Survey of Bicyclists and Pedestrians Towards Autonomous Vehicles

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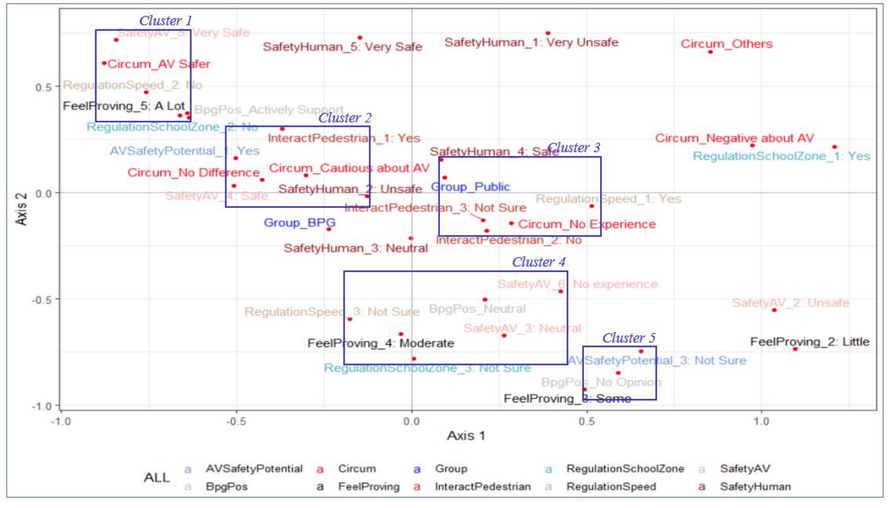
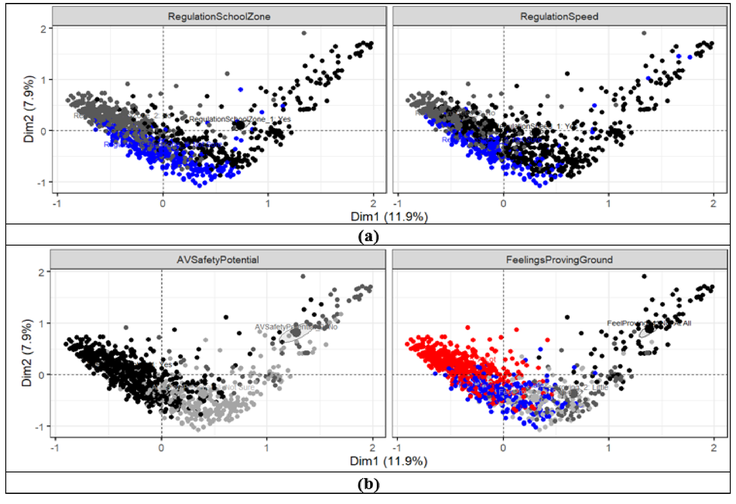
Abstract

- An important first step towards the widespread adoption of autonomous vehicles (AVs) is understanding public opinions, sentiments, and perceptions. In recent years, there have been many studies about the public perception of AVs.
- The present study examines survey data (survey of bicyclists and pedestrians towards autonomous vehicles) collected by a non-profit organization named BikePGH located in Pittsburgh, Pennsylvania.
- This study used chi squared tests and multiple correspondence analysis (MCA) to identify the response patterns of participants and sort the responses into several clusters.
- Six clusters of patterns were identified that require further attention.



MCA Plot for Attributes



MCA Plot by Respondents

BikePGH Survey

In early 2017, BikePGH designed a survey to see how both BikePGH donor-members and Pittsburgh residents at large feel about sharing the road with AVs as a bicyclist and/or as a pedestrian. BikePGH is a charitable non-profit with a mission to transform "…our streets and communities into vibrant, healthy places by making them safe and accessible for everyone to bike and walk."

Methodology

- Used the final survey dataset with 321 responses from the BikePGH members (BPG) and 793 responses from the general public (Public) for a total of 1,114 respondents.
- Performed chi squared tests to determine the responses patterns by BPG and public.
- Conducted MCA analysis to determine the key clusters.
- Example of clusters:
  - Cluster 1 (BpgPos_Actively Support, Circum_AV Safer, FeelProving_5: A Lot, RegulationSchoolZone_2: No, and SafetyAV_5: Very Safe)
  - Cluster 2 (AVSafetyPotential_1: Yes, Circum_Cautious about AV, Circum_No Difference, InteractPedestrian_1: Yes, RegulationSpeed_2: No, SafetyAV_4: Safe, and SafetyHuman_2: Unsafe)

Conclusions

- The current study shows that pedestrians with previous interactions with AVs consider AVs safer than human drivers and recognize the safety potential for AVs.
- For those without previous interactions, the survey shows that they are associated with believing Pittsburgh streets are safe with human-driven cars and that the speed in which AVs are allowed to operate should have a cap.
- The results of the study provide evidence that experiences and knowledge with AVs are associated with positive attitudes and perceptions. This finding supports the value of having demonstration projects that provide the opportunity for pedestrians and bicyclists to interact with AVs.