

# Press Release

## **FEV collaborates with Microsoft on efficient AI model approach for in-car applications built on NVIDIA**

**Aachen, July 2026 – FEV, a leading global innovation partner for sustainable and software-defined mobility, is collaborating with Microsoft to integrate powerful, in-vehicle Generative AI capabilities built on NVIDIA GPU-accelerated compute and AI model microservices. The cooperation aims to enable multimodal voice, text, and gesture interactions directly in the vehicle – independent of a permanent Internet connection.**

The focus is on the use of small language models (SLM) such as Microsoft's Phi-4-mini-instruct in Microsoft Foundry that is powered by NVIDIA DRIVE AGX accelerated compute. The solution allows vehicle functions such as the dashboard or individual vehicle profiles to be configured by voice command. At the same time, the system acts as robust local backup intelligence for cloud-based large language models (LLMs).

## **More intelligence, robustness and efficiency in the software-defined vehicle**

Embedded small language models increase the functional intelligence level of modern vehicles and improve the responsiveness and availability of AI-powered functions. Since inference takes place directly in the vehicle, central functions remain available even when there is a limited or no internet connection. In addition, embedded SLMs enable a reduction in backend and infrastructure costs, as cloud-based LLMs can be supplemented or partially replaced depending on the use case. This helps OEMs economically scale software-defined vehicle functions.

“Our collaboration with Microsoft and NVIDIA showcases how small, efficient language models can transform in-vehicle experiences, delivering powerful functionality without the overhead of larger systems,” said Thomas Hülshorst, Group Vice President Intelligent Mobility and Software at FEV.

“By combining advanced AI frameworks with domain- and task-specific optimizations, FEV and Microsoft are shaping the future of intelligent, voice-driven interfaces that meet the high standards of automotive deployment,” added Boris Scholl, Vice President of Engineering at Microsoft.

## **Central fields of application for embedded GenAI**

As part of the cooperation, FEV is investigating several fields of application with high series potential:

- Automated and autonomous driving (SAE Levels 3-5): Multimodal GenAI models improve the recognition of objects, traffic situations and driving paths, especially in complex urban environments and edge cases.
- Driver and passenger monitoring: Embedded GenAI increases performance in detecting fatigue, distraction, or unusual behavior, and increases the robustness of security-relevant functions through local availability – also as a backup to cloud-based systems.
- Personalized vehicle and HMI configuration: Vehicle functions and user interfaces can be intuitively adapted by voice command, for example for different driver profiles or usage scenarios – without dependence on external cloud infrastructure.

### **Multimodal System Architecture on NVIDIA Platforms**

The underlying architecture is designed as a multimodal system and processes speech, text and visual information. To achieve high performance in the constrained environment of an embedded in-vehicle environment, FEV has used synthetically generated data curated with NVIDIA NeMo in the fine-tuning process to optimize the Phi-4-mini-instruct model. This is followed by integration and deployment of the resulting model running on NVIDIA DRIVE AGX enabling further improvement in model performance. The AI functions are operated as modular software services inside the vehicle.

## **Showcase: Personalized vehicle and HMI configuration**

Building on these technologies, FEV has developed a dashboard configurator showcase that highlights the potential of intelligent in-vehicle interfaces. Using natural voice commands, a locally deployed small language model dynamically updates the dashboard—reducing reliance on continuous cloud connectivity while enabling fast, responsive performance.

Completed in just a few weeks, the showcase demonstrates strong real-time performance. In the future, FEV plans to gradually supplement or replace cloud-based AI functions via models that run locally in the vehicle.

## **FEV as a development partner for GenAI solutions**

FEV is contributing its extensive expertise in the areas of software-defined vehicles, AI integration and additional development solutions. The company's portfolio spans the entire value chain, from use case definition through architecture and system design to validation and industrialization. The results of the collaboration are currently being tested in demo vehicles and will serve as the basis for further customer projects and near-series applications later this year. In addition, FEV is focused on bidirectional communication between the driver/passenger and vehicle across a wide range of use-cases.



**Caption:** FEV collaborates with Microsoft on efficient AI model approach for in-car applications built on NVIDIA.

Source: FEV

## About FEV

### **FEV pushes boundaries.**

FEV is a leading global engineering service provider in the automotive sector and a driver of innovation for various industries. Professor Franz Pischinger laid the foundation for this by combining his academic and technical background with his vision for continuous progress. Since 1978, the company has been developing technological and strategic solutions for the world's largest automotive manufacturers, as well as customers across the transportation and mobility ecosystem.

### **The world is constantly evolving. FEV as well.**

For this reason, FEV is also applying its technological and strategic know-how in other areas and transferring its future-oriented approach to the aerospace and energy sectors. Thanks to its software and systems expertise, the company also plays a pioneering role and makes intelligent solutions tangible for everyone. FEV brings together highly qualified people from a wide range of fields and disciplines to meet the challenges of today and tomorrow.

### **FEV does not stand still.**

FEV will continue to push the boundaries of innovation in the future. With its highly qualified 5,600 employees at more than 45 locations worldwide, FEV develops solutions that meet not only the needs of today, but also those of tomorrow. Ultimately, FEV never stands still – for a better, cleaner future, based on sustainable mobility and energy as well as intelligent software. For its corporate partners, its employees and the world. [#FeelEVolution](#)