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Ethics or Self-Preservation? An Online Study Examining Driver Response to On-road Obstacles During Automated Driving

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In the trolley problem paradigm, a person is faced with an ethical dilemma where they must decide how to distribute inevitable loss of life such as deciding between letting five people die on the tracks in front of a trolley or pulling a lever that causes the trolley to switch to a separate track and kill one person. Most studies that involve a trolley problem scenario find that people tend to prefer utilitarian decisions that save the most lives. However, the way that people respond to ethically fraught scenarios under time pressure has not been closely studied. In addition, it is unclear if people would respond in a utilitarian manner when inanimate obstacles are used instead of people. This online study asked participants to monitor a simulated automated vehicle and gave them one, two, or three seconds to intervene if they felt the vehicle should change lanes. The results showed that the participants intervened roughly 96% of the time when a group of five bollards was in front of them, whether this caused them to enter an empty lane or a lane with a single alternative bollard. They also intervened approximately 54% of the time when there was a single bollard in front of them even though this would cause them to hit the group of five bollards in the other lane. These findings imply that drivers' responses may depart from utilitarian responses under 2 seconds or less, which could lead to a worse situation.