Measuring Consumer Behavior

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INTRODUCTION

Assessment of consumer behavior in specific situations, using observational and physiological methods, is becoming increasingly important in understanding conscious and unconscious consumer behavior. An increased understanding of consumer behavior may result in the development of improved consumer products and in more healthy dietary patterns. A growing number of techniques is available to assist researchers in measuring various aspects of consumer behavior such as walking patterns, product selection, meal composition, and eating/drinking. Due to advances in digital video, sensor technology and computer speed, complex measurements of behavior and physiology are now possible. Integration of these techniques allows multimodal measurements. With the growing number of techniques, the challenge for the researcher to choose the right solution becomes larger. Questions to be answered in order to select the right combination of solutions include:

- How do I upscale techniques that have proven themselves in the laboratory to real-life test situations such as supermarkets and restaurants? In the recently constructed 'Restaurant of the Future' in Wageningen (The Netherlands), observation of everyday behavior is combined with psychological, physiological and sensory measurements. Other research requires observation of consumers in other situations, such as hospitals, supermarkets, and school canteens.

- Which tools do I use for observation: video, physiological measurements, tracking, facial expressions analysis, head movement, eye-tracking – or a combination of these methods?

- Measuring consumer behavior can result in an overload of acquired data. How do I select, analyze, transport, and store these data in an effective and safe way?

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This workshop intends to bring together users and developers of measurement tools for consumer behavior, to discuss the state of the art, advancements, experiences, expectations and bottlenecks. As such it will provide a platform for exchanging information about the opportunities, challenges and needs in the fast developing area of consumer behavior research. It will be organized as a series of presentations, followed by group discussion.

Author Keywords

Eye tracking, dietary monitoring, facial expression analysis, observational analysis, people tracking.

PRESENTATIONS

### Measuring Consumer Behavior in the Restaurant of the Future

René de Wijk (Consumer Science and Intelligent Systems, Wageningen UR, Wageningen, The Netherlands).

The Restaurant of the Future in Wageningen, the Netherlands, is an instrumented company lunch restaurant daily visited by 125 registered guests. Food choice behavior over repeated visits is monitored using various techniques including video, and is related to individual characteristics of the consumers. The presentations will illustrate the advantages of this approach as well as some of the technical pitfalls.

The Development of a System for Automatic Monitoring of Consumer Eating and Drinking Behavior

Oliver Amft (Wearable Computing Lab., ETH Zurich; Technical University Eindhoven, The Netherlands).

The recent uptake of activity recognition methods in various research fields demonstrates the maturity of basic sensor-based recognition of behaviour. While fundamental challenges in machine inference of context/situation awareness remain yet to be solved, systems that can describe dietary behaviour become feasible. Current trends in multimodal activity recognition and behaviour inference will be discussed. In particular, previous and ongoing work on Automatic Dietary Monitoring and related studies are presented to illustrate how relevant information can be recognized in daily life using unobtrusive sensors. I will address current research issues related to the diversity of activities and pattern variability. Finally, some new project
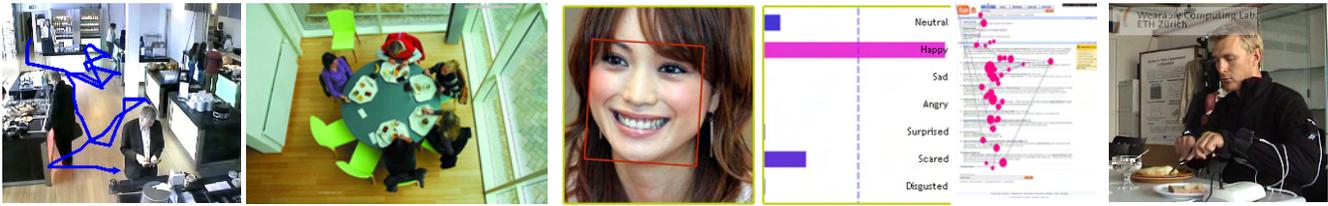
Photographs from left to right: Automated people tracking, video observation of consumers in the Restaurant of the Future, automated facial expression recognition, eye tracking, automated dietary monitoring.

efforts are summarized, which will commence in the next months at the newly established ACTLab at TU Eindhoven.

Is Eye-Tracking an Effective Experimental Tool for Capturing Consumers Attention?
Svetlana Bialkova & Hans van Trijp (Marketing and Consumer Behavior Group, Wageningen University).

Understanding how consumers pay attention to information and extract meaning is crucially important in credence attributes such as health, and sustainability. Hence there is a need to develop appropriate measures for adequately capturing whether and how consumers pay attention to particular information. The current study discusses Eye-tracking methodology as an effective experimental tool for capturing consumers attention in shopping situations and thus a promising approach for exploring consumer behavior.

Use of FaceReader for Measuring Facial Expressions in Real-Life Situations
Marten den Uyl (VicarVision bv, Amsterdam, The Netherlands).

FaceReading, the automated analysis of facial expressions, seems a very promising new technology for assessment of consumer behavior and experience, since the assessment is unobtrusive and continuous and may give direct insight in conscious and unconscious affective response of subjects. However there problems and limitations associated with the technology: lighting conditions and camera distance and angle are important to obtain the high quality video recordings required; chewing motions and eating behavior causing occlusions –hand for mouth- may interfere with emotion assessment; and subjects may vary considerably in their tendency to 'facialize' i.e. show affect in the face. In the presentation experiences with FaceReading in real life situations and open challenges for further development of the technology will be discussed.

Inside Consumer Experience: Studying Consumer Behavior in the Field
Leanne Loijens (Noldus Information Technology bv, Wageningen, The Netherlands).

The aim of the Inside Consumer Experience project is to develop mobile tools and services to measure food selection and consumption in real-life contexts like restaurants, shops, elderly homes or festivals. The results of a number of pilot studies will be presented in which new techniques have been tried out. The advantages of the tested techniques relative to other methods will be discussed and also the hurdles that have to be taken to make the techniques widely applicable.

AUDIENCE
This workshop aims to bring together researchers involved in consumer behavior research, as well as developers of technology and tools for measuring consumer behavior.