

THE JOURNEY TO SAFE AND HIGHLY AUTOMATED DRIVING!

LAKE FUSION TECHNOLOGIES (LFT)

- THE RELIABLE PARTNER FOR ADVANCED SOFTWARE SOLUTIONS!

LFT is a pioneer company for the development of state-of-the-art software solutions and rule-based algorithms for highly automated perception applications. The LFT Safety Kit is the prerequisite to enable automated driving as it secures the artificial intelligence and thus intervenes in case of misinterpretation.

EXPERIENCE VERIFIED IN AVIATION

LFT is a deep tech company which was founded in late 2018 by former Airbus engineers who had previously developed and commercialized laser-based obstacle and collision warning systems and mission computers for helicopters. LFT combines the expertise of experienced engineers with the agility of a start-up.

PRODUCT PORTFOLIO

- Safety-Kit for LiDAR Perception & Data Fusion
- Toolchain for recording and visualization of LiDAR data
- Reference System for sensor data recording
- Expert Services (LiDAR)
- Safety and Risk Assessment Procedures (ISO26262 and ISO21448)



CORPORATE VIDEO

SAFETY-KIT FOR AUTONOMOUS DRIVING

TOOLCHAIN FOR RECORDING AND VISUALIZATION

LIDAR PERCEPTION

ASPP **TigerEye®** (Advanced Sensor Perception Processing) is a modular SW suite for processing LiDAR data based on classical deterministic algorithms.

ASPP TigerEye® consists of 8 main modules up to ASIL B.

- TE-1** Sensor filter
- TE-2** Clearance
- TE-3** Lane detection
- TE-4** 3D objects clustering/tracking
- TE-5** Online calibration
- TE-6** Detection performance/ monitoring
- TE-7** Detection of relevant small obstacles
- TE-8** Dynamic collision warning

DATA FUSION

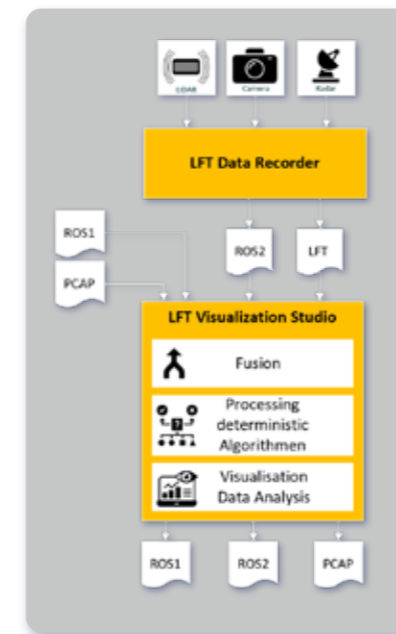
ADFS **MentisFusion®** (Advanced Data Fusion System) consists of deterministic, rule-based algorithms and software packages for data fusion. The software fuses different data sources e.g., processed camera, LiDAR and database (including cloud-based) as well as RADAR information.

MentisFusion® is the software solution for mutual monitoring („Doer - Checker“ principle) of different input data sources and thus a prerequisite for autonomous driving.

- MF-1** Lane marker fusion
- MF-2** Free space fusion
- MF-3** Object fusion
- MF-4** Combined object tracking

LFT DATA RECORDER

The LFT Recorder documents time-synchronized and georeferenced raw data from automotive sensors. The angular calibration and time synchronization of the recorded sensor data has a precision far beyond the resolution of the sensor.

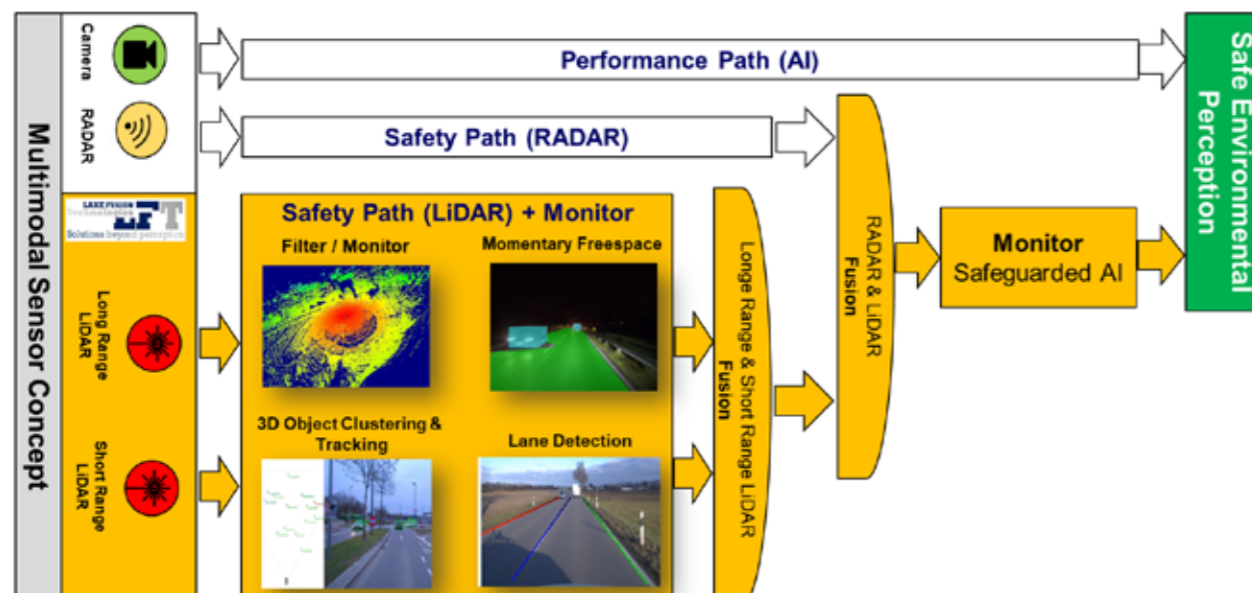
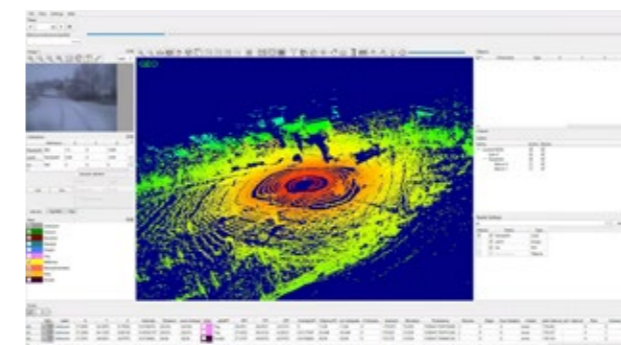


LFT VISUALIZATION STUDIO

The LFT Visualization Studio is a scalable visualization platform to playback and process captured 3D data in real-time and synchronously.

FUNCTIONS

- Multi-point cloud management
- Time synchronization of data acquisition from different sources
- Hosting of LFT LiDAR perception algorithms distance, height, reflectivity and colouring of labels
- Colorization of camera images projected onto LiDAR pixels
- Display of detailed data in tables
- Hiding of terrain/road pixels
- Hiding of pixels with fog/snow/rain artifacts marking of data
- 3D labelling of LiDAR data and much more
- Support of ROS1, ROS2, PCAP
- Windows and Linux support



SERVICES

LIDAR

The LiDAR service offers comprehensive technical support in the development as well as outstanding expertise in the validation of LiDAR sensors. This service includes, among others, LiDAR sensor development consulting, LiDAR simulations, reduction of interference effects through optical and electrical path optimization, intelligent receiver management, etc.

SAFETY AND RISK ASSESSMENT PROCEDURES

(ISO26262 AND ISO21448)

LFT masters the entire process chain of system and software safety engineering for aerospace and automotive. This expertise is the basis for our approach to sensor fusion for safety-critical applications, which is based on the „Doer-Checker“ principle (integrity assurance to safeguard AI).

REFERENCE SYSTEM

The LFT reference system is a platform to time synchronously and geo-referenced record multiple dissimilar automotive sensors to provide the data for perception development. Due to the high scalability of the system, it is also used for rapid validation of new sensor technologies.

PERCEPTION VALIDATION

Perception validation relies on a wholistic understanding of the sensor system, the perception processing and fusion systems combining different data sources.

LFT provides expert solutions for simulation, test and data recording according to V-model development as well as expert validation of perception systems based on a realistic environment using selected scenarios from ODD. By providing trigger conditions to create customized simulation, test track, or real-life data, LFT stimulates potential sensor or perception limits in validation tests.

CUSTOMER
REFERENCES

AIRBUS



AVL



BOSCH

CARIAD

Continental

HITACHI Astemo

INNOVIZ
TECHNOLOGIES



MassTech

