Social Cues as Triggers for Visual Attention

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WHY ARE YOU STANDING HERE IN FRONT OF MY POSTER????????

Introduction

What are you standing here in front of my poster?! What attracted your attention? Was it the colour, or maybe the size? Do you know, do you want to know? So do I! But we don't- not yet..

Although quite some work has been done on social attention, much of our knowledge stems from laboratory experiments that were conducted under controlled conditions. In this study, we thus want to explore social attention and cognition using real life data.

Presented work will focus on low social cues in order to answer the question of what attracts our attention: body posture, sex, speed, motion?

Social attention in general, has been widely researched phenomenon. In the past a lot of interest has been given to the traditional models where Visual System was described. Visual system was taken as a general-purpose processor. Such models originate, for example, in the classical work of Marr [4] where he describes how description of the outside world is processed through retina images.

Popular press has a lot to say on how body posture can communicate lying or sexual interest but these findings have not been tested in methodologically rigorous experiments. Why people look at this and not that?

Findings on the topic of social attention have been presented also from the view of embodied perception, which states that perception is body dependent. Observers use their own experience to assist in the examination of the outside word [4]. Other research findings report that social information can be visually communicated through bodily action. Examples of this are findings from studies where observers could accurately assess a person's attractiveness or potentially reproductive fitness from motion pictures only [2].

An example of what literature suggests regarding motions is that "angry walkers" tend to attract the most attention. This is worthy of consideration because appraisal of the dangerous events is crucial in terms of (evolutionary) survival.

What is it that stirs the brain into activiry in noticing particular event in the natural environment over and against a different even, continue to perplex us.

Methods

A pilot study on social cues is currently being carried out at the University of Vienna. A "virtual operator" shows surveillance videos from various underground stations - set up of screens (Fig. 1). Each screen shows a shot from a different surveillance camera (Fig. 2, 3). Every two minutes (repeating four times) a new shot is randomly brought up to each of the 4 screens (16 movies in total). Whenever subjects (Fig. 4) see something on one of the screen that attracts their attention (Fig. 5), they have to press a button indicating the respective monitor (Fig. 6). Marked data is recorded in real time. The participants have to fill out the questionnaires prior to and after the experiment. The subjects in the study are 50 male and 50 female participants.

Behavioral events will then be connected to a behavior catalogue that has been developed within the FP7 project VANAHEIM. VANAHEIM aims to investigate human behavior in public settings on 3 levels: individual, group and crowd level. One of the goals of this project is to develop an event detection application that can be employed for security and environmental reporting to increase situational awareness and prevent critical situations.

Fig. 1. Set up pf screens

Fig. 2. Surveillance camera view

Fig. 3. Surveillance camera view

Fig. 4. A participant

Fig. 5. Attracted attention of a Participant

Fig. 6. Pressed button for the respective monitor

Results

If prediction regarding the assessment of social stimuli holds true, the marking of attention-worth events should not be distributed randomly over the shown movies. Participants should show an agreement on which behavioral incidents are worth noting.

Preliminary results show that (some) buttons were pressed at the (exactly) same time, when the probability of two subjects hitting the same button at the same time is 0.0016. This argues that buttons pressed were not randomly distributed over shown videos.

Discussion

Motion is known to be an important cue when it comes to interpreting social events, it is the beginning point for individuals interpreting and decoding social events - humans tend to put every motion they see into a context.

Contemporary research on social attention is making use of rapidly developing Social Neuroscience [1]. Brothers presented a counter theory, [4] argueing for the brain being primarily a social organ. In his opinion, research on brain, its functions, neural development and evolution has to take into account social constraints. The brain is supposed to be optimized machinery to comprehend social behavior. Therefore in order to be able to fully explain social behavior we need to take into account social context [3].

Social attention will be presented from social-anthropology (behavior), cognitive psychology (motion, visual system) and neurology [1] (neural correlates of social attention and emotions). The view each science has to offer could contribute to achieve new insights regarding social attention and real word data.

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VANAHEIM: Video/Audio Networked surveillamce system enhAncement through Human-cEntered adaptIve Monitoring FP7 Large Scale Integrated Project. Grant Agreement No 248907.

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