

Peripheral Awareness in Virtual Presence

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1 INTRODUCTION

Attending events virtually from home became the primary (and in many cases only) option for participating in any types of events during the COVID-19 lockdown, which most countries implemented. The spread of COVID-19 led to an abrupt switch to online activities and an increased virtual presence. To continue carry out large events, virtual event platforms were developed and enabled people to continue social activities and participation in such events. While many studies have focused on virtual meetings relating to working from home, but we argue that virtual participation in larger events introduce slightly different issues, since interaction is more likely to be between strangers or lesser familiar acquaintances. These also often include social elements, mimicking receptions and other “mingeling” settings, which are complex to transfer to virtual spaces.

In virtual events, the social context is different; some scholars for example point out that their participants “.. found video meetings difficult as the absence of body language cues could make it difficult to read people or to know when to speak, leading to people speaking over each other” [4]. One study points out many issues and challenges in relation to people’s sense of privacy when participating in online meetings, from inavailability of background screens to teachers or managers requiring them to turn on video [2]. This relates to the awareness of presence in virtual meetings and events, the core of our research interests here. In particular, we will to study issues of *peripheral awareness*. Peripheral awareness refers to a person’s attention to what is in the periphery of one’s vision. In virtual events, this can be the awareness to the presence and activities of the other participants, or the surroundings of the person in focus. This is in opposition to the primary awareness, which can be attention to the person talking or a slideshow shown.

At events with physical presence, the location are shared among the participants. One participant are aware of what the other participants can see and experience, and they can move their head and body to change one’s own location and point of view. When attending virtually, the peripheral environment indicates personal things about the person as well as the person’s attention to the event. These peripheral clues can both be deliberately arranged or unconsciously reveal things we might not be aware of. We present some examples to provide context to the discussion:

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- **Glasses:** If a person is wearing glasses during virtual events, the camera can accidentally reflect activities taking place below the camera, for example reveal if the person is using their phone below the camera while attending a conference.
- **Kitchen context:** Many people have had to move their “office” to the kitchen table, and this can result in backgrounds of for example a row of large kitchen knives or long racks of wine bottles, each one being more or less culturally appropriate in different settings.
- **Sun light:** The sunlight can reveal the time of the day at the person’s physical location.

The list of examples are endless, but these provide a starting point for discussion and a plan of potential studies that we aim to conduct.

2 UNDERSTANDING PRIVACY IN VIRTUAL PRESENCE

In light of the increased participation in virtual events, there is a need to investigate privacy in relation to virtual presence, and in particular peripheral awareness when being social at virtual events. While this can be relevant in both work-related and personal context, we limit the focus to work-related virtual events. Social presence is highly contextual and influenced by, for example, the virtual event platform, the degree of interactivity, the physical location of the attendee, the temporal nature, etc. Several of these factors are also happening in the periphery. We will therefore build our investigation of privacy on Nissenbaum’s notion of *contextual integrity* [3]. The theory reflects how privacy is influenced by norms, culture and values, and how people interactivity within a wide variety of contexts, where each culture is associated with different expectations and values [1, 5]. This theory is relevant for this study as it represents the complexity of different contexts and peripheral awareness in virtual presence. We seek to investigate and identify privacy issues in the use of virtual platforms through two studies, an intervention experiment and a qualitative interview study, which we will briefly describe.

2.1 Intervention Experiment

We plan to conduct an experimental study with workers who have different backgrounds from different industries but all work online and participate in virtual events. This will for example include industries from technical workers with regular office work to agriculture workers, in order to increase diversity in the discussion and provide a wider pool of examples of large-scale events that goes beyond the one-to-many format. The experiment will set up different actors who bring on some “intervention” in the form of a particularly revealing background or behavior, and observe the reactions. The participants will be debriefed and the study will naturally be cleared with the ethical committee prior to commencement.

2.2 Qualitative Interview Study

To get more in-depth insights into co-workers experience with privacy when attending virtual events, we will conduct a qualitative interview study concerning personal experiences with virtual events. Similar to the workshop, the participants will have background within different industries. The interviews will be conducted one-on-one immediately after worker has attended one or more online events during a day as will provide a specific example of a virtual event.

These two studies form an initial inquiry into peripheral awareness particular to virtual events, and we hope to gain insights for future implementation of virtual meeting technologies.

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