Changing the game for ADAS/ AV engineers: AnteMotion-Ansys partnership automates and improves simulation for testing of autonomous vehicles

by Luca Gasbarro
AnteMotion

Engineers working on simulation to design, test and validate autonomous vehicle systems can now automate the process of moving from HD maps to 3D simulation environments to physics-based sensor simulation – all at a new level of precision.

AnteMotion is a joint venture between EnginSoft, LHP Engineering Solutions, and V2R, three leading players in automotive industry R&D, bringing together a diverse range of skills and expertise to meet the growing demand for simulation in the field.

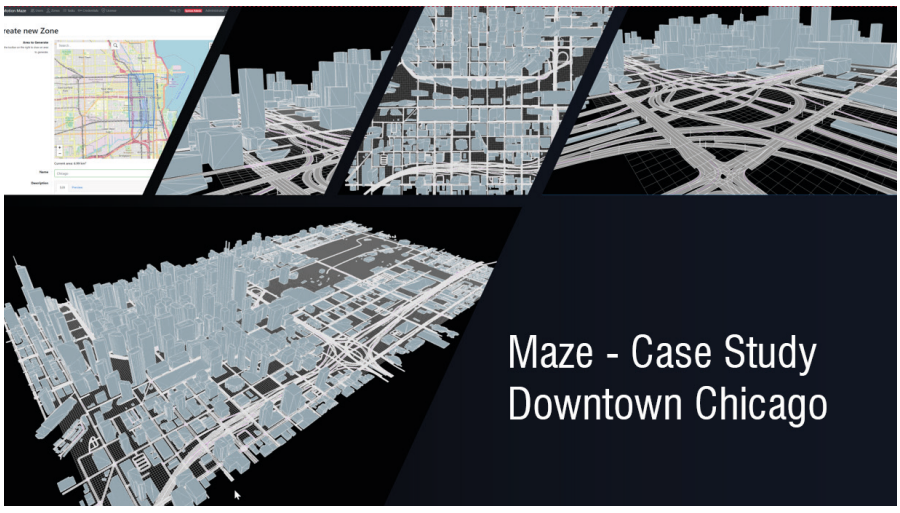
With a cross-functional team of mechatronics engineers, computer scientists, and 3D tech artists, AnteMotion is a reliable partner for vehicle simulation and R&D, offering a unique combination of expertise, continuous research and production capabilities.

The company offers a set of software and services that accommodate different workstyles to support simulation and testing operations, namely:

Maze: HD Maps to OpenDRIVE

Maze is a transcompiler tool that quickly and seamlessly converts between different road networks based on the modelling and simulation requirements, for instance, it can convert data from HERE HD Live Maps to ASAM OpenDRIVE. Maze has the following characteristics:

- Fully automatic OpenDRIVE Creation
- Simulation-ready data
- Automatic data enrichment
- Data fusion from multiple sources including HERE (and other) HD



Live Maps, Here SD Maps, and OpenStreetMaps
- Options to add road features like geometry, elevation, road markings, traffic signs, traffic lights, road links, lane links, junction connections, and more.
- Available both as a SaaS or an on-site solution for full flexibility of deployment

Procedural Worlds: automatic modelling of 3D environments

This powerful, procedural 3D environment generator for driving scenarios:
- Automatically forges OpenDRIVE into a 3D digital environment
- Fills the environment with buildings, parks, props, and features to make it realistic
- Allows the style of the scene (residential, industrial, countryside) to be set
- Ensures that the 3D environment generated perfectly matches the OpenDRIVE Road Network.

Midgard: open rendering engine framework developed on Unreal Engine 5.4

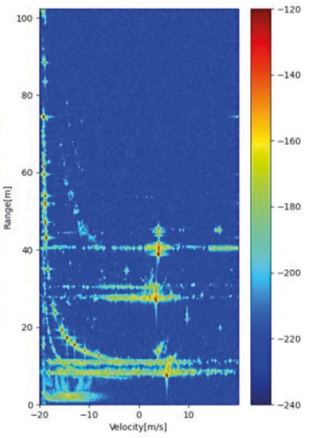
Midgard is designed to support the simulation, testing, and validation of ADAS and autonomous vehicles by aggregating simulation data and delivering it in the form of detailed, configurable interpretations of all collated information, thereby allowing engineers to make informed decisions with ease.

The framework extends the existing development pipeline without requiring significant changes, providing grey-box tools that integrate seamlessly with existing software and processes. Midgard provides a state-of-the-art rendering solution based on the powerful Unreal Engine 5.4 and enriched with ADAS/AV sensors and cameras based on complex physics, weather, day/night and runtime variability of the environment.

The software understands the complexity of specialized tools such as multi-body physics solvers or traffic simulators and provides the means to easily integrate any such tool into its framework, rather than limiting engineers to a specific implementation.

The great potential of these tools recently led to the formation of a cooperation agreement between Antemotion and Ansys in which AnteMotion's two flagship products, Maze and ProceduralWorlds, will be used to complement Ansys' ADAS technologies and bring a new level of automation and precision to simulation environments for autonomous vehicles, in particular with Ansys AVxcelerate suite.

Ansys
AVXCELERATE



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