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# Touchless Gestural Interfaces for Networked Public Displays: Overcoming Interaction Blindness and Performing Evaluations In-The-Wild

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## Abstract

In the near future, we can easily imagine a significant increment in diffusion of networked public displays, as well as novel interaction modalities used in their applications. In the following, we present two of the main challenges related to networked displays we are dealing with, with a particular focus on touchless gestural interfaces: overcoming interaction blindness (i.e. enable users to immediately guess the interactivity of the display, and the gestural nature of it) and performing evaluations in-the-wild (i.e. outside any controlled environment).

## Author Keywords

Touchless gestural interfaces; experiments in-the-wild; networked public displays; interaction blindness.

## ACM Classification Keywords

H.5.1. Information interfaces and presentation (e.g., HCI): Multimedia Information Systems

## Introduction

In the last years, several technologies have been developed for enabling touchless gestural interactions.

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However, the bulk of interactive public displays available today uses touch-based interfaces, while gestural interactions need a deeper investigation. Our recent research has been focused on this interaction paradigm, and in particular on how to overcome the so-called *interaction blindness* [1]. We are still tackling this kind of challenge, and trying to find new metaphors and paradigms for developing a touchless gestural interface, which should be intuitive and easy-to-use.

### Display Nets to Solve Interaction Blindness

In the context of public displays networks, a recent work by Müller et al. [2] has shown that the visualization of users avatars can attract other users (thus addressing the *display blindness* [3]). Such solution can also help users to guess the interactivity of the display itself. This effect (named *remote honeypot effect*) can be easily exploited in networked displays, but this requires the development of new interface ideas. In fact, the presence of several avatars could be useful to overcome the interaction blindness, but avatars may easily fill up the bulk of the screen. This can produce confusing use cases if multiple users' interactions are not well managed.

In order to preserve the idea of using avatars, without confusing users, displays form factor can play a fundamental role. In fact, on a larger surface the interface may show both avatars and interaction items within a comfortable layout. The definition of standard interfaces and their future applications in actual deployments may also make interactions more natural, due to a higher probability that users had previous interaction experiences with them.

### Evaluations with Networked Displays

The availability of public display networks can represent a strong facilitator for evaluations *in-the-wild*, i.e. outside any controlled environment. Any kind of hypothesis related to public displays can be tested in a public context, among several displays. Therefore, these displays can be set up to automatically monitor and adjust some experimental parameters, according to data taken even from other displays in the same network. This scenario can be also seen as the possibility to automatically infer some significant findings from some displays, and use them immediately after for adjusting the interface or the business logic of applications running on any other display in the network.

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