

AVATUM

... at a glance

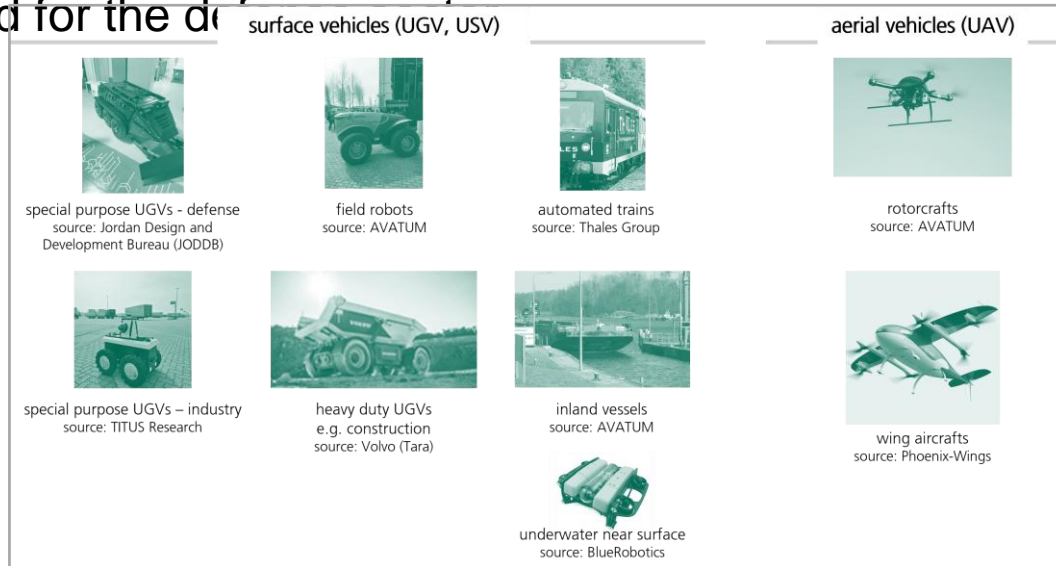
Prof. Dr. Uwe Meinberg



our company

Since its foundation in 2011, AVATUM has been a driving force for innovation.

We conduct applied R&D for unmanned autonomous vehicle systems, related infrastructure and appropriate ecosystems in an industrial context and for the defense.



200+

projects
successfully completed
(~30% defense)

20+

international customers

our R&D and services

business processes/ urban operating system

- › concepts for fully digitized/ automated processes
- › simulation missions/ business processes (e.g. by AnyLogic)



operations



systems

enabling and controlling autonomy

- › sensorconcepts/-fusion
- › controlsystems (*Model Predictive Control*)
- › communication (v2x, 5G, satellite, ...)
- › simulation vehicles (e.g. GAZEBO, Simulink, MathLab)
- › POC

artificial intelligence (AI)

enabling and controlling missions

- › sensor-/actuator-conceptions
- › evaluation of complex sensor data (vehicle, environment)
- › simulation sensorsystems (e.g. GAZEBO , Simulink, MathLab)
- › controlstations (teleoperation, disaster management)
- › POC



missions

transport & missions

- › concepts for fully automated missions
- › interface concepts (v2x)
- › communication (v2x)
- › simulation missions (e.g. AnyLogic, Simu5G, Gazebo)



infrastructures



usability

human-machine-interfaces

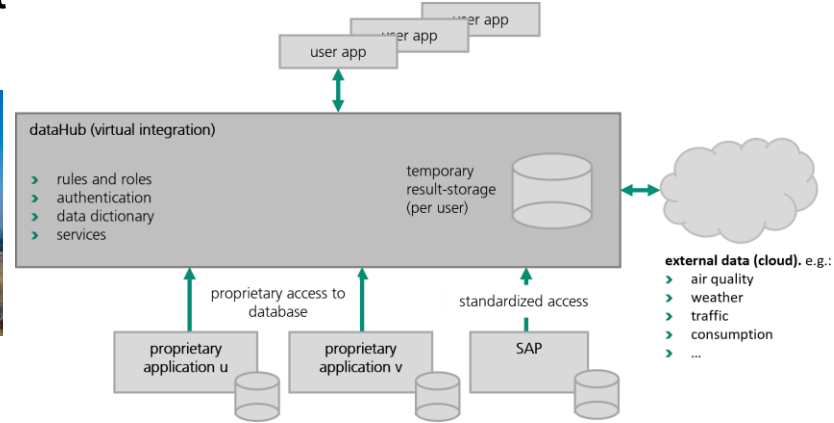
- › interface conceptions
- › interaction under high cognitive load
- › simulation
- › AR/VR



scientific
cooperation

some references in sm-s context

- × **power generation**
monitoring and integration
of environmental data



- × **power grid operation** (extra-high voltage)
monitoring of environmental data
(capital region Berlin/Brandenburg)



- × data retrieved from 50+ public and 300+ private meteostations (weather, air quality)

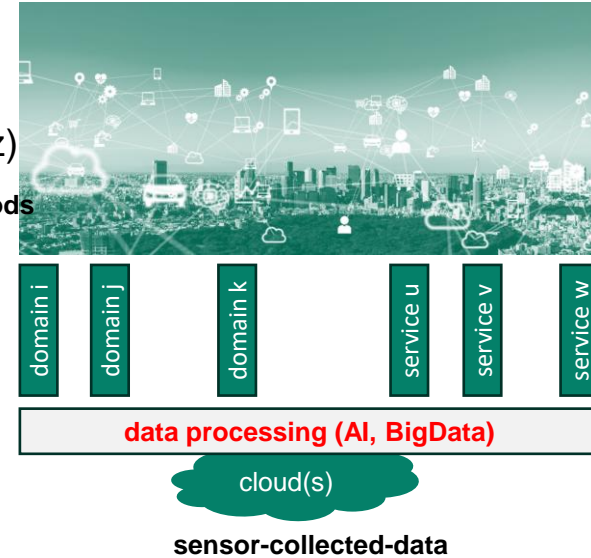
- × geo-references (measurement stations and critical objects) based on WGS 84

- × traffic data integrated (where applicable, mainly Berlin and bigger cities in Brandenburg)

some references in sm-s context

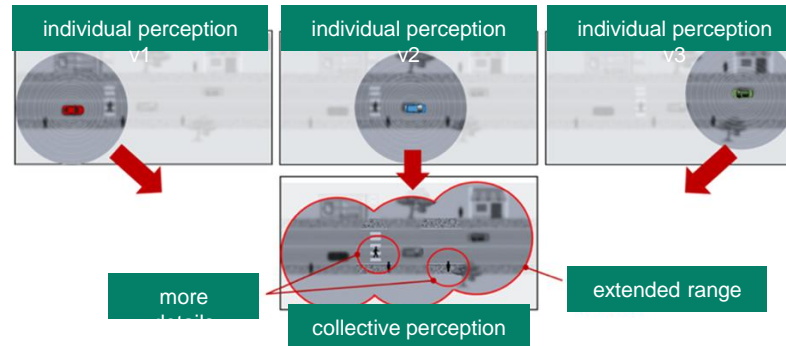
× urban operating system (in cooperation with Mercedes Benz)

- data collected by
 - traffic participants
 - vehicles, bicycles (both: private, commercial)
 - pedestrians
 - drones
 - ships(!)
 - measurement stations
 - service providers (communication, energy, ...)
 - ...
- processed by AI and BigData methods
- provided for
 - traffic/transport services
 - traffic/transport management
 - **phenomenon detection**
 - environmental management
 - urban planning
 - urban services
 - ...



× collaborative perception for road vehicles

(sensor-fusion, v2x communication)






our participation

- × **we were already partner in the previous project** (01/2022-06/2022)
"Empfehlungen für ein Luftqualitätsüberwachungssystem in den Städten Zielona Góra und Cottbus"
- × **in the current project**
"Das Grenzüberschreitende stationär-mobile System für Luftqualitätsüberwachung und Vorhersage zu der nachhaltigen Entwicklung der Städte Zielona Góra und Cottbus"

we will participate in the following working packages

- analysis and assessment of the sustainability levels of the two cities, Zielona Góra und Cottbus
 - development of a draft stationary/mobile air quality monitoring and forecasting system for the sustainable development of the two cities
 - development of algorithms using AI to model various sustainability scenarios for the two cities
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contact



AVATUM GmbH

Ahornstraße 18A
12163 Berlin
Germany

Anckelmannsplatz 1
20537 Hamburg
Germany

AVATUM

your contact:

Prof. Dr. Uwe Meinberg

Tel: +49 30 767 285 39
Mob: +49 173 260 4887
Web: avatum.eu
Mail:

uwe.meinberg@avatum.e



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