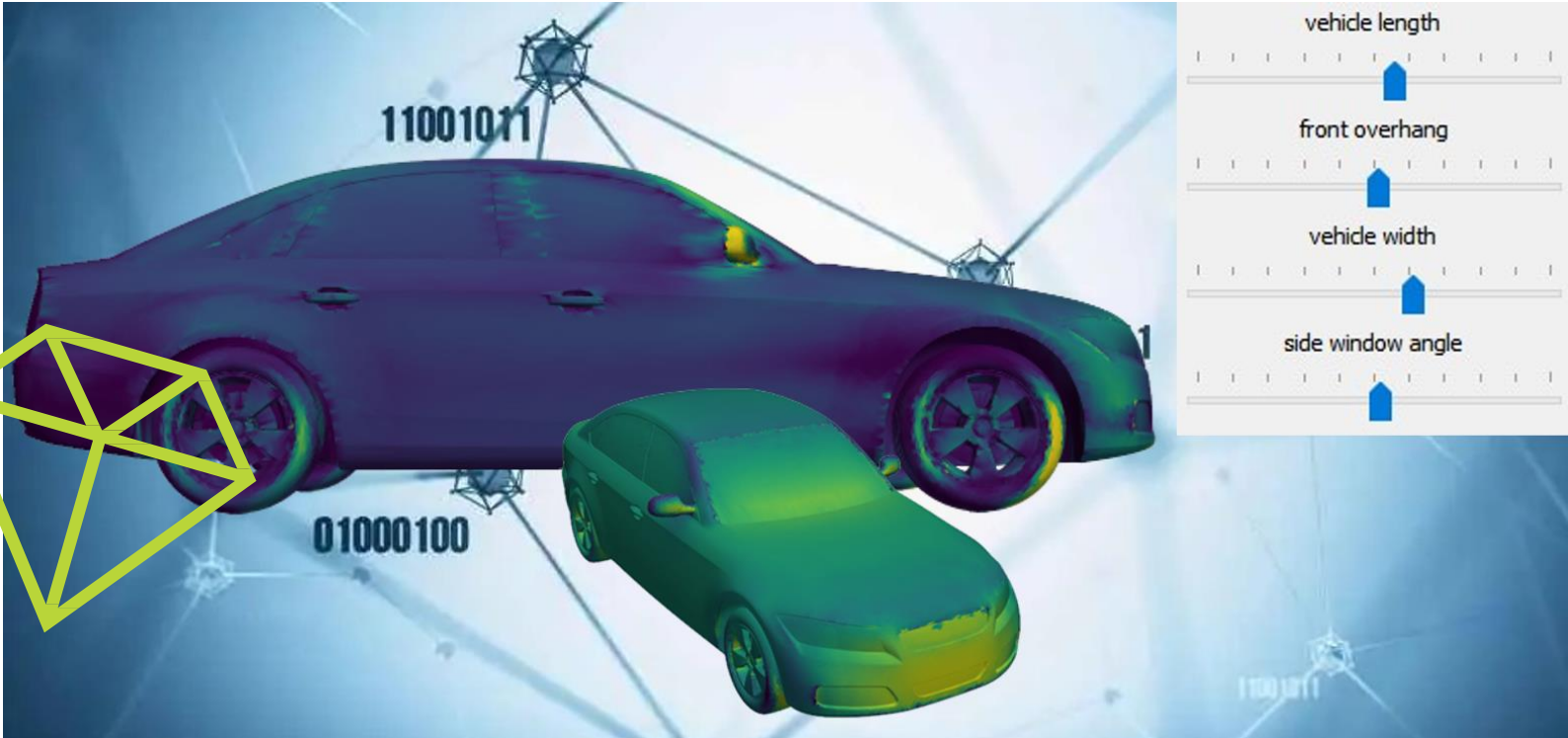




In a nutshell

AI - POWERED
AERODYNAMIC
FEEDBACK
GRAPH NEURAL
NETWORK SURROGATE
MODEL
REAL TIME DESIGN
ITERATION FULLY
CUSTOMIZABLE

AERIS Aero Copilot for Designers

Short Description | AERIS is an AI-based tool that accelerates the aerodynamic design process by enabling real-time predictions of pressure, shear stress, and drag coefficient based on user-modified vehicle geometries. Designers can directly manipulate 3D models—whether digitally or from scanned clay prototypes—and receive immediate aerodynamic feedback, reducing the need for iterative loops with simulation teams. The system is fully customizable to integrate specific vehicle geometries and adapt to individual workflow preferences.

Significant Advantages

- Real-time aerodynamic predictions from AI surrogate models
- Instant feedback on pressure, shear stress, and drag coefficient
- Seamless manipulation of geometry via GUI or uploaded mesh
- Supports both digital models and clay model scans
- Adaptable to individual OEM workflows and vehicle data
- Scalable cloud-based infrastructure for high performance
- Fully customizable and extendable to AR or visualization layers

Use Cases

- Interactive or automated aerodynamic design optimization
- Rapid assessment of vehicle variants during early concept phases
- Design exploration with minimal CFD dependencies
- Feedback loops during physical prototyping (e.g. clay models)
- Integration into OEM-specific design tools and interfaces
- Training on public or proprietary datasets

TECHNICAL DETAILS

- Based on NVIDIA Modulus / X-MeshGraphNet architecture
- Supports up to 16 geometry parameters (e.g., DrivAerML)
- Output: pressure, shear stress (point cloud), drag coefficient (derived)
- Visualization: PyVista PolyData or embedded GUI
- Integration-ready via Docker or cloud deployment
- Response time: seconds (trained model inference)

CONTACT

For more information,
reach out to us at:

Dr. Martin Obstbaum

info@tw-t-gmbh.de



TWT

Stuttgart
Munich
Friedrichshafen
Ingolstadt

Headquarters:

Industriestraße 6
70565 Stuttgart
www.tw-t-gmbh.de