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Foreword

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Introduction

Emotion annotation is emotion elements added in the data-stream. As a bridge for human-computer interaction, the data-stream with emotion elements achieves effective, efficient, satisfied, and user experienced interaction for affective computing user interface (AUI).

To enable the computer to process emotion elements in AUI, emotion annotation needs to add emotion elements to the data-stream for interaction between humans and computers.

Limitations in affective computing encompass the current methods of emotion annotation and the identification of appropriate emotion annotations. To enhance usability and accessibility in human-computer interaction, a general and standard emotion annotation is essential for guiding users in AUI.

This document presents an emotion annotation for AUI standardization in order to establish the core and foundation of emotional interaction in AUI and their applications.

This document is intended to be utilized as a reference (for guidance) for developers of emotion annotation of AUI that want to meet the needs of diverse users.

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Information technology — Affective computing user interface (AUI) —

Part 31: Emotion annotation

1 Scope

This document specifies emotion annotation of data-stream for affective computing user interface (AUI). This document describes the emotion elements of emotion annotation, including emotional characteristic data-stream, modality, timestamp, discrete emotion category, dimensional emotion space, and value.

This data-stream for emotional characteristics can be used to support the user in the software application so that the interaction adapts accordingly to the user. There can be no feedback to the user for emotion adaptation. There is no recording of the emotional data, so that the data stream cannot be used for (performance) monitoring of the user. Every time the user can turn off the data stream for emotional characteristics.

This document focuses on emotion annotation of data-stream which meets the needs of users.

This document does not apply to emotion annotation process in AUI.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
data-stream
transmission of a sequence of digitally encoded coherent signals

EXAMPLE Text, video, audio

3.2
dimensional emotion space
combination of several *emotional characteristics* (3.5) that can be represented as a set of dimensions

Note 1 to entry: Each emotional characteristic can have a range of values (e.g. valence from negative to positive) that can form the basis of dimension in emotional dimensional space.

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3.3
discrete emotion category
description of an emotion or related state using category vocabulary

EXAMPLE angry, disgust, fear, happy, neutral, sadness, surprise.

3.4
emotion annotation
emotion element added to digital *data-stream* (3.1).

3.5
emotional characteristic
particular type of emotion that is believed to be useful

Note 1 to entry: Comprise a intricate amalgamation of interests, attitudes, and self-perceptions. Emotional characteristics can also be regarded as attributes that enable the depiction of users' emotional experiences, such as *discrete emotion category* (3.3), *dimensional emotion space* (3.2), and *emotion intensity* (3.7).

3.6
emotion element
any component that can be used for describing emotion

3.7
emotion intensity
strength of discrete emotion category that can be measured using values

3.8
timestamp
the beginning and/or end time of *emotion annotation* (3.4) within the *data-stream* (3.1)

4 Emotion annotation

4.1 Emotion elements

4.1.1 Emotion elements in AUI model

Emotion elements should include the recognition and presentation of the AUI model (shown in Figure 1).

The user seen from the viewpoint of the computing-based system: it shows a recognition component which identifies the human emotions. In the recognition component, both emotional characteristics in the data-stream and the recognized emotions of cognition in AUI are considered as emotion elements for annotation. The emotional characteristics of the data-stream are used as meta information while recognized emotion are used as annotation information.

The computing-based system seen from the viewpoint of the user: it shows the output of the computing-based system as a representation component which identifies the emotion feedback to the user. In the representation component, emotion elements are generated by the computing-based system, which contains emotional characteristic categories and dimensional emotional space.

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