

105 學年度大四工工專題摘要

第 10 組	The Evaluation of Auditory Warnings to Avoid Unsafe Lane Changes among Drivers with Different Cultural Backgrounds	
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摘 要		
In this modern era people are living in such a fast-paced life, thus it requires us to drive here and there on a daily basis. Being dubbed as one of the most visual-demanding task, driving, especially in highways; is being seen as one of the major cause of death. Given the circumstances, we see the urgency of reducing the risk in driving, specifically when making lane changes. For this to be accomplished, we think it is important to develop warning systems that can understand the driver's actions and alert them if there is any danger or possibility of collision when they are making lane changes. We evaluate how effective these systems can be to reduce car accidents related to lane changing errors and lack of visibility by studying the reaction time of drivers when a warning alert is emitted and how long does it take to stop the lane changing action and stay in their original lane. The data gathered for this research comes from 3 groups of users with different cultural backgrounds. We used NASA-TLX scale to evaluate the driver's workload for each experiment and Statistical Analysis like ANOVA and multiple comparisons to process and understand the data. As a result of our analysis, we are able to conclude which warning alerts are most effective to assist drivers in avoiding unsafe lane changes. Taking into account that the reaction time is a key factor in preventing collisions, it is expected that the information provided in this research will be helpful for future development of smart driving aid systems.		