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Backgrounder

Hannover Messe 2023: Hewlett Packard Enterprise and Aleph Alpha demonstrate generative AI for manufacturing

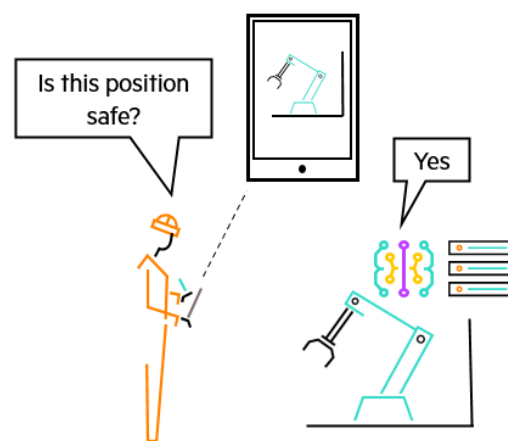
- A live demo will demonstrate an AI assistant for an industrial robot that communicates with factory personnel using natural language and images
- The AI assistant was trained with an AI supercomputer by Hewlett Packard Enterprise (HPE) and Aleph Alpha's multimodal language model "Luminous"
- Generative AI can significantly increase efficiency and safety in manufacturing – prerequisites for this are aspects such as risk management and the traceability and verifiability of the AI results
- Digital sovereignty: Luminous can be trained and operated on a private HPE infrastructure at the customer's site

Generative artificial intelligence (AI) is considered to be one of the defining technologies of the next years. What use cases are there in manufacturing, what opportunities and risks must be considered when implementing them? Hewlett Packard Enterprise (HPE) will demonstrate this together with the German AI company Aleph Alpha at Hannover Messe (April 17 to 21, 2023) at the HPE stand H48 in Hall 14 using the example of an industrial robot.

A live demo shows how factory personnel can communicate with the robot in natural language and with the help of images, for example to clarify questions about installation, maintenance and operational safety. An AI assistant acts like a highly specialized service technician who supports the factory staff in solving very complex tasks.

AI assistant was trained with hundreds of pages of technical documentation

The AI assistant was trained using the industrial robot's manual, which is several hundred pages long. An AI supercomputer from HPE and Aleph Alpha's multimodal language model "Luminous" were used for this.



When communicating with the AI assistant, the factory staff does not have to adhere to any predefined system or use any specific terminology. The AI assistant also responds in natural language. The dialogue with the AI assistant is also possible in several languages, regardless of the language of the manual with which it was trained. A simple example of dialogue would be: “Emergency! How can I stop the robot immediately?” Answer: “Press the emergency stop button. It's the big red button on the top right of the handheld unit.”

In addition, the exchange with the AI assistant can take place via images. Example: When calibrating the robot, an operator takes a picture of a specific calibration mark with a smartphone or tablet and asks if that is the correct calibration position.

Generative AI can increase efficiency and safety – in the factory and beyond

These capabilities can contribute significantly to the efficiency and safety of robot operations. The factory staff is not dependent on the help of a specialized service technician for many detailed questions about installation, maintenance or troubleshooting. That saves time and money. The AI assistant also supports factory personnel in complying with safety regulations – for example, by having an operator photograph the robot’s standing position and asking whether this position is safe. In the event of acute problems, the AI assistant can provide crucial information to prevent damage or production downtime.

The live demo at the Hanover Fair shows only a small part of the possibilities that generative AI opens up for manufacturing. The capabilities of the AI assistant can be extended to the entire production environment of a factory and also to the supply chain – for example by being trained with further technical documentation as well as with information on suppliers, supply agreements, legal terms and regulations, costs, or CO2 emitters. Generative AI is thus becoming a strategic tool to reduce costs, minimize risks and improve sustainability along the entire supply chain.

Success factors: risk management, digital sovereignty, traceability and verifiability

The current hype about generative AI has sparked an intense public debate about the risks of this technology – especially with regards to fake content and digital sovereignty. At Hannover Messe, HPE provides information on how companies can get these risks under control. This includes basic requirements such as a certain level of expertise in regards to data value creation and artificial intelligence, as well as the integration of AI assistants in operational security and risk management processes. Running Aleph Alpha’s Luminous language model on a local AI infrastructure at the customer’s site helps protect trade secrets and avoid cloud dependencies. And finally, Luminous offers the possibility of verifying the content it generates and tracing it back to the sources used for it. In this way, AI-generated content without suitable, trustworthy sources can be withheld directly. This is a unique feature of Luminous.

How HPE and Aleph Alpha are helping clients leverage generative AI

HPE supports both providers and users to plan, implement and operate generative AI. For example, HPE built the AI supercomputer “alpha ONE”, which Aleph Alpha uses to train and operate its Luminous language model. HPE helps users (corporate customers) to define and plan meaningful use cases, to integrate generative AI into the existing IT and process landscape and to set up and operate a local sovereign AI environment. To this end, HPE, together with Aleph Alpha, develops customized AI applications for customers.

Aleph Alpha is a German AI company and was founded in 2019 with the mission to research and develop AI enabling technology for a new era of strong AI. The team of international scientists, engineers and innovators researches, develops and implements transformative AI such as large AI language and multimodal models and operates the fastest European commercial AI data center. Aleph Alpha's generative AI solutions can support companies and public institutions in maintaining technological independence, securing data and building trustworthy solutions with high security requirements. For more information, visit: www.aleph-alpha.com

Hewlett Packard Enterprise (NYSE: HPE) is the global edge-to-cloud company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way people live and work, HPE delivers unique, open and intelligent technology solutions as a service. With offerings spanning Cloud Services, Compute, High Performance Computing & AI, Intelligent Edge, Software, and Storage, HPE provides a consistent experience across all clouds and edges, helping customers develop new business models, engage in new ways, and increase operational performance. For more information, visit: www.hpe.com

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