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Prioritization of socio-political values while developing and implementing driverless mobility: a multi-method, multi-step intercultural research approximation

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Poster

Prioritization of socio-political values while developing and implementing driverless mobility: a multi-method, multi-step intercultural research approximation

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Abstract

Although research on automated driving (AD) dilemmas has helped to focus not only on the AD technical dimension, but also on its socio-political and ethical aspects, it has neglected the study of more realistic scenarios. Decisions regarding more ordinary value trade-offs (e.g., sacrificing personal privacy in favor of enhanced performance functions) will be pervasive in most everyday AD situations. Here, we carried out a multi-method, multi-step research process to gain insight into such value prioritization schemes. First, as a result of several multidisciplinary workshops and an expert-based assessment, we defined a set of socio-political values that represent the framework of this investigation: Privacy, Autonomy, Safety, Security, Performance, and Costs. Such values guided the subsequent interviews with international experts and stakeholders, and focus groups with users, with the aim to define socio-political, legal and ethical issues. Then, a new round of expert assessment was carried out. As a result, the revised initial issues were reorganized around five key thematic areas: Data Management, Legal Protection, New Driver Roles, Decisions on automated vehicle (AV) behaviour, and Security/Hacking. Then, we developed and transformed the issues into a list of must-haves –key recommendations –and functional requirements for AD. Finally, we collected the views of 433 respondents from three different countries (Germany, Italy, and Spain) to compare the value prioritization schemes across different driving cultures. Our interest focused on both other- (i.e., a relative importance order between the system of values when evaluated from the perspective of three potential type of AVs users - a mobile office scenario, a truck driver, an elder - acting in particular traffic conditions) as well as (absolute) self-referred evaluations. The definition of the relative and absolute order of AV's system of values was investigated through a mixed approach, that combined classical experimental material - closed-ended questions - with innovative video-based storytelling for the presentation of the stimuli. Regarding the self-referred evaluations, results indicated different preference levels among different values, confirmed by an Inductive Item Tree Analysis. This analysis showed a partial order having "Safety"at the top, "Autonomy"and "Security"on the same level with "Performance"and "Privacy"below them and on the same level, while "Cost"was at the bottom of this hierarchy, being outperformed by all the other values. Also, we found a higher preference for the value "Performance"in Spain compared to Germany, and the opposite pattern for the value "Security" . Regarding other-referred evaluations, while the value "Safety"was the most important, irrespective of the type of user, some differences emerged for the other values. For example, for someone who uses the AV as a mobile office, "Performance"and "Security"were immediately below "Safety", with no order between them.

The remaining values were, in relevance decreasing order, “Autonomy”, “Privacy”and “Cost”. Our analysis of which different socio-political values are at stake in routinary traffic situations (and the interaction between traffic infrastructures, legal frameworks, attitudes and values) and how different cultural groups might prioritize different values may help the standardization and regulation of future AD technologies.

Keywords

Ethics; Multi-method design; Value perceptions

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