

National Technical University of Athens
Road Safety Observatory

Online
workshop
in the framework of

6TH UN GLOBAL ROAD SAFETY WEEK

17 - 23 May 2021



Streets for Life

#Love30



Thursday
20 May
2021

Innovation in Road Safety Research

Safety behaviour assessment of older drivers in real driving conditions

Dimosthenis Pavlou

Transportation Engineer, PhD, Research Associate
National Technical University of Athens

Together with:
George Yannis

Background

- **Post-Doc Research**, by State Scholarships Foundation (IKY), Greece (2020-2022)
- **Natural aging** affects mental and physical abilities which are critical for safe driving, resulting in elderly drivers being more prone to get involved in a car accident.
- At the moment **more than 20%** of traffic fatalities is aged >60 in Europe and by 2050, the share of elderly road traffic fatalities **will increase to 43%**.
- The presence of **cognitive dysfunction** due to the ageing process, especially in the case of neurocognitive disorders which are found in more than 20% of the general elderly population, may critically compromise fitness to drive.



Research Framework

- According to the **current legal framework in Greece**, the process of renewing a driver's license for the elderly is rather ambiguous
- It includes very vague guidelines for situations that could affect driving of the elderly.
- There is therefore a significant gap created by:
 - the **legislative ambiguity** and
 - the **lack of the necessary tools** that will be able to assess the safe driving behavior of the elderly.



Objective

- The aim of this research is to develop an innovative tool for assessing the driving ability of older drivers, which will:
 - **classify them according to their ability** (or not) **to drive safely** and
 - **suggest appropriate measures**, facilitating and thus supporting the officials of the Ministry of Transport, but also other involved bodies, in the currently unclear decision-making procedures on the renewal (or not) of the driving licenses for the elderly population.



Methodology

- A system has been developed and implemented to **record and evaluate** the driving behavior of the elderly using real-time driving data, collected through smartphones.
- An on-road driving experiment will be performed using big data that will be collected through the **OSeven smartphone application** (oseven.io)



The procedure

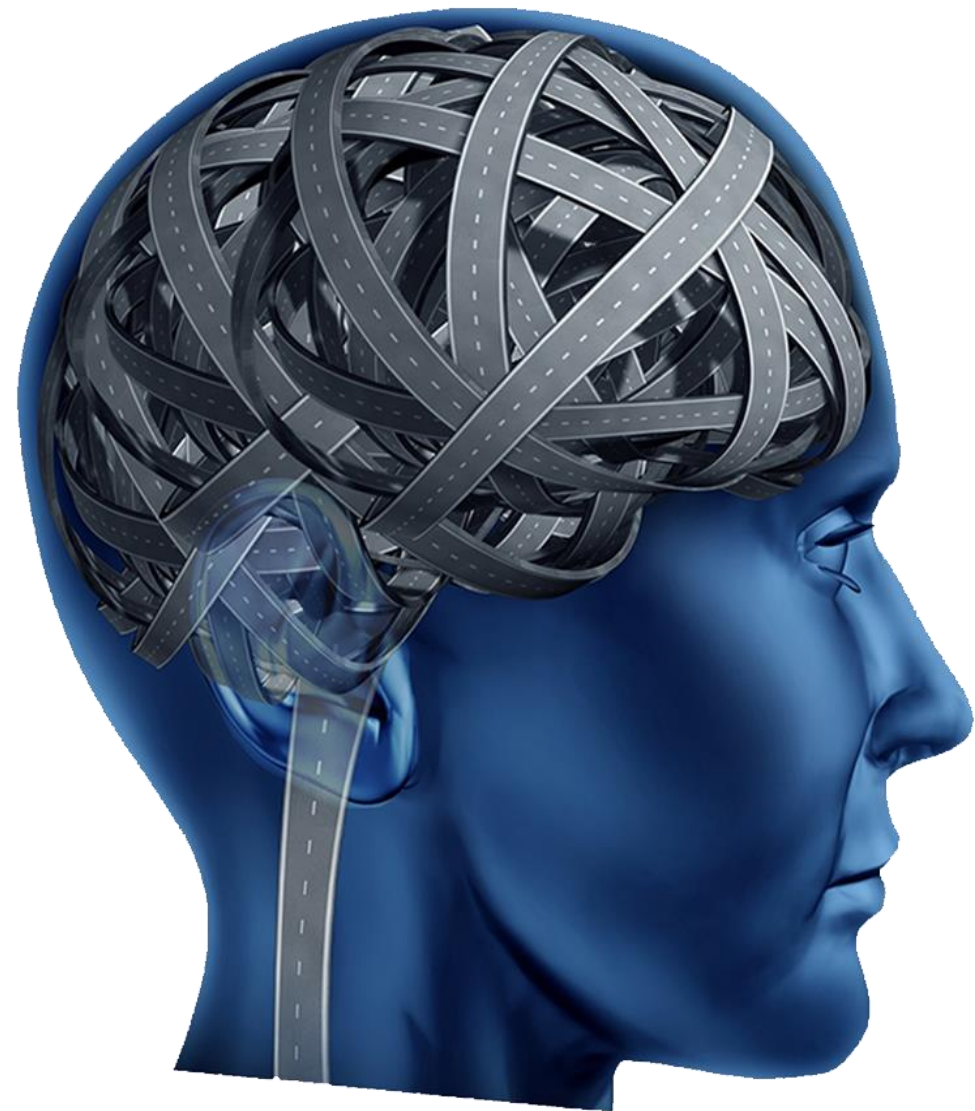
- **100 elderly active drivers** (over 60 years old) will take part in an **on-road driving experiment**, on a specific route (duration 45 minutes), which will include road sections inside and outside urban area, in the region of Attica.
- The data that will be collected are:
 - **objective driving data** continuously recorded while driving through the OSeven app, collecting a variety of driving behavior parameters
 - **driving behavior assessment** through a safe driving behavior checklist
- Next, a series of several statistical analyses will take place which aim:
 - **to analyze the impact of advanced age** and other factors on driving behavior parameters



Impact and future challenges

- The benefits will be both scientific and socio-economic. They concern a **toolbox for the evaluation and possible improvement** of the driving ability and safety of older drivers:
 - A protocol for assessing the driving ability and safety of older drivers, and specific driving behavior and safety indicators by using:
 - Big data analysis tools
 - Dangerous driving detection tools
- **Future steps:** develop a methodology for the prediction of safe driving behaviour in the elderly drivers, by **applying pass/fail scores in specific neurological and neuropsychological measures**





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