
HCI with Sports

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Abstract

Recent advances in cheap sensor technology has made technology support for sports and physical exercise increasingly commonplace, which is evident from the growing popularity of heart rate monitors and GPS sports watches. This rise of technology to support sports activities raises many interaction issues, such as how to interact with these devices while moving and physically exerting. This special interest group brings together industry practitioners and researchers who are interested in designing and understanding human-computer interaction where the human is being physically active, engaging in exertion activities. Fitting with the theme, this special interest group will be "run" while running: participants will be invited to a jog together during which we will discuss technology interaction that is specific to being physically active whilst being physically active ourselves.

Author Keywords

Exertion interface; exergames; sports; exercise

ACM Classification Keywords

H5.2. [Information Interfaces and Presentation]: User Interfaces.

General Terms

Design; Human factors

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Introduction

Recent advancements in sensing technologies have opened many opportunities for supporting sports and physical exercise with interactive technology. Today, many top athletes as well as everyday sportspeople are using sensor-enabled devices such as heart rate monitors and GPS sport watches to support their physical activities. There are also many apps on mobile phones available today that are designed to support sports activities, in particular jogging. Furthermore, interactive technologies that have previously been focused on supporting cognitive activities have started to explore how to incorporate bodily actions: for example, a recent trend indicates a growing interest in game consoles which engage players physically, such as Microsoft's Xbox Kinect.

This emergence of technology to support sports activities raises interaction questions, for example: how do we interact with these devices while moving and physically exerting? In particular, one question is how the technology interaction and the physical activity should overlap without affecting each other's intended performance significantly. Researchers have begun to investigate these challenges and opportunities individually, and interaction designers have implemented systems from a practitioner's point of view. In particular, human-computer interaction research has identified the human body as an important element in the interaction with technology [2]. Specifically, developments emerged that place the human body into the center of the experience with technology [3]. For example, interactive art installations highlight that technology interactions can benefit from a heightened appreciation of the actions the human body engages in [4]. Research on exertion

interfaces has highlighted the unique opportunities that arise when designing for the active human body, but so do new challenges [9]. Prior design work has ranged from research prototypes designed for dedicated athletes to commercial interactive systems sold to thousands of sportspeople [6][7]. However, we believe there is still a lack of opportunities that bring together these different approaches to HCI and sports. This special interest group is an early attempt to facilitate an exchange of ideas between the different people involved in these two merging fields of HCI and sports.

We therefore invite fellow practitioners and researchers, interested in understanding and designing human computer interactions that are performed as part of or while performing a physical activity, to participate in a special interest group meeting to fuel networking and the sparking of ideas for future work in this area.

Approach to conducting the SIG

In fitting with the theme, this special interest group will be "run" while running: participants will be invited to a jog together during which we will discuss technology interaction that is specific to being physically active, all the while being physically active ourselves.

We believe that by jogging together we can achieve three major objectives of the SIG:

- Firstly, it will be fun and thought provoking to CHI to have an alternative format for a SIG.
- Secondly, by being physically active ourselves, we will be able to understand and articulate better the unique challenges practitioners and

designers face when designing for the physically active human body, in line with the suggestion that one has to move when designing for movement [3, 8, 9].

- Thirdly, by physically exhausting ourselves, social rapport among us might also be fostered, as indicated by research that uses sports activities to foster community building among participants [10].

The jogging event will include enough time to get changed, enjoy the run and engage in social interaction after the run. We are planning to align the SIG with the end part of the main conference activities of that particular day, so that attendees will have an opportunity to have a shower. Afterwards, they can join the social events that will happen later in the evening.

We are also planning on capturing the conversations with mobile audio and video equipment and track the sports activity with GPS devices and biological sensing technology, if participants agree, in order to have a record of the event.

Target community

This SIG is of interest to practitioners who are designing interactive technology for sports activities, such as the Nike developers who utilize the Nike+ [7] sensors in shoes to measure training effectiveness. Furthermore, practitioners who develop apps on mobile phones that track sports activity, such as RunKeeper and TrackMyRun, will also benefit from this SIG as it will allow them to get expert feedback for their applications, since we might also try some of these apps out during our run.

This SIG will also be of interest to researchers investigating interactions that focus on the active human body, for example researchers interested in designing sports equipment [6], researchers investigating dance interactions [5], and researchers examining uncomfortable interactions [1].

Finally, designers of interactive games that celebrate the active human body might also be interested in this SIG event. For example, game companies that develop applications for the Kinect such as "Your Shape-Fitness Evolved" will welcome the opportunity to network with other practitioners concerned with both sports and HCI. This is particularly pertinent as "games" is a new and emerging community at CHI.

Assumed attendee background

We will offer several options to attendees on how they can run together, keeping in mind their different jogging abilities. Before the event, we will identify a jogging route near the conference venue that can be covered twice within 25 minutes by a medium-paced jogger. As a result, the attendee can run this route once or twice with the other participants. If different participants choose different options, we propose to run the route in two groups: one group running the route once, the other twice, with opportunities to meet up again during the run. If the participants are not comfortable with jogging even at a slow speed (the one-round group), we also offer a powerwalk option. We will also advertise the event with contact details so that potential participants can help us accommodate any disabilities we might encounter. Furthermore, the organizers have experience in leading mixed ability fitness activities and dealing with different fitness levels.

Our approach requires participants to bring sports gear along with them. As a consequence, we will advertise the event with the notice to bring sports gear along to CHI through the CHI-announcements mailing list.

Schedule of discussion topics

The jog will begin with introductions of all participants. Depending on the size of the group and running abilities of the individuals, we will establish running groups for different numbers of rounds, while repeating introductions among participants where applicable. Participants will be encouraged to articulate the biggest challenges they face in designing interfaces for sports. Participants will then run next to people with whom they are interested in talking more; this way the spatial character of running together will shape and be shaped by the interests the participants expressed. Participants are also encouraged to bring along existing systems they currently use (heart rate monitors, mobile phone tracking apps, etc.) as well as research prototypes to experience them 'in the wild' and have a basis for discussion. We will also bring some of our own prototypes along. The jog will conclude with isotonic drinks that will be provided, nurturing the get-together atmosphere that results. This recovery period offers further opportunities for informal interactions between participants. In particular, the heightened state of arousal resulting from exertion, which has been suggested to be conducive to social interaction [10], might be beneficial to fuel the networking interactions.

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