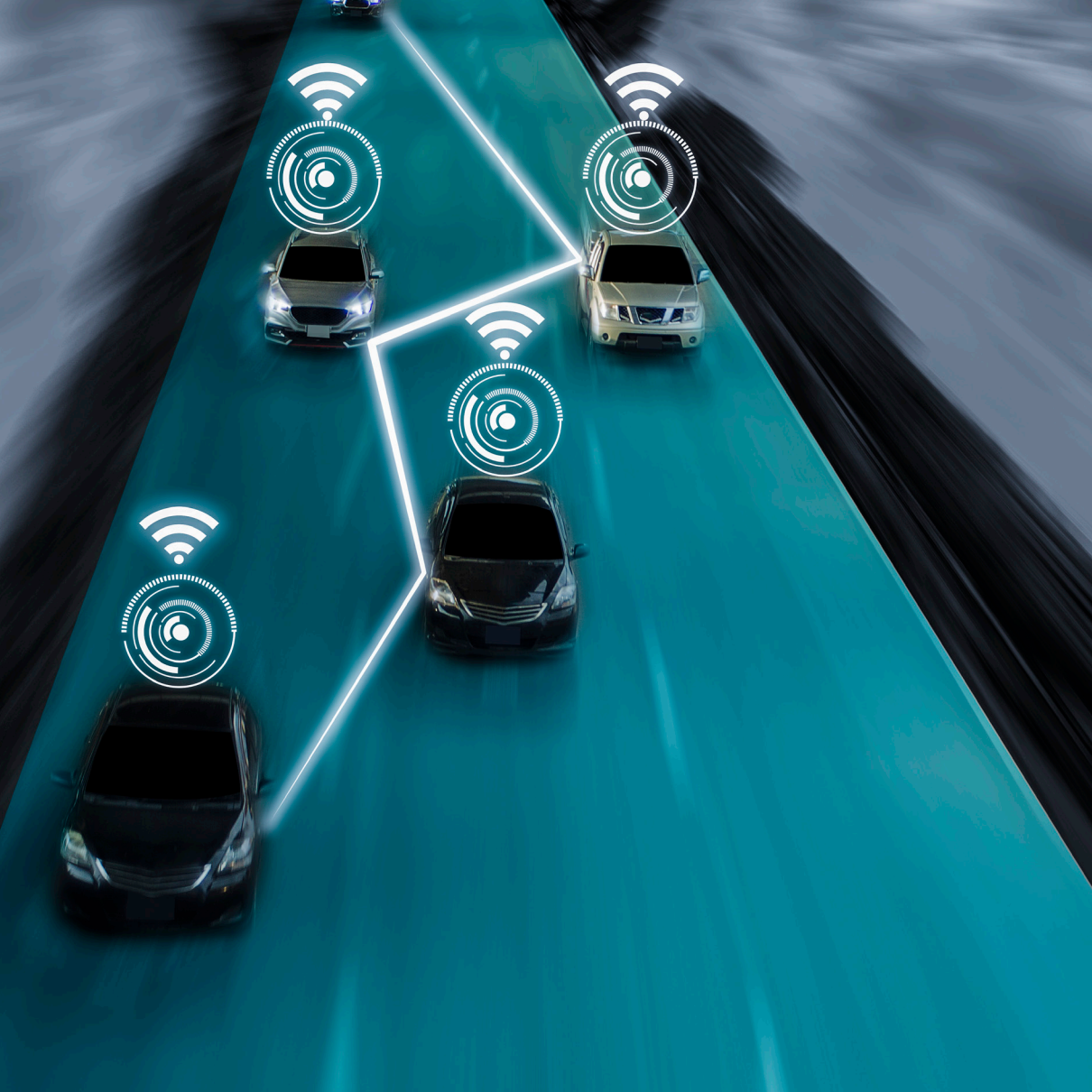


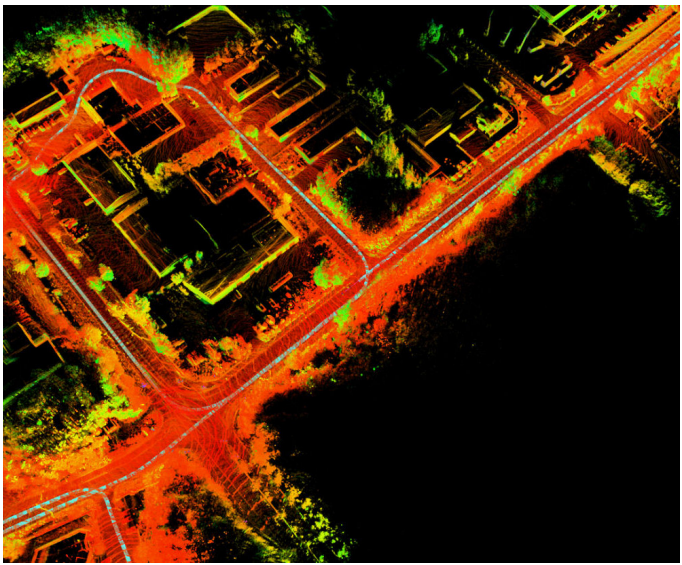
Transportation

TRANSPORTATION

AI-based fleet optimisation tool

DESCRIPTION

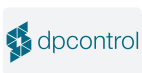
The demonstrator implements an AI fleet management of Mobility-as-a-Service (MaaS) use case, in which two automated last-mile vehicles are controlled according to the transport demands of the users. Switching from regional buses to automated last-mile transport is the focus of the demonstration. Scaling up the number of IoT nodes (i.e., vehicles) is simulated. The approach is to optimise overall MaaS vehicle fleet management. This is done by connecting to various sources such as crowdsourced data from last-mile vehicles, digital infrastructure and open traffic data, including real-time city bus fleet data. The data processing is deployed to vehicles and infrastructure, increasing the level of decentralisation while reducing links to the cloud. Novel computation platforms are utilised for accelerated processing. A neural network (NN) based analysis program for predicting travel times is implemented. The machine learning-based, optimised data pipeline leads to improvements in terms of waiting times for passengers.



PARTNERS

BEYOND STATE-OF-THE-ART DEVELOPMENTS AND IMPACTS

The demonstrator presents algorithms to connect robot taxies to schedule operations according to customer demand. Efficient and reliable tracking algorithms are developed for ensuring safety when driving in real traffic. The solution proposes advanced developments on efficient task placement in the edge-cloud continuum and validates algorithms in a hardware-in-the-loop (HiL) environment. The work investigates the algorithms and integration to state-of-the-art processing platforms. By combining realistic simulation environments and advanced reinforcement learning algorithms, the demonstrator proposes a path for developing control behaviours currently out of reach of supervised learning.



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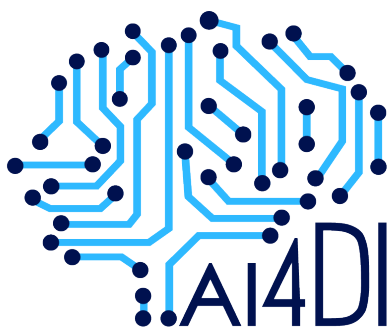

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