

Navigating the Aural Web: Augmenting User Experience for Visually Impaired and Mobile Users

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Abstract

The current web navigation paradigm structures interaction around vision and thus hampers users in two *eyes-free scenarios*: mobile computing and information access for the visually impaired. Users in both scenarios are unable to navigate complex information architectures efficiently because of the strictly linear perceptual bandwidth of the aural channel. To combat this problem, we are conducting a long-term research program aimed at establishing novel design strategies that can augment the aural navigation while users browse complex information architectures typical of the web.

A pervasive problem in designing for web accessibility (especially for screen reader users) is to provide efficient access to a large collection of contents, which is manifested in long lists indexing the underlying contents. Cognitively managing the interaction with long lists is cumbersome in the aural paradigm because users need to listen attentively to each list item to make a decision about what link to follow and then select a link. For every non relevant page selected, screen reader users need to go back to the list to select another page.

Our most recent study compares the performance of index-based web navigation to guided-tour navigation (navigation without lists) for screen-reader users. Guided-tour navigation allows users to move directly back and forth across the content pages of a collection, bypassing lists. An experiment ($N=10$), conducted at the Indiana School for the Blind and Visually Impaired (ISBVI), examined these web navigation strategies during fact-finding tasks. Guided-tour significantly reduced time on task, number of pages visited, number of keystrokes, and perceived cognitive effort while enhancing the navigational experience. By augmenting existing navigational methods for screen-reader users, our research offers design strategies to web designers to improve web accessibility without costly site redesign.

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