Offers and Services

Usability Consulting

Eye-Tracking Studies – Eye-tracking records eye movements of a test person together with the images shown. This allows to find out how long and in which order visually offered information (pictures, posters, graphics, texts, user interfaces or websites) is perceived.

Laboratory Tests – Test persons are given predefined tasks and are observed when performing the tasks.

Interviews – Users of a product or service are given bespoken questionnaires to find out details about their behaviour and wishes.

Focus Groups – Based on pre-defined documents, discussion groups consisting of members of a pre-defined target group are surveyed.

Heuristic Evaluation – A first assessment of a product with experts in independent sessions.

Card Sorting – A structured representation of information pursuant to customers ideas.

Field Tests – Test persons are surveyed when performing certain tasks at or with a product at their working place.

Interaction Design

Concepts for Navigation and Interaction Design – Based on test results, a concept for an improved version of a product or service is made. This also includes features of performance of the product or service and describes all processes from a users point of view.

Visualization

VISIONSPACE offers all necessary infrastructure and know-how for visualization projects in 2D and 3D (i.e. medicine, automotive industries, ...).

Media Art

VISIONSPACE can be used for openings and events in the area of media art, product presentations and company events.

Learning Concepts

Science-Based Consulting in the areas of e-learning, game-based-learning and learning in virtual spaces.

Content Production – VISIONSPACE offers content production under consideration of all decisive factors (i.e. choice of medium, didactics, interfaces, information structure and design).

Psychophysiological Tests

These tests are customized to the wishes and specifications of our clients.

Projects and Contact

Projects

VISIONSPACE is supported by three project partners at the University of Applied Sciences, FH JOANNEUM:

- Department of Information Design
- Department of Information Management
- ZML - Innovative Learning Scenarios

Reference projects of the VISIONSPACE team are:

- SCALEX
- AdeLE
- Web Usability Center
- Active Network Management
- eRuption
- SignLex
- MedienRolli
- UniGame
- VirRAD
- SIG-GLUE
- Sign-It
- Speaky
- MLE – Mobile Learning Engine

Contact

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The perception laboratory VISIONSPACE of the FH JOANNEUM is supported by the FFG - Österreichische Forschungsförderungsgesellschaft within the FH*plus* program.

Perception Laboratory of the

FH JOANNEUM

supported by

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www.vision-space.com

VISIONSPACE

Idea

The original idea of a laboratory for perception and cognition research was extended to build a research platform for the following areas:

- Perception and Cognition Research
- User Centered Design and Usability
- Visualization
- Interactive Media Design
- Multimedia- and Game-Based-Learning

Concept

VISIONSPACE offers a large series of applications and is based on three main topics:

A research and development platform for **Perception and Usability**. The laboratory and the infrastructure support research and development in the area of perception and cognition. A special software synchroniously records different input channels (i.e. videos, audio, eye-tracking data, psychophysiological values, ...) and supports their analysis. The results gained open up new insights into topics like cognitive load, stress and attention and allow a sound evaluation of different scenarios.

Large Screen Visualization and 3D Visualization. Main application areas are in the field of technical visualization and industrial simulation as well as in the field of interactive media design.

A **Learning Laboratory** that supports development of virtual learning environments and allows their evaluation especially with regard to efficiency. Know-how and results from the areas of e-learning, game-based-learning, knowledge management, didactics as well as content design and production are all included in the development process and allow an interdisciplinary approach.

Idea and Concept

Laboratory

The perception laboratory VISIONSPACE at the FH JOANNEUM consists of two rooms. One room is the technical and observation room. The other room is the the test room.

An integrated projection system allows the presentation of visual stimuli, either in 2D or 3D. The reaction of the subject to the different stimuli is recorded and can be analysed separately.

The design of the laboratory aims at offering a pleasant atmosphere. A flexible room concept allows the adaptation of the room setup to the respective test scenario.

Infrastructure

VISIONSPACE uses various stimuli to record data about human behaviour and perceptive reactions for later analysis and interpretation.

Projection System – Three video beamers and a 6.6 by 2.7 meters projection wall can be used to present visual stimuli in either 2D or 3D.

Sound System – A surround-sound system helps setting up the atmosphere wanted and can also be used to present stimuli.

Biosignal Amplifier – A biosignal amplifier is used to record psychophysiological data like galvanic skin response, pulse, temperature, respiration, blood pressure, brain and muscle activity.

Eye-Tracking System – Eye-tracking is used for measuring several parameters like pupil diameter, saccade velocity and amplitude and fixations for further analysis.

Video and Microphone System – Used for recording the results of focus groups, interviews and usability tests for further analysis.

Furthermore, an **autostereoscopic display** (SeeReal), a **wearable computer** (Xybernaut), data gloves and a **3D tracking system** (Polhemus Patriot) can be used for research and development tasks.

The very modular design of VISIONSPACE allows the integration of additional hardware and thereby supports different setups.

Infrastructure

Research Focus

- Application oriented research in the areas of attention and effectiveness regarding media reception, perception and interaction design.
- Implementation of especially designed test scenarios for the evaluation of products and services in the area of usability engineering and user centered design.
- Learning in virtual environments, virtual lecturing, e-learning and game-based-learning
- Computer supported collaborative learning and working
- Technical visualization and 3D simulation, usability-testing of 3D environments
- Mobile usability and new interaction mechanisms

Research Goals

VISIONSPACE offers a research and development platform that bridges a gap between theory and application. Answers to the following questions will be given:

- Which psychophysiological parameters can be used to gain convincing results regarding cognitive load, tiredness and stress?
- What are the differences regarding learners behaviour between 2D und and 3D learning environments? What are the pros and cons?
- What do eye-tracking parameters reveal? Which parameter shows that the information perceived has also been learned?
- Which didactical concept has to be developed in order to support an efficient usage of 3D learning environments?

Applicability and practical usage of the research results are also goals of VISIONSPACE. This makes it necessary to adapt the research questions to the needs of economy and public.

To help reaching the defined goals, specially designed and developed software modules are built for VISIONSPACE. These modules allow synchronised recording of different input data from various sensors as well as data visualization and offline analysis of these data streams.

Research and Development