



## Of interest to:

Auto Industry, Insurance Technology  
and Health Monitoring.

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# Driver Sensing and the Intelligent Co-Pilot

Sensing and understanding human conditions that affect driver performance, engagement and satisfaction

## Background

In any autonomous driving scenario, the driver remains central to the overall process. It is important to understand the driver's physiological and psychological states, their intent and their driving task and context, in order to assess whether the driver is attentive and capable to take over control of the vehicle.

Technology can give drivers with additional needs the confidence to continue to enjoy driving knowing that the car's co-pilot will intervene if help is needed. This will improve road safety, and driver and passenger confidence.

## Challenge

Intelligently assessing the driver's physiological and psychological states while driving using a range of sensors.

## Solution

### Input:

- Existing literature
- TCD longitudinal research on the ageing population
- Research in sensors and AI

**ADAPT Technology:** A design for an in-car sensor-fusion network and development of a socio-technical model linking driver conditions, context and the interpretation of the driver's need.

### Outputs:

- Identified all conditions (medical conditions, medications, substances, psychological states) significantly associated with increased accident risk
- Intelligent and interactive co-pilot to gather and interpret data
- Sensor network for Driver Estimation to estimate driver's physical and psychological state to help improve driving safety and satisfaction



## Results and Benefits

- Future co-pilot/driver partnership concept
- Current and future use of in-car sensors
- Future use of AI to assess driver conditions
- Address a growing market for drivers with additional needs to maintain the desire and confidence to drive
- Designed an in-car diagnostic system

## Use Cases

- Insurance technology
- Health monitoring
- Car hire

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