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Anthropomorphism, Privacy and Voice-based AI Systems

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TREO Talk Paper

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Abstract

Intelligent personal assistants (digital voice assistants) are gaining popularity with 135.6 million number of active voice assistant users in the United States alone. Because of their usability and convenience, voice-controlled artificial intelligence systems are employed in both personal as well as professional settings. Existing literature (Manikonda et al. 2018) shows that these devices are used for several purposes ranging from seeking answers to queries, playing music, controlling lights, etc. However, these devices have been constantly upgraded not only in their physical appearance (e.g., Alexa devices with screens) but also their functionalities (e.g., Alexa devices allowing Telehealth visits). Thus, sufficient care is required to make sure privacy aspects are considered seriously. Users may be ignorant of the issues involved in using smart home devices, by using it as part of their daily lives because of its anthropomorphic characteristics. Research has shown that the users even though know about certain risks, they overlook them since the benefits received through using them is worth using (Sebastian and Crossler 2019). We examine the auditory design aspect (human-like voice including male and female voices), product attachment (such as viewing the AI system as a friend or a servant), trust of users in such systems and propose a theoretical model on why users continue to use voice-enabled intelligent personal assistants. The growing interest in using such devices as well as the constant upgrading of different functionalities of these devices regardless of the widely known privacy concerns is the primary motivation for us to focus on this problem.

Personification, or Anthropomorphism – attributing human characteristics to non-human things, is defined as the attribution of "human-like properties, characteristics or mental states to real or imagined non-human agents and objects" (Epley et al. 2007). Anthropomorphism is spontaneous in addition to being pervasive and powerful (Yuan and Dennis 2019). For humans, they are born with anthropomorphism, and its characteristics can be divided into two main design factors- visual and auditory. We propose a theoretical model using different factors including auditory manipulation, product attachment, trust placed in the product, privacy concerns to measure an individual's willingness to use that product. The research model will be tested using data collected through survey responses. Prior studies have looked at smart home devices, but not from a perspective where anthropomorphism and privacy concerns come together. The study also contributes to the existing literature by integrating the concepts of anthropomorphism, extended privacy calculus model, and Protection Motivation Theory, to develop the research model. Furthermore, this study looks at how individuals perceive smart home devices and use it in their daily lives, even with the continual existence of privacy-related threats.

References

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