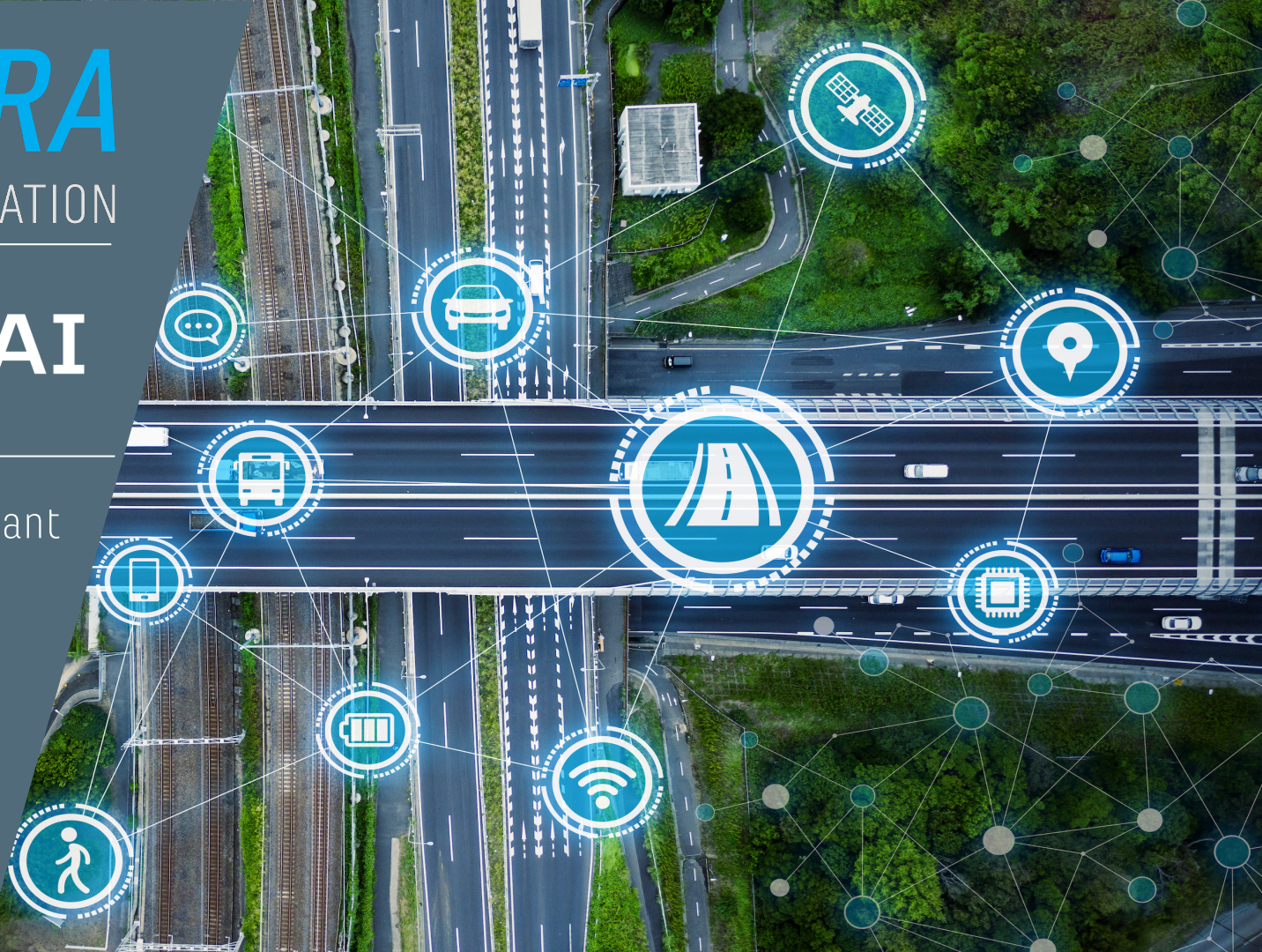# EVO*TEGRA*
CONCEPTS & INTEGRATION

brīghter AI

Data protection compliant
solutions for lossless
image data acquisition

High Definition Maps

www.brighter.ai
www.evotegra.com

Brighter AI

brīghter AI

EVOTEGRA
CONCEPTS & INTEGRATION

Brighter AI offers anonymization solutions for image and video data with a focus on automotive and smart city.

"The natural anonymization of Brighter AI has no negative impact on the performance of machine learning models." (Automotive Tier 1)

Evotegra GmbH

brīghter AI

EVO**TEGRA**
CONCEPTS & INTEGRATION

We offer customer-specific solutions and products for image recognition with artificial intelligence with a focus on automotive and industry.

"Evotegra GmbH has extensive experience, processes and tools for the automated acquisition and labelling of image data"

Mapping

brighter AI

EVOTEGRA
CONCEPTS & INTEGRATION

GDPR compliant data collection for High Definition Maps

HD maps are a prerequisite for the safe operation of autonomous vehicles.

Creation and maintenance of HD maps require complex data with highest precision and freshness.

The integration of fully automatic GDPR-compliant data collection systems into existing vehicle fleets enables maps with high accuracy and freshness, while the lossless anonymization fully preserves the data value.

Requirements

Acquisition of data for High-Definition maps

- Collection of complex data
  - Road markings, lanes, curbs, …
  - Road signs, traffic lights, poles, ….
  - 2D and 3D information needed
- Lossless anonymization
  - Post processing of the data
  - Use for AI training
- Exact position
- High spatial coverage
- Fully automatic collection
  - Updatable
- Targeted acquisition
  - Certain regions / object types

Traffic Lights

Germany
- 4 classes

Robust detection
- Night

Traffic Signs

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Germany
- ~150 classes (StVo)
- Regulatory signs
- Danger signs
- Directional signs
- City limits
- Signposts
- Additional signs

Traffic signs and lights

brighterAI

China ~400 classes
- Regulatory signs
- Danger signs
- Directional signs
- City limits
- Signposts
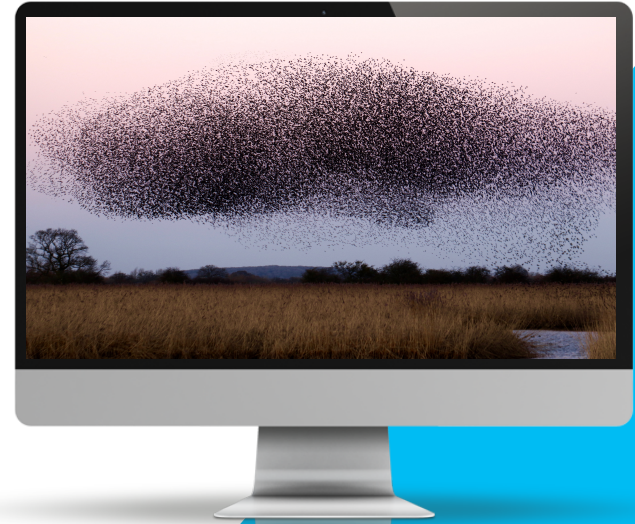- Additional signs

Robust detection
- Into the sun

Solution

Fully automated swarm based data collection

- Data selection with artificial intelligence in the vehicle
  - Data anonymization in the vehicle
  - 4G / 5G transmission
  - No manual processes
- AI platform
  - Real-time execution of AI object detection
  - Integration of individual requirements
- AI data
  - Generation of individual training data
  - Training of AI networks
- Cloud
  - Control server for campaign management
  - Collection of distinct property types / locations
  - Data transfer and storage
    - Strong encryption / authentication

Solution

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Flexible platform for data collection

- Jetson-Xavier platform for data acquisition
    - High performance for real-time AI applications
    - Low power consumption (15-50W)
    - Simple and reversible integration
    - Fully automatic operation
    - Remote maintenance possible via VPN
    - Updatable
- Flexible
    - Supports numerous sensors / cameras
        - Pictures and videos
        - 3D acquisition with stereo camera
        - GPS
        - CAN
        - …

Composition
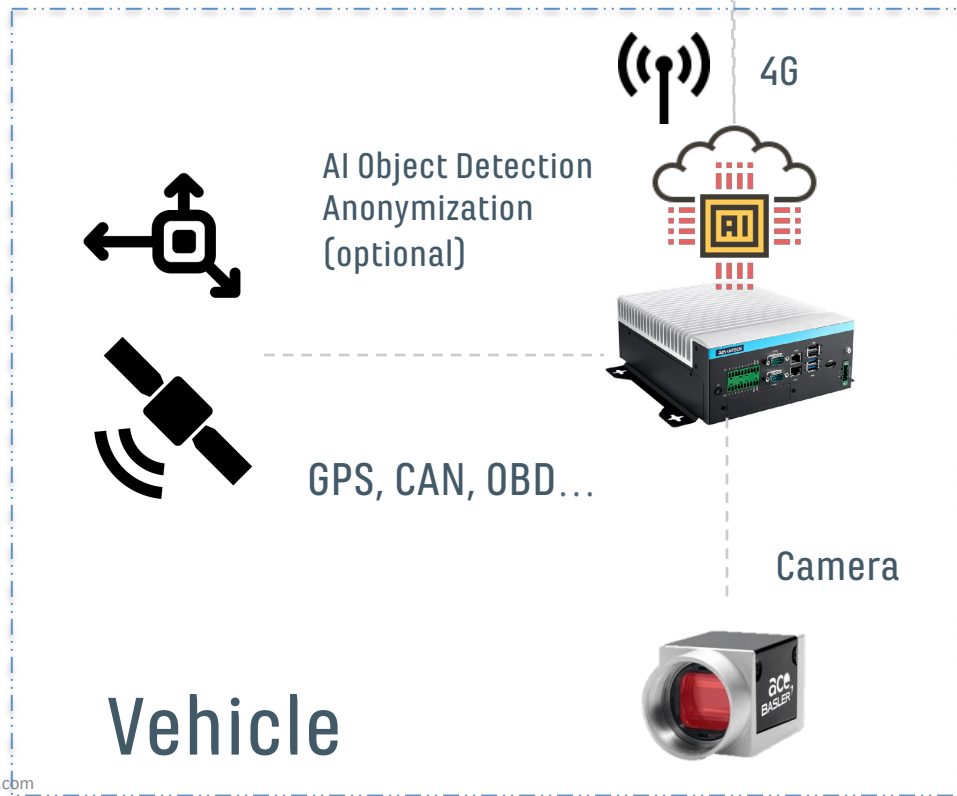
Cloud Data storage
Control Server
Anonymization

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4G

Remote
administration

AI Object Detection
Anonymization
(optional)

GPS, CAN, OBD...

Camera

Vehicle

Data protection, GDPR

Principles of data acquisition
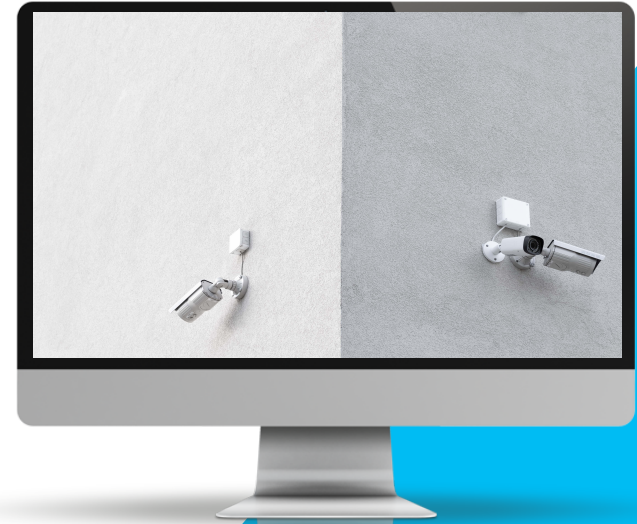
Legitimit interest (GDPR Art. 6/1f)

- may be factual, economic or non-material interest (Reimer HK-EuDSchVO Art. 6, margin no. 54.).

Processing and Storage

- Targeted selection through artificial intelligence
  - Data minimisation(GDPR Art. 5 / 1c)
- Lossless anonymization
  - In the vehicle or in the cloud
  - Data protection by design (GDPR, Art. 25)
- Privacy related data only in transient form
  - Anonymized data is no longer subject to the GDPR

Authorization and Authentication

- strong encryption for data transfer and storage

Anonymization

Lossless removal of privacy related features by replacing license plates and faces.

No negative impact on AI models

Both number plates are synthetic!

Thanks!

brīghter AI

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