

In the driver's seat



Cornelia van Driel

The new AIDA knowledge centre, Applications of Integrated Driver Assistance, was started in 2003 together with TNO, and is led by Prof. Bart van Arem.

Cornelia van Driel is the first PhD student at the centre. She has a keen interest in systems that efficiently assist drivers. Not from a 'technology push' point of view, however: she wants to know what the driver really wants. Her research is a mix of technology and psychology.

"Until recently, most systems were developed from a road management point of view. Information technology seemed to offer ideal opportunities to influence behaviour and to manage traffic flows. Within AIDA, we turn it around and we start from the driver's point of view. If a driver is willing to invest in systems in his or her car, all parties involved win: government in their efforts to enforce regulations, protect the environment and reduce the number of accidents and traffic jams; the driver going from A to B in a safer and more comfortable way; and the car manufacturer being able to sell distinctive vehicles. An example of such a system can be an intelligent extension of the common navigation systems. It is possible to introduce new options that send a warning when you drift out of your lane, when you approach a curve too quickly, etc. This can be more than just a 'beep': using what are known as 'haptic devices' it is even possible to exert counterpressure on the accelerator pedal or steering wheel. Lots of things are in fact technically conceivable, but who is going to use them?"

"I'd like to know what the drivers want themselves, for a start. I want to ask open questions: in which situations do you want assistance, and what kind of assistance should that be? Apart from that, we let them choose from a number

Examples of current projects:

- Tools for improving infrastructure utilisation (CONNEKT)
- Design and evaluation of an in-vehicle fuel efficiency support tool





of options as well. People simply don't know all the possibilities. After this survey I want to present the respondents with the choices they made, using a driving simulator or a test vehicle. I expect the choices could still change then – you've chosen this system, but is it what you really want? In a way, it is social research, it's about behaviour. If a system works well, but makes the driver over-confident or less alert, then we have to consider these behavioural factors. That is why we are working with behavioural scientists at the university.”

“You see the interest in these car systems rising and falling a bit. There's been a lot of research into 'adaptive cruise control', a type of cruise control able to measure and regulate the distance to the car in front of you. After its introduction into top-of-the-line cars, you are gradually seeing it introduced to middle-segment cars. At the same time, people have a lot of reservations: 'Quite nice, all that technology, but they're not really going to integrate them into a cars.' That's another reason why we put the driver in the centre. We take a lot of lessons from experiences in air traffic. Machines have taken a lot of work off the hands of airline pilots, but we are now seeing a reverse trend, giving some of the freedom back to the pilot for better results.”

“Our partner in AIDA is TNO. My supervisor Bart van Arem works there part of the week. This connection certainly has advantages. We want to make the research truly accessible to industry and government, with no barriers. You simply cannot invent something on your own.”

“I made my personal choice for traffic and transport during my studies in Civil Engineering and Management. The appeal for me is that you are in the middle of it every single day. The user, not technology, comes first. That's why I chose this PhD project.”

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