

Drones support validation of automated driving functions

- **At this year's Aachen Colloquium Automobile and Engine Technology, fka presents methods for securing networked and automated driving**
- **The focus lies on the generating naturalistic traffic data by means of drones.**
- **fka bundles its range of services around the necessary data for the development and safeguarding of automated driving functions under "levelXdata".**

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Automated driving is one of the key technologies for future mobility. It helps to increase traffic and energy efficiency, but first and foremost automated driving functions can make a major contribution to accident prevention.

The basis for the development of automated driving functions is a database with different traffic scenarios

Therefore, fka has created a database to enable the automotive industry to use relevant traffic scenarios for the development and safeguarding of automated driving. For this purpose, data from various sources such as accident databases, simulations, data from vehicles equipped with sensors - and now also drones - will first be harmonized and then further processed within a uniform process chain.

Traffic data recorded by drones offers many advantages

Today's traffic data acquisition by vehicles equipped with sensors is associated with a number of disadvantages. The vehicle can only ever capture the specific situation in the immediate surroundings. This requires thousands of kilometres of driving to record a relevant number of different traffic situations.

In addition, research vehicles equipped with conspicuous sensors influence the behaviour of other road users and thus the quality of the data. With a drone, these typical limitations of established traffic data acquisition methods can be prevented and thousands of kilometres of vehicle data can be captured in the shortest possible time.

Drone data sets of different traffic scenarios available

The trajectory of each vehicle, including vehicle type, size and maneuver, is automatically extracted from the captured data. By using state-of-the-art algorithms, the positioning error is typically less than ten centimeters. Although the data sets were created for the safety validation of highly automated vehicles, they are also suitable for many other tasks such as the analysis of traffic patterns or the parameterization of driver models.

The data sets developed by fka offer naturalistic vehicle trajectories of different traffic scenarios. Drone data records of motorways, urban intersections and roundabouts are currently available, recorded in Germany and the USA. Further countries and traffic scenarios are in preparation. The data now comprise more than 110,000 data records.

The functional reliability of automated driving functions can be analysed in suitable test environments thanks to the knowledge of the situation. By presenting relevant driving scenarios in highly dynamic driving simulators or on test tracks such as the Aldenhoven Testing Center, it is possible to combine real driving tests with subsequent validation by simulation.

"levelXdata" offers a complete service package for the safeguarding of automated driving functions

Under levelXdata, fka bundles its competencies for validation of all phases of automated driving. From the acquisition of traffic data with the help of drones or vehicles and the extraction of the trajectories of all road users to the use of the results as scenarios for safeguarding automated driving functions.

More information about levelXdata is available at <https://levelxdata.fka.de>

About fka

For more than 35 years, fka has been an innovative engineering service provider for research and development tasks for the automotive industry and its suppliers. We are research facility, provider of creative ideas, and driver of innovation. Our holistic approach and unique infrastructure for simulation, testing and evaluation allows us to see the big picture and be your specialist for details at the same time. We deliver our worldwide customers with the full range of engineering services including conception and simulation, as well as design and engineering of prototypes, and their experimental testing. Working together in interdisciplinary teams is a key aspect of our success. We also cooperate closely with experts from vehicle design, electrical engineering and IT specialists and thanks to our subsidiary are present in Silicon Valley since 2015.

Following our motto "creating ideas & driving innovations" we create a safe, efficient and exciting future mobility for our customers.

www.fka.de

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