Improving Mobile Reading Experiences while Walking Through Automatic Adaptations and Prompted Customization

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**MOTIVATION**

Situational impairments such as walking can affect user abilities to read on mobile devices.

**SYSTEM DESIGN**

1. **User-Specific Walking Detection**
   
   Our system only considers an event as “walking” if it
   
   - lasts for 3 seconds
   - is closer to previous “walking” benchmarks

2. **Real-Time UI Interventions**

   Contextual dialog window for suggesting and customizing a single parameter when someone STARTS walking

3. **Observing Customization Behavior**

   Our system observes customization behavior to refine further recommendations
   
   - previous user-specified value for text setting
   - the last user-adjusted parameter

**PRELIMINARY USER STUDY**

**Key Takeaways**

1. Avoiding frequent changes, occlusion, and losing track of text
2. Gestural control over target acquisition
3. Variation of user preference over automation and direct manipulation

**System Refinements & Next Steps**

- Improve UI intervention design
- Visuals to assist reading resumption
- Gestural instead of button control
- Leave options open along the spectrum of mixed-initiative adaptations
- Capture additional situational parameters about user context

**Various abilities are affected when a user is walking:**

- Visual ability (to view text content)
- Fine motor ability (to navigate documents)
- Cognitive ability (to comprehend text content)
- ...