

Understanding the detection of and response to unexpected events in an increasingly automated environment

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In automated systems such as the auto-pilot in airplanes or self-driving cars computers take over important decisions from human agents. However, despite that many tasks are being "off-loaded" to machines, it is still the human agent who is responsible for the outcomes of the machine's actions. For example, imagine a self-driving car that overlooks a pedestrian who is crossing the street. In this case, a human agent needs to be aware of the situation and press the brake. This prompts the question how good people are in detecting and responding to these and other unexpected events in automated environments. Moreover, how does this differ when the human agent is also involved in secondary tasks such as making a telephone call?

NCU provided seed funding for my lab to further develop research plans in this area and to attract other funding to pursue these questions. This was successful. We have obtained funds from the European Union (Marie Curie reintegration grant) and from the Dutch ministry of transportation. The coming years we will investigate how well people process various signals in automated environments and in situations where they are distracted. Our method will combine behavioral studies in a driving simulator with recording of physiological data (e.g., EEG). The latest results can be found on the website of the PI: www.cpjanssen.nl