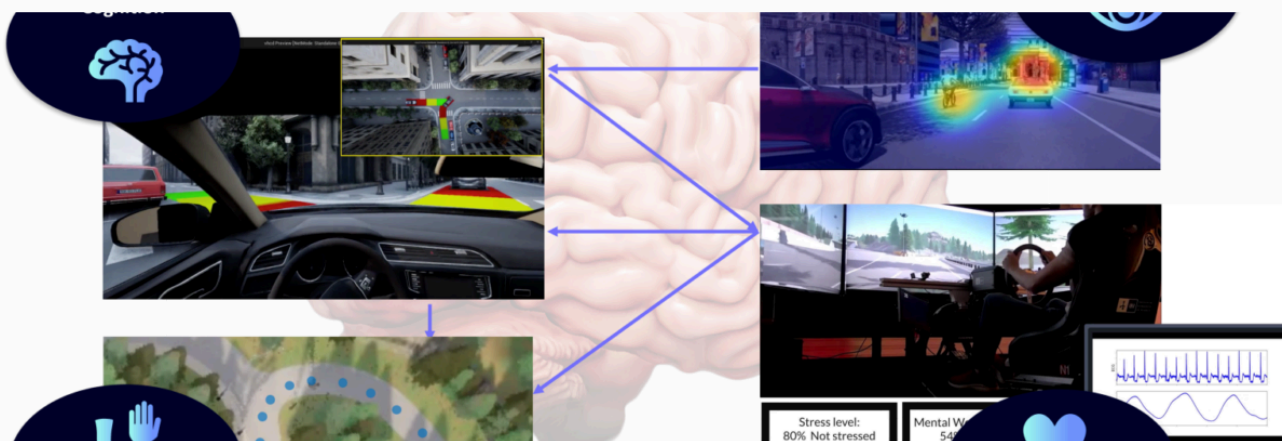


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Modelling holistic, personal, and cultural aspects of human driving to develop trustworthy automated mobility



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10 March 2026

The EC-funded CCAM project [BERTHA](#) advanced Driver Behavioural Model (DBM) modules are now available via an open-source Data HUB and the [CARLA simulator](#) for autonomous driving, including:

- Perception Module**

This module employs advanced machine learning techniques to replicate human gaze and attention distribution, enabling automated vehicles to interpret and anticipate driver focus on complex, dynamic traffic scenarios. The result is a system that not only reacts to the environment but does so in a way that mirrors human situational awareness, enhancing both safety and trust.
- Cognition Modules**

The Risk Assessment and Decision Making modules simulate the driver's perception and understanding of the traffic situation, determine the most appropriate driving behaviour according to perceived and accepted level of risk, to progress safely within the environment.
- Affective Module**

Built on Bayesian Belief Networks, this module allows to predict and model key mental

states such as fatigue, drowsiness, and stress. By integrating physiological and demographic data, it provides a nuanced understanding of driver readiness and emotional state.

- **Motor Control Module**

This module outputs probability distributions for a wide range of driver actions. This probabilistic approach captures the inherent variability in human driving styles, from cautious to assertive, and translates it into nuanced, context-aware vehicle responses.

The robustness and reliability of these modules has been validated in real-world driving conditions for building public trust and regulatory confidence in next-generation automated mobility systems.

“By moving away from rigid, ‘black-box’ systems toward a modular driver behavioural model, we are enabling manufacturers and developers to iterate faster and with greater precision. These building blocks allow for integration into existing workflows, reducing the cost and complexity of developing next-generation Advanced Driver Assistance Systems (ADAS) and personalized in-car experiences.”

Andrés Soler Valero, BERTHA’s project coordinator (IBV)

Source: The press release is available [here](#)

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