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Investigation of Time Pressure and Instinctive Reaction in Moral Dilemmas While Driving

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Abstract : Before trying to make an ethical machine that holds a higher ethical standard than humans, a better understanding of human moral standards that could be used as a guide is crucial. How humans make decisions in dangerous driving situations like moral dilemmas can contribute to developing acceptable ethical principles for autonomous vehicles (AVs). This study uses a driving simulator to investigate whether drivers make utilitarian choices (choices that maximize lives saved and minimize harm) in unavoidable automobile accidents (moral dilemmas) with time pressure manipulated. This study also investigates how impulsiveness influences drivers' behavior in moral dilemmas. Manipulating time pressure results in collisions that occur at varying time intervals (4 s, 5 s, 7s). Manipulating time pressure helps investigate how time pressure may influence drivers' response behavior. Thirty-one undergraduates participated in this study using a STISM driving simulator to respond to driving moral dilemmas. The results indicated that the percentage of utilitarian choices generally increased when given more time to respond (from 4 s to 7 s). Additionally, participants in vehicle scenarios preferred responding right over responding left. Impulsiveness did not influence utilitarian choices. However, as time pressure decreased, response time increased. Findings have potential implications and applications on the regulation of driver assistance technologies and AVs.

Keywords : time pressure, automobile moral dilemmas, impulsiveness, reaction time
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