



Niedersächsisches Forschungszentrum Fahrzeugtechnik
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„Self-Aware Vehicles“ TU Braunschweig submits a draft proposal for a Cluster of Excellence

In the context of the announced German Excellence Strategy, TU Braunschweig has recently submitted a Draft Proposal for a Cluster of Excellence named “**Self-Aware Vehicles (SAV)**” which is currently under review by a board of international experts.

This draft proposal was developed by members of the **Research Center for Digitalization, Informatics and Information Technology of the TU Braunschweig (TUBS.digital)**, as well as members of the **Automotive Research Center Niedersachsen**. In case of funding, both research centers will coordinate this cluster,.

The cluster of excellence shall develop and investigate methods for the implementation of autonomous space and road vehicles, which are able to operate safely and reliably also under non-ideal environmental and operating conditions, far beyond the typical show cases of today. For this purpose, the vehicles must be able to deal with uncertainties in their environment and stay operable even under influences of sensor, software- and hardware faults or under security attacks. Self-awareness shall be at the core of these methods. Self-awareness denotes the capability of a system to maintain a comprehensive self-image of its state, its environment, its skills and abilities and the influence of its actions. Holistic and continuous monitoring of uncertainties in the systems guarantees a high quality of the self-image. Model-based methods and information fusion based on such self-awareness should be superior in dealing with uncertainties and provide higher robustness than existing methods. This is the research hypothesis.

The methods will be developed by partners from the research fields of Electrical Engineering and Information Technology, Computer Science, System Engineering, Mathematics, Geophysics, Astrophysics and Astronomy, and Psychology. An international network of existing collaborations with leading scientist will support the research activities while joint projects with large research institutions and industry will open the way to innovation.

About Cluster of Excellence:

In the context of a new German Excellence Strategy, universities and/or university consortia were invited to submit funding proposals for a Cluster of Excellence. Supported projects can be funded for 7 years, each receiving €3 million to €10 million annually - with the possibility of an extension for another seven years. Science locations in Germany are to be strengthened and especially the international competitiveness should be further improved. It will probably be supported 50 cluster of Excellence across the various areas of research.

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