

Title: Using automatic facial recognition to find the happiest searchers, or can we?

Organisers:

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Key Participants:

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Abstract:

This interactive event runs across two sessions. In session 1, we demonstrate Noldus FaceReader (software that automatically recognises and analyses facial expressions) showing how it quantifies people's facial expressions (happiness, sadness etc) and presents these in visually-appealing graphs, updated in real-time. We ask attendees to interact with the software, have it record their expressions during an information search task so they may compete for the title of "happiest information searcher". In session 2, we present results from session 1 and declare the "happiest information searcher". However, as will become clear in this session, depending on how the numeric data are interpreted, multiple interpretations of the data can be made and there may be more than one "happiest searcher". We lead an open discussion of how seemingly-objective measures still require human interpretation, the difficulty of using such measures in human behaviour research, as well as the potential for software misuse.

Description:

Purpose and Intended Audience

The purpose of this interactive session is to

- (1) introduce Noldus FaceReader (that automatically recognises and analyses facial expressions) as a research tool in Information Studies and give attendees hands-on experience of using the program
- (2) further discussions on challenges and best practice of using objective measures in human behaviour research
- (3) identify research topics and uses of automatic face recognition software in information studies
- (4) discuss our roles as information specialists in critiquing the deployment of facial recognition software in industry and public spaces

The session is aimed at information behaviour researchers and those interested in the implications of using automatic analysis software both in research and in the wider environment.

Proposed activities including agenda, ramp-up (development), and follow-through

In session 1 we will introduce Noldus FaceReader to attendees as and when they arrive, using a short rolling presentation that will describe how FaceReader (software that automatically recognises and analyses facial expressions) numerically and automatically records core human emotional expressions (e.g., happiness, sadness, anger...), and presents the results in visually appealing graphs updated in real-time. After attendees have watched the presentation they can then compete in a task to find “who is the happiest searcher”. We will ask attendees to “search for the iSchools conference website” (baseline) and then to “search for what makes you happy”.

In session 2, we will illustrate how the seemingly-objective numeric data collected in session 1 still requires human interpretation. We plan to award certificates to several “happiest searchers” as who has won will depend on the measure we use. For example,

- Highest average intensity of happiness
- Highest peak of intensity of happiness
- Highest number of happiness peaks
- Longest duration of happiness
- Greatest increase in happiness from baseline

As well the reliability of the results can be questioned

- The software can be gamed with fake smiles and exaggerated expressions (we will award “best faker”)
- The software can misinterpret or not interpret facial expressions (we will award happiest searcher who showed least emotion)

We will then open the session up for discussion. These discussions could be whole group or small group depending on the number of attendees. Discussion topics include

- the challenges of using seemingly objective measures in human behaviour research
- identifying best practice
- potential uses of automatic face recognition software in information studies research i.e. are there particular topics we should be studying / are there situations in which such software is particularly apt
- the potential misuse of such software when it is embedded into the environment and web applications, and the role of information specialists in tackling this

We will end with a light-hearted look at what makes iConference participants happy (summary of what people searched for)

The sessions offer opportunities to connect researchers interested in using software that automatically analyses human behaviour, as well as helping to identify best practice and future research agendas.

Relevance to conference / Significance to the field

A discussion of using objective measures in human behaviour researcher is relevant to the field in general, and indeed there are many measurement tools that create numeric data from human behaviour (e.g. eye trackers) that are deployed in information studies research.

Information seeking and information search can be regarded as purposive or goal-directed behaviour (Wilson, 2000). As with other goal-directed behaviour, emotion may both arise as a result of the activity (e.g., frustration in seeking hard-to-find information, delight at uncovering hidden troves), and shape the course of the activity (e.g., persisting at the task, finding alternative means to complete the work), dynamically altering the experience (e.g., Carver & Scheier, 2001). Facial recognition software has been used in many psychology and human computer interaction studies but less so in information research. We have used FaceReader in our research (children's reactions to robots, understanding maths anxiety, pre-testing effectiveness of health intervention messages) and wish to share our experiences of using this software with the iSchool community.

We believe (albeit with some caution) the software to have potential for application in many areas of information research. Mirroring the impact emotion may have on information behaviour, the process of evaluating data collected in research may also be considered goal-directed, potentially subject to a researcher's motivations and emotions (Bates & Cameron, 2019). As facial recognition software is increasingly deployed in industry and public spaces (for example, in video games to alter the course of games, commercially as a marketing tool, and to track populations for surveillance and security) as information specialists it becomes imperative our community develop a better understanding of such technology.

Bates & Cameron (2019). *Affect dynamics in Data Science Practice*. Paper presented at the Human-Centred Study of Data Science Work Practices Workshop at CHI 2019, Glasgow.

Carver, C. S., & Scheier, M. F. (2001). *On the self-regulation of behavior*. Cambridge University Press.

Wilson, T. D. (2000). Human information behavior. *Informing science*, 3(2), 49-56.

Duration:

Two 90 minute sessions.

Special requirements:

We would like the sessions to be at least a day apart so we have time to review the FaceReader data between session 1 and session 2.