

Emotional investment in naturalistic data collection

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We present results of two experiments for naturalistic data collection of the physiological effects of cognitive load in command and control. In addition to traditional driving simulation, we propose a remote-control task which allows experimental subjects to remain in a laboratory setting, performing a real-world task in a completely controlled environment.

Simulated car driving

We recorded skin conductance and heart rate of participants in a driving simulator. The difficulty of the tasks was varied by changing road conditions and asking drivers to solve maths problems.

Although some participants showed differences in physiological response between the easy and hard scenarios, we found no significant overall effect.

We propose that this is because participants were not sufficiently invested in the task they were performing.



Remote-control flying

The same physiological signals were recorded while participants flew a quadrotor drone using only its live video as feedback.

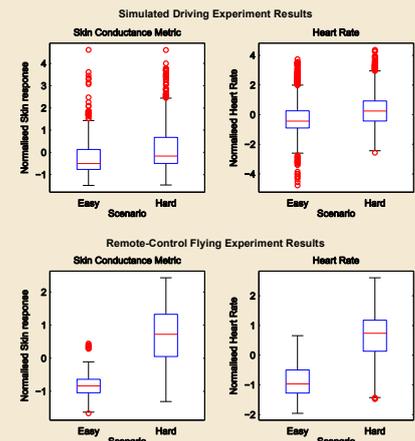


Participants were asked to fly both quickly and slowly, sometimes with a secondary memory task.

The results of this experiment show clear and statistically-significant differences

It is important that affective data be collected in naturalistic, but controlled, environments. We have shown that increased emotional investment means that remote-control of a real vehicle provides clearer and more consistent results than simulation.

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between easy and hard tasks. We suggest that this is because participants are aware that they are performing a real task and hence have a greater emotional investment.

