presentations.**

Professor Antonio Krüger, Scientific and Technical Director and CEO of DFKI: "Green AI is the top topic for Germany's industry. In the future, it is essential that companies also consider the environmental impact of artificial intelligence and its opportunities for sustainability. That is why we are showing in our contributions at the Hannover Messe how artificial intelligence creates concrete economic and ecological added value. Although AI can have very high energy requirements due to training and application, at the same time it can ensure that energy and resources are saved. Novel architectures and AI computing paradigms also hold enormous potential. AI is more sustainable than its reputation."

DFKI is researching both aspects, their positive contribution to sustainability and the sustainability of artificial intelligence (AI) itself. DFKI will be represented at the trade fair with a selection of current projects. Topics addressed include resource efficiency in SMEs (Hall 8, Stand D18), the energy consumption of data centers (Hall 2, Stand B10), real-time remote troubleshooting in factories with AR and VR (Hall 2, Stand C36) and the flexible charging of electric vehicles with robots (Hall 2, Stand A10).

In addition, researchers and guests from the DFKI network will discuss the various facets of Green AI at the Tech Transfer Conference Stage in Hall 2, at the Industry 4.0 Conference Stage in Hall 8 and on the stage of the SmartFactory-KL joint stand. Other exhibits at the trade fair will deal with the prediction and management of crises and easier access to quantum machine learning in manufacturing (Hall 2, Stand B10). In Hall 14 at Stand H6, researchers will use two specific examples to demonstrate their vision of a 6G-supported industry.

### **AI-based circular economy and saving resources in SMEs**

The centerpiece of DFKI's presence at the trade fair is the joint stand with SmartFactory-KL **in Hall 8, Stand D18**. The Green-AI Hub Mittelstand, an initiative of the Federal Ministry for the Environment (BMUV), is presenting one of its five mobile demonstrators there. These were developed by DFKI to

be brought to small and medium-sized enterprises (SMEs) throughout Germany in an e-transporter, the Green-AI Hub Mobil, and to introduce SMEs to the topic of resource efficiency.

The demonstrator at the trade fair illustrates how used parts can be reused in production with the help of visual quality control by AI, in the sense of a circular economy.

Further information: <https://www.dfki.de/en/web/news-media/events/hm2024/green-ai-hub>

### **Real-time customer support in factories with interactive AR**

In the future, technicians will no longer have to travel far to rectify a fault on a machine. In the CORTEX<sup>2</sup> project, technicians see themselves in the same situation as their customers and can interact with each other remotely. CORTEX<sup>2</sup> combines video telephony with augmented reality (AR) and virtual reality (VR) for the next generation of telecollaboration that emphasizes interactivity and resource-efficient data transmission.

At the stand of the Rhineland-Palatinate Innovation Agency (**Hall 2, Stand C36**), researchers from DFKI's Augmented Vision research department will be demonstrating what such an AR session in the factory could look like.

Further information: <https://www.dfki.de/en/web/news-media/events/hm2024/cortex2>

### **Energy-efficient data centers and AI applications**

What must AI, i.e., software and the required hardware, look like in order to meet the demand for energy efficiency?

The ESCADE project aims to answer this question. The researchers at DFKI's Smart Service Engineering research department are working with their partners to develop a concept for sustainable data centers. They are also defining which metrics (KPIs) can be used to measure energy-efficient AI applications and which operational questions regarding sustainability need to be answered during development. At the end of the project, they want to provide recommendations for action for energy-efficient AI based on tests. The potential of neuromorphic chips is of particular interest. Research is being carried out into whether these are more energy-efficient than conventional hardware (GPUs).

Two specific AI use cases will be examined in ESCADE. An initial interim result from a use case with Saarlühl will be presented at the Saarland joint stand (**Hall 2, Stand B10**).

Further information: <https://www.dfki.de/en/web/news-media/events/hm2024/escade>

## Flexible charging of electric vehicles with robots

In **Hall 2 at Stand A10** of the Lower Saxony Ministry of Science and Culture, researchers from the Plan-Based Robot Control department of DFKI Lower Saxony will be presenting an original concept for charging electric vehicles.

In the ChargePal project, mobile charging robots are equipped with high-performance batteries, which they transport and connect to electric vehicles. Once charging is complete, the batteries are picked up again by the robots. Compared to conventional, static charging stations, a mobile charging robot can supply several vehicles without the need for extra charging parking spaces. A robot-assisted approach like the one in ChargePal could make it easier to upgrade existing properties and public parking spaces for e-mobility and expand the charging infrastructure.

Further information: <https://www.dfki.de/en/web/news-media/events/hm2024/chargepal>

## Other DFKI exhibits at the trade fair

Identifying crisis scenarios faster with artificial intelligence: <https://www.dfki.de/en/web/news-media/events/hm2024/pairs>

Low-threshold access to Quantum AI services in manufacturing: <https://www.dfki.de/en/web/news-media/events/hm2024/quasim>

Vision of a 6G infrastructure for the industry of tomorrow: <https://www.dfki.de/en/web/news-media/events/hm2024/open6ghub>

## DFKI event program

Monday, 22.04.:

**Keynote:** Managing the Twin Transition in your business: AI for a competitive and sustainable future

**Speaker:** Antonio Krüger (CEO, DFKI)

**Location:** Tech Transfer Conference Stage, Hall 2

**Time:** 15:30 - 15:50

Tuesday, 23.04.:

**Panel:** Green-AI Hub Mittelstand - Why companies need to consider AI and sustainability together

**Participants:** Dr. Florian Kammerer (Head of the National Circular Economy Strategy Department, BMUV), Dr. Julia Fröhlich (Director Innovation Hub, HARTING Foundation), Prof. Antonio Krüger (CEO, DFKI), Prof. Oliver Thomas (Head of the DFKI research department Smart Enterprise Engineering, DFKI)

**Host:** Simone Wiegand

**Location:** Industry 4.0 Conference Stage, Hall 8

**Time:** 10:45 - 11:30

Wednesday, 24.04.:

**Panel:** AI at any price? How sustainability from and with AI can succeed

**Participants:** Prof. Wolfgang Maaß (Head of the DFKI research department Smart Service Engineering), Prof. Christoph Lüth (Deputy Head of the DFKI research department Cyber-Physical Systems), Dr. Frederic Theodor Stahl (Head of the DFKI research department Marine Perception)

**Host:** Simone Wiegand

**Location:** Tech Transfer Conference Stage, Hall 2

**Time:** Wednesday 13:10 - 13:55

Talks on the SmartFactory stage (Hall 8, Stand D18):

**Host:** Simone Wiegand

**Talk:** Digital product passport - brake pad or rocket for the economy?

**Participants:** Teresa Petzsche, Leonhard Kunz

**Time:** Monday, 22.04.24, 11:30 - 11:45

**Talk:** KI4ETA - Recognizing and leveraging energy-saving potential in the factory with AI

**Participant:** Leonhard Kunz

**Time:** Monday, 22.04.24, 13:00 - 13:15

**Talk:** DFKI4planet and industry - contradiction or win-win?

**Participants:** Janina Schneider and Daphne Theodorakopoulos

**Time:** Wednesday, 24.04.24, 11:00 - 11:15

Further information on the stage program: <https://www.dfki.de/en/web/news-media/events/hm2024#c9928>

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**Photos:**

Under <https://cloud.dfki.de/owncloud/index.php/s/KPbfo5LzC9idEX7> you will find a selection of pictures of the exhibits, portraits of the speakers and the latest photos from the trade fair. You are welcome to use these for your press publication. Please note the information on source references.

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