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Driving behaviour of elderly people: the Challenges and Opportunities

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Abstract

There are three elements associated with driving, the vehicle, the environment and the driver. Vehicles, along with their effects on safety, congestion, pollution and etc., play an important role in the development of the world economy and in society. Environment (driving environment) is also responsible for safety enhancement and eliminating congestion. Among these elements, the drivers receive more attention, as they can be controlled more. Older drivers are an important segment of the driving population and form a group of road users receiving increasing attention in regard to road safety research and policy. This growing interest is due to the anticipated increase in the percentage of older people in the population of most developed countries (75% increase of the number of people aged 65+ in Australia between 2000 and 2030). Public concern has been expressed about their impact on safety and the efficiency of the traffic network, as several studies have indicated that older drivers have a disproportionate risk of collision per kilometer of exposure. Driver modelling presents a great opportunity to significantly improve the way we drive, as the models can assist in both vehicle development and driver assistance systems. The potential improvements offered by the use of driver models works on different levels including but not limited to safety, improvement of quality of life and vehicle operational efficiency. Different driver models have been developed to study driver behaviour, but none of them have focused on a model for older drivers. This paper describes the background of our ongoing research on the study of the behaviour of older drivers and proposes a review of the current driving models with Neural Networks. Neural Network models could be used to recognize the differences between the behaviour of older and younger drivers and to identify weaknesses and needs that require support either via vehicle development or driver assistance system (Intelligent Transportation systems).

Keywords
Older Drivers, Driver Behaviour Modelling, Driver Assistance Systems, Neural Networks