Fraunhofer IVI

Data analytics for cooperative transport systems / C-ITS

Data-driven solutions for mobility management

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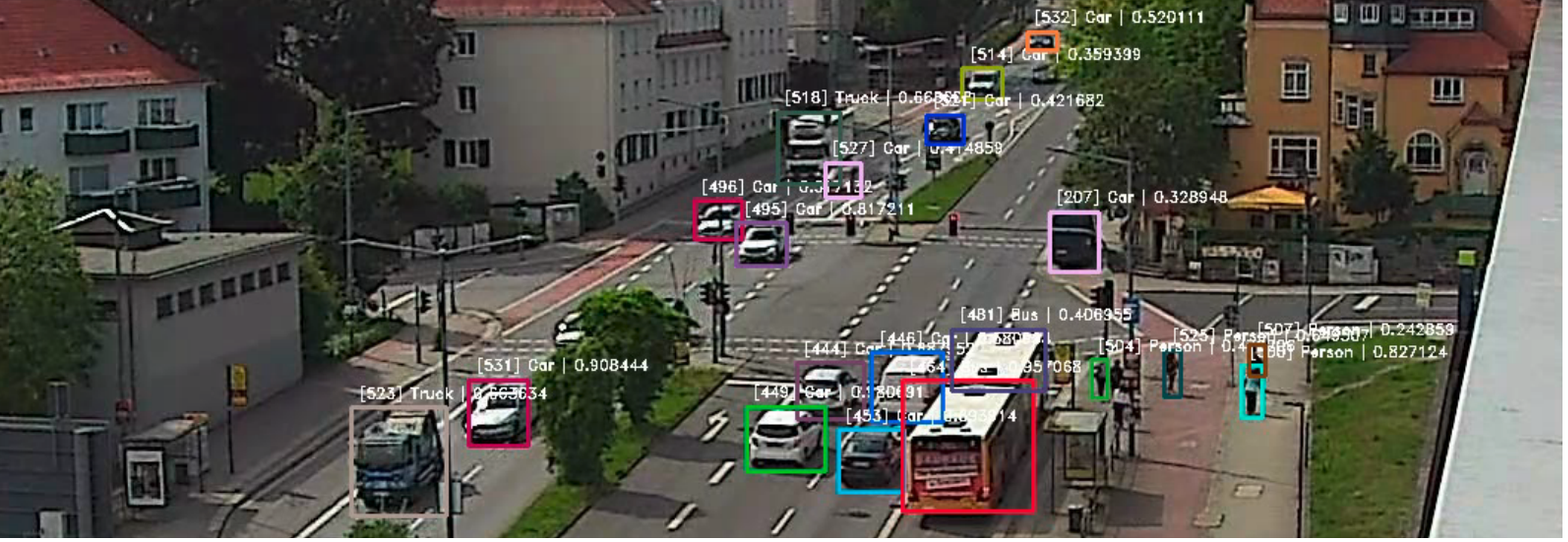


Data collection and data fusion

In today's dynamic transportation world, effective data collection and fusion is essential for developing intelligent transportation systems. Our working group focuses on collecting mobility data from various sources, such as sensors and cameras, to obtain a comprehensive picture of traffic flow. A key challenge is to ensure data quality and consistency so that the information obtained is reliable.

We provide support for the following steps in this field:

- Collecting mobility data from various sources (e. g., sensors, cameras)
- Ensuring data quality and consistency
- Processing and storage of large amounts of data
- Use of C-ITS services (e. g., CPM, GLOSA, TSP) for data acquisition
- Data preparation and cleansing
- Data blending and fusion

Data analysis and evaluation methods

The effective use of mobility data is crucial to improving transportation systems. Our approach combines state-of-the-art analytical methods with innovative technologies to gain deeper insights into specific mobility systems. This way, data-based decisions can help increase the efficiency of your transportation systems.

Our services include:

- Conducting statistical analyses and simulations
- Applying machine learning and AI techniques
- Identifying patterns, clusters and trends in mobility data
- Evaluating and validating analysis models
- Creating reports and dashboards for decision support

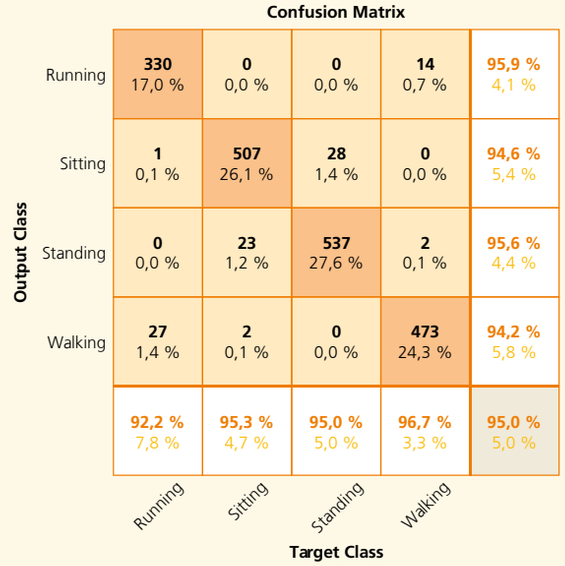
Data visualization and system integration

Data visualization and system integration play a central role in the effective use of mobility data. We focus on developing interactive visualization tools that enable stakeholders to explore complex data intuitively. By integrating the analysis results into existing systems, we ensure that relevant information is seamlessly available.

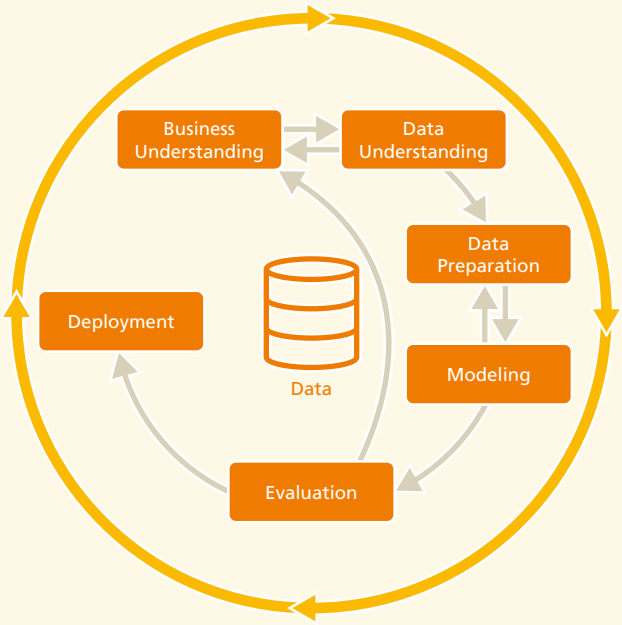
We are happy to give support for the

- Development of interactive visualization tools
- Integration of analysis results into existing systems
- Presentation of mobility data in comprehensible formats
- The implementation of real-time visualizations for mobility control
- Use of results in mobility planning, monitoring and control

Representation of classification behavior in a confusion matrix



Cross-industry standard process for data mining (CRISP-DM)



System analysis and understanding

A deep understanding of the systems is crucial for developing effective mobility solutions. In this context, we first identify the requirements and objectives of the various stakeholders. We then analyze urban traffic patterns and problems to identify relevant challenges.

Our expertise includes

- Identifying requirements and objectives
- Analyzing urban traffic patterns and problems
- Creating system models and scenarios
- Evaluating the profitability, efficiency and safety of mobility solutions
- Stakeholder and requirements management

Contact

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