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# Information technology — Affective computing user interface (AUI) —

## Part 1: **Model**

*Technologies de l'information — interface pour la reconnaissance et la simulation des émotions —*

*Partie 1: Modèle*

Reference number
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# Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

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# Introduction

Affective computing individualizes user experience based on user needs and characteristics to achieve better outcomes, including: increased effectiveness, efficiency, satisfaction, and user experience.

It is important to consider affective characteristics of humans in the design and presentation of human-computer interactions. Affective computing builds a harmonious human-computer environment by enabling computing-based systems to recognize, interpret and simulate human affects. Affective applications promise new insights into what people are feeling and can better serve their needs.

Limitations on affective computing include diverse affective characteristics currently used and the way to interpret and reply to these affective characteristics.

A general, standardized and systematic model is needed to facilitate applying affective computing within human-computer interaction regarding usability and accessibility.

This document presents a systematically defined model for affective computing user interfaces (AUI) and topics for AUI standardization. This can be important to establish the core and foundation of AUI and their applications.

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

Future parts of the ISO/IEC 30150 series will provide additional guidance on implementation of AUI.

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# Information technology — Affective computing user interface (AUI) —

# Part 1: Model

## 1 Scope

This document establishes a model for affective computing user interfaces (AUI). Annex B also suggests topics for AUI standardization.

This document does not specify the implementation of affective computing.

## 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 terminology 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**
**affective computing user interface**
**AUI**
user interface that includes the use of *affective characteristics* (3.3) to meet users' affective needs

Note 1 to entry: AUI can be implemented in software or hardware.

**3.2**
**affective computing**
collection, recognition, strategy and presentation of *affective characteristics* (3.3) of human-computer interactions

**3.3**
**affective characteristic**
particular type of affect that is believed to be useful

**3.4**
**affect representation**
general and computable model that can be used for *affective characteristic recognition* (3.6) and presentation within a computing-based system

**3.5**
**dimensional affective space**
combination of several *affective characteristics* (3.3) that can be represented as a set of dimensions

Note 1 to entry: Each affective characteristic can have a range of values (e.g. from strongly positive to strongly negative, or between two alternatives) that can form the basis of dimension in affective dimensional space.

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**3.6**
**affective characteristic recognition**
process of identifying *affective characteristics* (3.3)

**3.7**
**affective characteristic classification**
process of classifying *affective characteristics* (3.3) into categories

**3.8**
**context of use**
combination of users, goals and tasks, resources and environment

Note 1 to entry: The "environment" in a context of use includes the technical, physical, social, cultural and organizational environments.

Note 2 to entry: The "users" in affective computing are represented in user profiles.

Note 3 to entry: The "resources" relevant to affective computing include collection devices, for example, cameras and microphones.

[SOURCE: ISO 9241-11:2018, 3.1.15, modified — Notes 2 and 3 to entry were added.]

# 4 Model

## 4.1 Affective characteristics

There are a range of affective characteristics (including culture and emotions) that determine a user's behaviours and needs when interacting with an information and communications technology (ICT) system. This document provides a model that works with all types of affective characteristics, without defining specific characteristics.

## 4.2 General model

Affective computing user interface (AUI) is a user interface that interacts with user's affective needs and characteristics. AUI processing involves affective characteristic data collection, recognition, strategy and presentation. A user adjusts his or her affects according to computing-based system's feedback and initiates further interactions with the system (shown in Figure 1). Affect representation provides a unified description of affects in AUI.

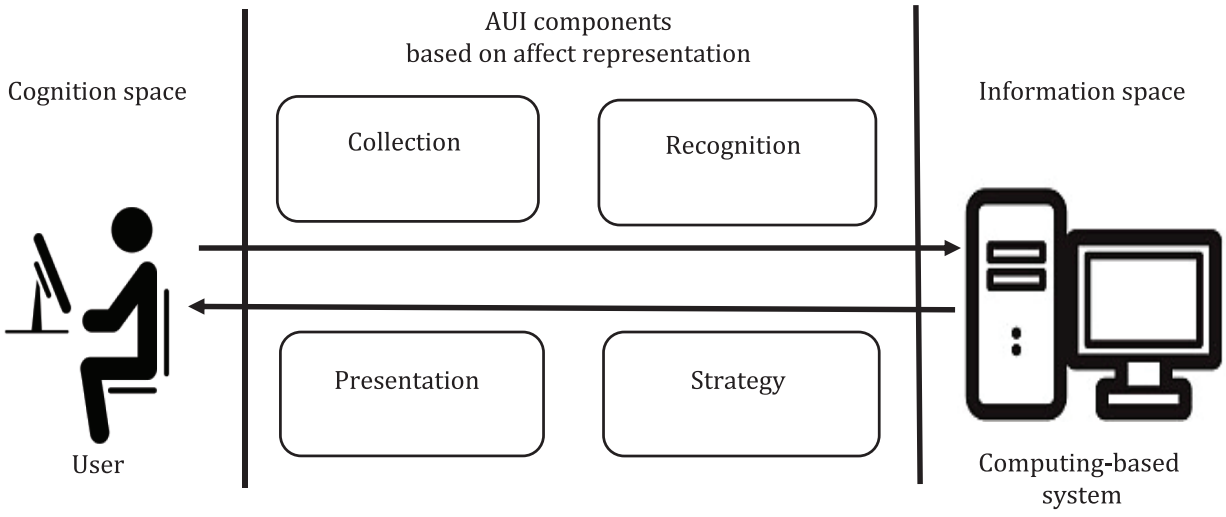



**Figure 1 — AUI model**


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