

Press release

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For safer roads: Bosch teams up with Microsoft to explore new frontiers with generative AI

Bosch Connected World 2024

- Stefan Hartung: “Bosch is working on bringing a new dimension of AI applications into the vehicle.”
- Objective: to explore harnessing generative AI to enhance convenience in the vehicle and increase safety for all road users.
- Tanja Rueckert: “Generative AI is a boost to innovation. It can transform the industry in much the same way as the invention of the computer.”
- Bosch Tech Compass survey: Majority of respondents hope that AI will help make roads safer.

Stuttgart, Germany – It’s a scenario that no driver ever wants to see: a ball rolling out into the road. The chances are it will be followed immediately by a child in hot pursuit, oblivious to any traffic. But while human drivers can assess this situation using their contextual knowledge, today’s assisted and automated driving systems still have to learn how to do it. Bosch is pursuing the use of generative AI in terms to further improve automated driving functions. As part of this, Bosch and Microsoft are exploring opportunities to collaborate and leverage the power of generative AI. “Bosch is working on bringing a new dimension of AI applications into the vehicle,” said Dr. Stefan Hartung, chairman of the Bosch board of management, at this year’s Bosch Connected World (BCW) AIoT industry conference in Berlin. The expectation is that generative AI will enable vehicles to assess situations and react accordingly, and in this way keep road users even safer. Greater safety on the roads is also the wish of 60 percent of respondents to this year’s Bosch Tech Compass, a worldwide representative Bosch survey on the subjects of technology and AI.

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Generative AI to make road traffic safer

The two companies anticipate that a collaboration would take the performance of automated driving functions to the next level. They would like to see generative AI help enhance convenience in the vehicle and to provide greater safety for all road users. To achieve this, Bosch's comprehensive understanding of vehicles and automotive-specific AI expertise will be invaluable, as well as their access to vehicle sensor data to feed the generative AI. "In our unwavering commitment to safer roads, Microsoft is eager to explore collaboration opportunities with Bosch to pioneer the realm of generative AI," said Uli Homann, Microsoft CVP and Distinguished Architect.

Even today, when it comes to training systems for automated driving, AI quickly comes up against its limits. Today's driver assistance systems can detect people, animals, objects, and vehicles, but in the near future generative AI could help determine whether a situation could potentially lead to an accident. Generative AI utilizes vast amounts of data to train systems for automated driving, enabling them to draw improved conclusions from this data. For example, it could deduce whether an object on the road ahead is a plastic bag or a damaged vehicle part. This information can be used either to communicate directly with the driver – such as by displaying a warning – or to initiate appropriate driving maneuvers, such as braking while switching on the hazard warning lights.

Bosch and Microsoft have already partnered to develop a universal software platform for seamlessly connecting cars and the cloud, and are looking forward to work together to identify new opportunities to bring cutting-edge AI technology to their customers and the autonomous vehicle industry.

Generative AI as a boost to innovation

"Generative AI is a boost to innovation. It can transform industry in much the same way as the invention of the computer," says Tanja Rueckert, member of the Bosch board of management and chief digital officer. The new 2024 Bosch Tech Compass shows this as well: 64 percent of respondents believe that AI is the technology with the greatest importance for the future. In comparison, only 41 percent of respondents were of the same opinion just one year ago.

From manufacturing to everyday office work, generative AI is already being used in many areas at Bosch. In addition to Microsoft, the company is working with several partners, including AWS, Google, and Aleph Alpha. The Bosch Group's venture capital unit, Bosch Ventures, invested in the AI company Aleph Alpha last year. Bosch also announced it would collaborate with the startup on finding new use cases both for Bosch associates and customers. "Bosch and Aleph Alpha want to learn from each other, benefit from each other's know-how, and work together on cross-domain use cases," Rueckert says. This partnership is now bearing its first fruits in North America: in collaboration with Aleph Alpha, Bosch is debuting AI-based speech recognition on behalf of a premium car manufacturer. In this solution, a chatbot understands and answers breakdown service calls with the

help of natural language processing, which also recognizes dialects, accents, and moods. The call is taken directly, reducing the driver's waiting time to a minimum. As many as 40 percent of calls can be processed and resolved automatically; for more complex queries, the bot transmits all relevant information to a service center agent who takes over the case immediately.

From the AI search engine to manufacturing

AI experts at Bosch are currently working on well over 120 specific applications that these new AI models open up for the company's associates and customers. Such applications include the generation of software program code or powerful chatbots and voicebots to support technicians or interact with consumers. Another is AskBosch, the in-house AI-assisted search engine launched at the end of 2023. It offers faster natural-language access to a wide variety of data sources – sources scattered over the intranet, say. In addition to externally available data, AskBosch also includes internal data sources, so Bosch associates can research information specific to the company. Generative AI also ensures greater speed in manufacturing: in initial projects in two Bosch plants in Germany, generative AI creates synthetic images in order to develop and scale AI solutions for optical inspection and optimize existing AI models. Bosch expects that this will reduce the time needed for planning, launching, and ramping up AI applications from the current six-to-twelve months to just a few weeks. Following successful piloting, this service for generating synthetic data is to be offered to all Bosch locations.

2024 Bosch Tech Compass: setting the pace in the use of AI

As AI is used in more and more areas of life, professional development is becoming increasingly important: 58 percent of respondents to the Bosch Tech Compass are convinced of this. This opinion is particularly prevalent in USA at 63 percent (Germany: 54 percent, China: 52 percent). Here, too, Bosch is setting the pace in the use of artificial intelligence and is getting its associates on board. In 2019, Bosch launched a training program, initially aimed at bringing 30,000 associates up to speed on the subject of AI. Up to now, some 28,000 associates have taken part in the program. Like the Bosch AI code of ethics, which sets ethical guidelines for dealing with artificial intelligence, this program has been supplemented with content about generative AI.

For all the results of the 2024 Bosch Tech Compass, click [here](#).

About the survey:

For the representative survey, people aged 18 and over in seven countries (Brazil, China, Germany, France, India, the U.K., and the U.S.) were polled online on behalf of Robert Bosch GmbH by the market researchers Gesellschaft für Innovative Marktforschung mbH (GIM) in December 2023. In Germany, France, and the U.K., at least 1,000 people were polled per country; in Brazil, China, India, and the U.S., it was at least 2,000 people each. The random samples are representative of their respective countries in terms of region, gender, and age (Brazil, Germany, France, U.K., U.S.: 18 to 69 years / China, India: 18 to 59 years).

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Basic information:

The Bosch Group is a leading global supplier of technology and services. It employs roughly 428,000 associates worldwide (as of December 31, 2023). According to preliminary figures, the company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which roughly 48,000 are software engineers.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust.

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