

Human-Computer Interaction (HCI) research refers to the process of understanding and identifying the way people use computer technology and tools (for example software and websites). By mapping this interaction and applying the acquired knowledge, user experience can be studied. For that purpose, mouse and keyboard use can be recorded, as well as actions of the user. This can be accomplished by using The Observer<sup>®</sup> XT and uLog<sup>™</sup>.

## THE OBSERVER XT AND ULOG

With The Observer XT, the professional software for the collection, analysis, and presentation of observational data, behavior can be scored live and recorded to video files simultaneously.

## Combine The Observer XT with...

Take your research one step further and consider taking facial expressions, eye movements[1], and physiological measurements into account. Moreover, with a screen capture device you can follow the movements on the user's computer screen one-on-one. The Observer XT works as a platform. It enables you to combine all these different data streams.

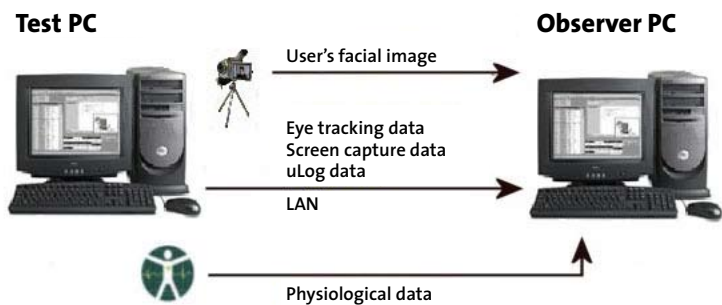


*uLog allows you to select which events and which applications to log.*

## uLog

For the fully automatic capturing of HCI, uLog is the ideal tool. uLog is conveniently integrated in The Observer XT, which offers accurate synchronization with video files,

screen captures, and other data. uLog registers mouse movement, scrolling, keystrokes, resizing of windows, active windows, active applications, and more. uLog is even able to report typed words or sentences instead of separate characters.



*Set up the test PC, observer PC, and possible other equipment.*

## SET UP YOUR TEST

This leaflet will show you how uLog and The Observer XT facilitate the study of HCI. Read about two possible set-ups, data collection, coding behaviors, and much more.

## Two set-ups

You can use uLog in two different set-ups. In both set-ups, The Observer XT is installed on the observer's PC.

1. In *the first set-up*, uLog is installed on the observer's PC, which is connected by a LAN to the test participant's PC. The uLog logging configuration is installed on the test PC. Input on this PC is logged and sent back to the observer PC via the LAN. This set up is ideal in a Noldus usability lab.
2. In *the second set-up*, the test PC and observer PC are not connected. uLog can be run or installed on the test PC from a USB stick or other removable device, and gathered data can be stored there as well. After deleting the uLog software, no data is left on the test PC. This is particularly useful when using a portable lab and when installing software on test PCs is troublesome.

## Collect data

Set up your equipment and specify in the configuration of uLog which applications and events to log. When

a data acquisition system is connected to The Observer XT, your data sets will be synchronized. If the equipment is not directly connected, synchronization can be done later by manually adjusting the timestamp of your observations.

### Code behavior

With The Observer XT, you can specify all participants, behaviors (for instance looking confused), and tasks in a coding scheme. You do not have to set up a coding scheme first: just add or change elements while observing. Observations are coded by means of key codes or mouse clicks, which are automatically assigned to a timestamp. Coding can be refined as many times as you like, without losing previously coded data.

### Video

In The Observer XT you can play up to four digital media files simultaneously backward or forward and at multiple speeds for detailed logging. For example, you can play the video of the test participant, the screen capture, and the eye tracking video at the same time.

### Assess emotions

Convince your audience with facial expression analysis. The revolutionary software FaceReader™ automatically analyzes emotional expressions. Data acquired with FaceReader can easily be imported into The Observer XT for synchronization with other data.

### SELECT AND ANALYZE YOUR DATA

After importing and coding your data, you can start with the analysis.

### Visualize and analyze

To get insight into the efficiency and effectiveness of a system, The Observer XT provides detailed visualizations and analysis options. Explore the data with the visualization. Then look at customized charts and statistics. You can specify relevant parts for analysis by filtering participants and behaviors. For additional calculations



Data from a gaming study: synchronized and visualized in The Observer XT. It shows you different data streams (eye tracking, behaviors, physiology) on one timeline.



and analysis, The Observer XT contains the possibility to export data to the spreadsheet or statistics program of your choice.

### Pattern detection

Another possibility is exporting your data to Theme™ for structural analysis. With this software, common paths followed by users on a website, for example, are measured. Theme detects complex patterns of events in raw behavioral data, and quantifies the complexity of the behavior as a whole.

### PRESENT YOUR RESULTS

A wide range of presentation options is offered as well, to facilitate communicating your results to others. Combine interesting video fragments and thus create your own highlights video clip or data file to illustrate your outcomes.

Feel free to contact us or one of our local representatives for more references, client lists, or more detailed information about The Observer XT, uLog, FaceReader, Theme, and our usability labs.

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### RESEARCH ARTICLES ILLUSTRATING THE USE OF THE OBSERVER AND ULOG FOR THE STUDY OF HUMAN-COMPUTER INTERACTION

- Berry, L.; Bartram, L.; Booth, K.S. (2005). Role-based control of shared application views. *Proceedings of the 18th Annual ACM Symposium on User Interface Software and Technology*, Seattle, October 23-26, 2005.
- Drunen, A. van; Broek, E.L. van den; Heffelaar T. (2008). uLog: Towards attention aware user-system interactions measurement. *Proceedings Measuring Behavior 2008, 6th International Conference on Methods and Techniques in Behavioral Research (Maastricht, The Netherlands, 26-29 August 2008)*, 109-110.
- Laakso, M.; Salakoski, T.; Grandell, L.; Qiu, X.; Korhonen, A.; Malmi, L. (2005). Multi-perspective study of novice learners adopting the visual algorithm simulation exercise system TRAKLA2. *Informatics in Education*, 4, 49-68.

[1] See also: How to use The Observer XT with eye tracking. Noldus Information Technology, 2009.