SIG: NVI (Non-Visual Interaction)

Anke M. Brock
IRIT
Université Toulouse & CNRS
118 Route de Narbonne
31062 Toulouse, France
anke.brock@irit.fr

Tiago Guerreiro
University of Lisbon
Campo Grande, C1, 1.312
1749-016 Lisboa, Portugal
tjgv@vimmi.inesc-id.pt

Slim Kammoun
IRIT
Université Toulouse & CNRS
118 Route de Narbonne
31062 Toulouse, France
Slim.kammoun@irit.fr

Shaun K. Kane
UMBC
1000 Hilltop Circle
Baltimore, MD 21250 USA
skane@umbc.edu

Hugo Nicolau
IST / Technical University of Lisbon / INESC-ID
R. Alves Redol, 9
1000-029 Lisbon, Portugal
hman@vimmi.inesc-id.pt

Christophe Jouffrais
IRIT
CNRS & Université Toulouse
118 Route de Narbonne
31062 Toulouse, France
christophe.jouffrais@irit.fr

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Abstract
In recent years there has been a surge in the development of non-visual interaction techniques targeting two application areas: making content accessible to visually impaired people, and supporting minimal attention user interfaces for on-the-go mobile users. This SIG aims to bring together the community of researchers exploring non-visual interaction techniques. The SIG will bring members of this burgeoning community together in a lively discussion and brainstorming session. Attendees will work to identify and report current and future research challenges, and to identify future directions of this research area.

Author Keywords
Non-visual interaction, blindness, visual impairment, situational impairment, accessibility, haptic, audio, gestural interaction.

ACM Classification Keywords
H.5.2. [Information Interfaces and Presentation]: User Interfaces; K.4.2. [Computers and Society]: Social Issues - Assistive Technologies for Persons with Disabilities

Introduction
In a recent fact sheet, the WHO reports that 285 million people are visually impaired worldwide [15]. Improving access to information and technology for visually

impaired people is thus a significant challenge for HCI researchers and practitioners. Non-visual interaction techniques have been explored for many years, and typically leverage non-visual modalities such as gestural interaction [10,11], haptic feedback [9], touch-screens with tactile overlays [5] or auditory interfaces [12,16]. Non-visual interaction techniques may address many different aspects of human-computer interaction, including browsing the internet [1], text entry [13], indoor and outdoor navigation [2,7], games [14], crowd-based questions and answers [4], and even photography [8]. Besides accessibility for visually impaired people, non-visual interaction (NVI) can also aid sighted people, such as situationally impaired mobile device users, [6] or when interacting with augmented reality systems [3].

Much work on non-visual HCI has come from the accessibility community. Several international conferences address accessibility issues in HCI (*e.g.,* the ACM SIGACCESS Conference on Computers and Accessibility, and the Springer International Conference on Computers Helping People with Special Needs). However, these conferences focus broadly on accessibility issues, and do not specifically focus on non-visual interaction or HCI. Other conferences, such as MobileHCI, sometimes address NVI in mobile contexts, but also feature only a subset of the broader community.

We believe that CHI is the ideal venue for bringing together the community of researchers and practitioners exploring NVI, for the following reasons. First, NVI for visually impaired and sighted users is of interest to the CHI community. CHI 2012 featured a paper session entitled "Supporting visually impaired users," and has featured papers on NVI for both visually impaired and sighted users. Second, CHI is a regularly-occurring and global event, whereas few of the accessibility oriented conferences unite community members on a global level. Third, CHI is not focused exclusively on accessibility, and provides opportunities to connect accessibility researchers with non-accessibility-oriented NVI researchers. Fourth, CHI attracts practitioners with a variety of perspectives, who may make important contributions to this transversal field. Given the prevalence of visual interaction and the relative obscurity of non-visual interfaces, technical disruption may be required to improve NVI, and a CHI SIG provides a rich environment for creating such disruption.

The aim of the SIG will be to bring together and reinforce the research community working on NVI. We hope to create new synergies, identify future challenges, and potentially highlight the importance of accessibility for visually impaired people.

Invited Participants

Our aim is to bring together the community of researchers and practitioners working on non-visual interaction. This includes interaction for visually impaired people, as well as non-visual interaction for sighted people.

We plan to invite known members of the community personally by mail. Furthermore, we will create a Facebook event and website for advertising the SIG. The SIG event will be open to all, but those who wish to present during the session will be asked to send in a short description of their main work areas before the conference.

Schedule of this SIG CHI Meeting

The aim of this SIG is to discuss how to create and maintain the community of NVI, and to identify future research challenges and directions. The SIG will be open to anyone. It will be most relevant to researchers, practitioners or people interested in the field of non-visual interactions. We think that by working together we can connect technologies and ideas to identify the opportunities and challenges towards more accessible interactions.

The organization and schedule of this SIG will be as follows:

- 5 minutes: introduction to the SIG, presentation of the objectives and schedule.
- 10 minutes: moderators will give a brief presentation in order to give an overview of the field and introduce the discussion topics
- Brainstorming session (50 min): if less than 20 participants, attendees present themselves. Groups of participants based on a selection of shared interests will be created. Moderators will structure the ideas according to different discussion topics (sensory modalities, specific user groups, type of application, etc.). Groups will be encouraged (but not required) to discuss three primary questions, developed by the organizers:

    1. Do we want to create an official community and how can we keep this community alive? Do we want to create sub communities (for instance for projects addressing visually impaired people) or do we want to reunite the whole NVI community? (15 minutes)
    2. Which are the future challenges that we expect in our field and how can we face them? (20 minutes)
    3. Do we want to organize a workshop for CHI 2014? (15 minutes)

- 15 minutes: Working groups report back; summary of the event and next steps.

Post-CHI Activities

After CHI, we will sum up the discussion and share the results with the broader community via publication on the SIGACCESS newsletter or ACM Interactions. We will also follow up on a discussion board, which will be used to plan activities for this community in 2014 and beyond. Our aim is to implement a regular meeting of community members at venues such as CHI and ASSETS. An additional objective is the organization of a workshop on NVI for CHI 2014.

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Supplementary material

(a) Brief description of the community (or communities) to which this SIG would be of interest and why it is of interest

This SIG will be most relevant to researchers, practitioners, and others interested in the field of non-visual interaction (NVI). Examples of NVI include gestural interaction, haptic devices, touch screens with tactile overlays, auditory interfaces, deformable touch screens, and other technologies. As some non-visual applications aim at making information accessible to visually impaired people, this SIG is of interest to the accessibility community. However, non-visual interaction also concerns sighted people, for example in mobile contexts or for augmented reality. One goal of the SIG will be to unite researchers examining NVI both in accessibility and in mainstream contexts. This SIG will be of interest to this community as an opportunity to discuss future challenges and to connect researchers working in this area.

(b) Assumed attendee background

Our aim is to bring together the community of researchers and practitioners working on NVI. This includes interaction for visually impaired people as well as non-visual interaction for sighted people. We assume no specific background knowledge or skills beyond a general interest in researching and developing NVI.

(c) The approach you will use for organizing and presenting the SIG

An organization meeting will be held at the ASSETS conference in October 2012. A second meeting will be held at IRIT in Toulouse, France, in December 2012. Further planning will be conducted via Skype and mail. Further steps will be planned upon acceptance of the SIG. At the conference we will need a projector, along with easels and paper for the brainstorming session.

(d) Informal schedule of discussion topics

1. 5 minutes: Introduction to the SIG, presentation of the objectives and schedule.
2. 10 minutes: Overview of the field and introduction of the discussion topics
3. Brainstorming session (50 min): Discussion of different issues in smaller working groups (5-10 people).
4. 15 minutes: Working groups report back; summary of the event and next steps.

(e) Which organizer should serve as the primary contact.

Anke M. Brock
IRIT, Université Toulouse & CNRS
118 route de Narbonne
31062 Toulouse Cedex9, France
anke.brock@irit.fr
Tel : (0033) 561 55 74 04