Balancing Access and Acceptance: Exploring the Intersection of Personalization and Social Norms in Automotive Interface Design for the Visually Impaired

Open Master Thesis

Background

In recent years, autonomous driving technology has significantly evolved, transforming from concept to reality. This advancement holds particular promise for individuals who are blind or visually impaired, offering them a new level of independence and freedom. One potential avenue for enhancing accessibility is the use of Bayesian optimization to design interfaces automatically. However, this raises a critical question: what if such an accessible interface, particularly in shared vehicles, inadvertently signals to others the user's disability? This scenario indicates the issue of whether social acceptance should—and can—be a factor in the design of accessible interfaces. Moreover, it challenges whether human designers or Bayesian optimization can effectively address this concern.

Research Goal

The objective of this thesis is to incorporate Bayesian optimization, building upon existing work, into interior design to create a more personalized and accessible environment for people who are visually impaired. Additionally, this research will explore the feasibility and implications of integrating social acceptance as a target variable through a user study.

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Images:

https://waymo.community/story/lighthouse-for-the-blind-and-visually-impaired-sf.html

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