

## 4<sup>th</sup> NIRICT-SIKS International Spring school on Human-Technology Interaction

The fourth HTI Spring school is focused on the theme *Experience Engineering*, in particular the creation of an interactive experience, and will be held from Sunday 22 april 2012 to Wednesday 25 april 2012 at “Conferentieoord De Poort” in Groesbeek.

An experience can be informally and intuitively described as “the feeling of what happens”. An experience is typically composed of affect (emotion), cognition (meaning), and sensual or sensory-motor perception (aesthetics) (Desmet & Hekkert, 2007). For experience engineering it is important to focus on the *essential experience* (Schell, 2008). This means one has to extract those elements that are key to eliciting the to be engineered experience in the user.

The spring school will focus on three major perspectives of experience engineering.

- Psychological, anthropological perspective
- Creative, design perspective
- Technological perspective

The psychological perspective is concerned with the way humans perceive and experience their environment, and thus forms a basis for knowing how to influence experiences using design and technology. The creative, design perspective is concerned with the creative and artistic process of designing them including for example aesthetics. The technological perspective is concerned with the technologies that are needed to build systems creating experiences as well as opportunities for new types of experiences enabled by recent technology.

During the first three days student will get an overview of the field of experience engineering. On each day one of the perspectives is discussed. The fourth day students will get specialized courses on experience engineering and analyse several interactive installations during an exhibition.

### 22-april 10:00-13:00. Lectures on Psychological, anthropological perspective.

10:00-11:00 Phenomenology and Experience: emotion, cognition, behavior, embodiment

*Dirk Heylen, Matthijs Noordzij, Gijs Huisman, TU Twente*

11:00-12:00 Social psychology: cultural embedding of experiences.

*Caroline Nevejan, TUD*

12:00-13:00 Psychometrics++: observation, measurement, analysis of experiences

*Arnold Vermeeren, TUD*

### 14:00-17:00. Reflection on relevance of experience for own research in small groups.

### 23-april 9:00-12:00. Lectures on creative and design perspective.

9:00-10:00 Multi-sensory design: from concept to product.

*Rick Schifferstein, TUD*

10:00-11:00 Emotion: emotion and experience.

*Pieter Desmet, TUD*

11:00-12:00 Function: affordance, functionality and experience

*Jacques Terken, TUE*

### 13:30-17:00. Design and build a game (board, card) in small groups.

### 24-april 9:00-12:00. Lectures on technological and applied perspective.

9:00-10:00 Methods: user-centered, participatory, iterative, rapid prototyping.

*Mark Neerincx, TNO*

10:00-11:00 Interaction: affordance, usability, learn-ability, flow

*Pascal Haazebroek, UL*

11:00-12:00 Opportunities of novel technology in interactive experiences

*Jan Miskers, V2*

### 13:30-14:30. Keynote: Bill Gaver

### 14:30-17:00. Social event: walk in the forest followed by drinks

(partly sponsored by Springschool) in cafe Boslust from 15:30 to 18:00, then walk back to the Poort for diner.

<b>25-april 9:00-12:00.</b>	<b>Experience engineering cases: interactive installations.</b>
	9:00-10:00 Interactive Playground <i>Dennis Reidsma</i>
	10:00-11:00 Science, art, technology and education: cases from Mediatechnology <i>Maarten Lamers</i>
<b>13:00-15:00.</b>	Use case: students evaluate <b>interactive experience (exhibition)</b>
<b>15:00-16:00.</b>	<b>Reflection session</b> on interactive experiences in exhibition.
<b>16:00 - 17:00.</b>	<b>Closing.</b>

### **Background on experience engineering**

An experience can be informally and intuitively described as “the feeling of what happens” (Damasio, 2000). Feeling refers to the conscious perception of an affective episode, with affect being the positive or negative valuation of that episode. More systematically an experience has a beginning and an end, and often inspires emotional and behavioral changes in the experienter (Forlizzi & Battarbee, 2004). An experience is typically composed of affect (emotion), cognition (meaning), and sensual or sensory-motor perception (aesthetics) (Desmet & Hekkert, 2007). Essence of an experience is that it is compositional, i.e., composed of or emerging from different elements (McCarthy & Wright, 2004), including emotional elements, sensual elements and perception of space and time. For an overview see also (Hassenzahl & Tractinsky, 2006).

A common denominator definition of an experience can be formulated as follows: *an experience is a particular conscious episode emerging from the simultaneous perception of affect, sensory-motor activity, space and time.*

In essence, an experience strongly relates to the affective appraisal of a situation. Since in experience engineering one is typically interested in meaningful experiences, and since an experience is per definition subjective, this means an experience has to be meaningful for the individual. This again matches very well with the definition of appraisal: the evaluation of a situation in terms of personal relevance (Scherer, 2001). The more recent approaches towards affective appraisal also include appraisal of sensory-motor level activity, such as intrinsic pleasantness (Scherer, 2001), relating to the pleasantness of a stimulus because of that stimulus (sugar feels good, bitter doesn't). A key difference is that appraisal can occur unconsciously but an experience cannot, because an experience is conscious per definition.

As such, an experience can also be defined as follows: *an experience is a conscious representation of the affective appraisal of a situation with a clear beginning and end.*

It is important to keep in mind that appraisal in this last definition is an embodied process that evaluates thoughts *and* sensory-motor activity, therefore including the evaluation of aesthetics. The last definition also coincides well with the intuitive one. The conscious representation of the affective appraisal (the feeling) of a situation with a clear beginning and end (of what happens).

For experience engineering it is important to focus on the *essential experience* (Schell, 2008). This means one has to extract those elements that are key to eliciting the to be engineered experience in the user. This process of extraction is more art than science, but can be guided by the following three insights: (1) focus on triggering complexity in the perception of the user, not on representing or modelling complexity in the technology, (2) focus on bootstrapping needed complexity in technology by using the complexity of human behavior, (3) focus on meaning (i.e., appraisal), not on information. (Sengers, 2005).

This means that experience engineering is the process of: phenomenologically describing the affective appraisal of the target experience, then identifying the most defining associations and sensations of that experience, followed by identifying key observables that

trigger those associations and sensations, using those observables as leading constraints for the technology or product to be developed; in that order (subjective to objective) because the experience has to be leading.