KI DATA TOOLING
The Data Kit for Automotive AI

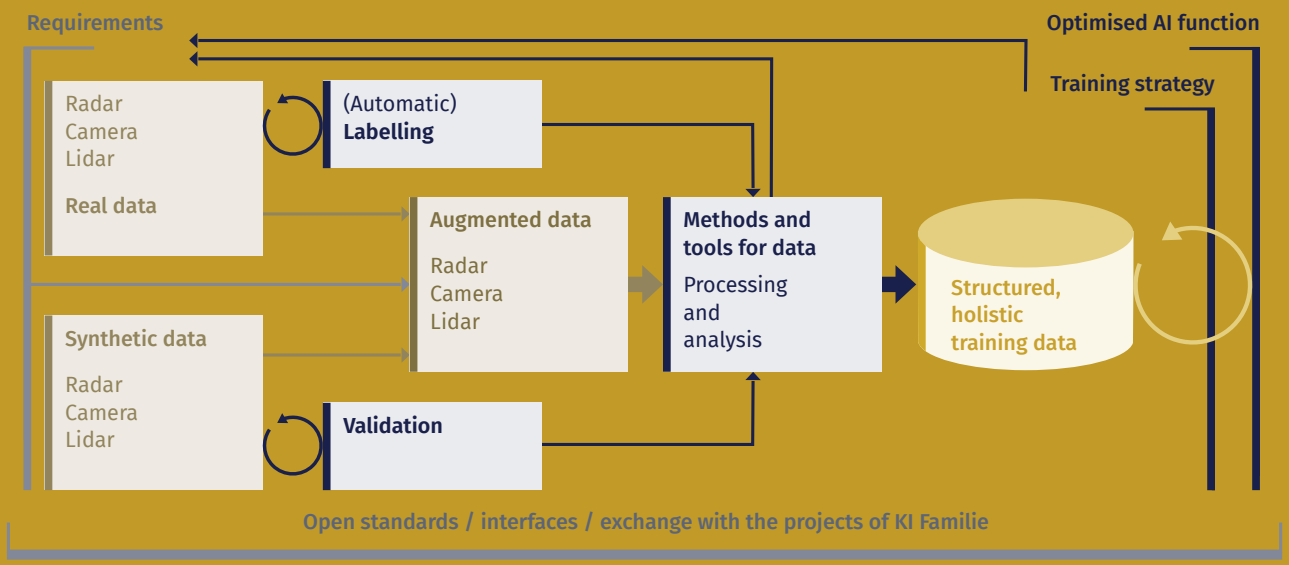
The Data Kit for AI functions in autonomous vehicles

Goal and Challenge

The research project KI Data Tooling develops and investigates methods and tools for the provisioning of data of different sensor modalities (camera, lidar, radar) for AI-based automated driving functions. Through the integrated consideration of real data and synthetic data as well as the use of efficiency potentials in their combination, the project is the first to develop a comprehensive data solution for the training and validation of AI-based automated driving functions.

A sound data base comprising various sensor modalities is essential for the successful implementation of AI-based functions in vehicles. So far, however, only isolated solutions exist for the data of individual sensor types, highly restricted scenarios or parts of the training and evaluation chain.

The Conceptual Approach of KI Data Tooling



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Facts and Figures

Project duration
45 months
01/04/2020 – 31/12/2023

Project budget
€25.7 M

Funding budget
€16.2 M

Project consortium
17 partners
3 external partners

Project coordinators
Dr. Hans-Jörg Vögel, BMW Group

Approach

In the project KI Data Tooling, real, synthetic and augmented data of different sensor modalities will be generated. Methods for analysis, quality assessment, and efficient and resource-saving storage and transmission of this data will be developed. Based on these methods and data, an optimised AI training strategy will be created.

Specifically, the following core innovations will be developed:

- Methods for automatic labelling of real data and improvement of the efficient recording as well as processing of this real data
- Methods for generating synthetic radar sensor signals
- Validation of synthetic sensor data and extension of existing toolchains to generate such data
- Training process for AI functions based on synthetic, real, and augmented data, taking into account requirements of real-world applications
- Methods for context identification and exploitation, and compression of training data
- Methods for corner case detection and synthesis

Partners

BMW GROUP, BOSCH, Continental, Valeo, ZF, Ansys, AVL, dSPACE, DLR, FKFS, FZI, TH Aschaffenburg, Bergische Universität Wuppertal, Technische Universität Braunschweig, Technische Universität München, Universität Kassel, Universität Passau, MACKEVISION, eicct

External partners

BIT TECHNOLOGY SOLUTIONS

KI Data Tooling is a project of the KI Familie. It was initiated and developed by the VDA Leitinitiative autonomous and connected driving and is funded by the Federal Ministry for Economic Affairs and Climate Action.

KI FAMILIE

Supported by:
Federal Ministry for Economic Affairs and Climate Action
on the basis of a decision by the German Bundestag