Thesis Project Portfolio

Developing Design Features to Facilitate AI-Assisted User Interactions

(Technical Report)

Analysis of the Failure of Google Glass: Google's wearable augmented reality device

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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Spring, 2024

Department of Systems and Information Engineering

Table of Contents

Sociotechnical Synthesis

AI-Assistive Design Features and Google Glass

My technical work and STS research are linked through the concept of user-centered system design, where both studies analyze the user needs that designers had to consider to ensure the acceptance of their technology by consumers and other stakeholders. Technical innovation has occurred at increasingly rapid rates, resulting in the equally drastic changes to the relationship people hold with technology. The two works address the importance of design decisions in ensuring a comfortable end-user experience with new technologies. My technical work focuses on designing features within software tools that balance the introduction of artificial intelligence (AI) capabilities with existing user preferences and workflows. My STS research demonstrates how designers' misinformed assumptions about users can negatively affect the willingness of consumers to adopt breakthrough technologies utilizing Google Glass as the case study.

My technical work develops and evaluates design features to facilitate AI-assistive user interactions in query formation within the domain of log management software. Log monitoring software allows users to write queries in platform-native code that search, filter, and analyze log data, which are digital records of events and activities occurring within a system, application, or device. Our team studied common platform use cases and conducted interviews with subject-matter experts to gather information and functional requirements that informed our design process. The three key features focused on 1) refinement of search categories, 2) context-aware prompt recommendations, and 3) customization of query input per a user's technical ability. All features were conceptualized in a series of digital prototypes and refined through an iterative process, and final designs were evaluated by both novice and experienced users. These designs

aim to address the needs of both experienced users who will need to acclimate their familiar workflows to new AI enhancements and novice users who rely on AI to alleviate the software's learning curve and accelerate productivity.

My STS research explores the result of when innovative technologies are not designed with a thorough understanding of the user through the lens of Google Glass, a wearable augmented reality (AR) device. My research argues that a major contributor to the poor public reception of Glass is the designers' misinformed biases about users, which are that users 1) prioritize technology as a component of themselves and 2) are reliant on digital connectivity. By applying Steve Woolgar's theory of user configuration, the study reveals how designer biases constrain user interactions, ultimately leading to the product's market failure. My paper observes the final product to reverse engineer the Glass designers' configured user and reveal how it conflicted with the actual users. The purpose of this study is to identify how designers can navigate future projects that similarly reform our relationships with technology through user-centric design.

Developing both projects concurrently over this past year has benefitted each in terms of quality and efficacy. My STS project emphasized the importance of acquiring a comprehensive understanding of users to make well-informed design decisions, leading me to conduct a more thorough contextual analysis process in my technical work. Thus, my technical work had a strong foundation of requirements to support design ideation and implementation. Overall, working on both projects has enabled me to draw parallels between the challenges and opportunities inherent in designing innovative technologies that effectively meet user needs and preferences.