Topic

IUI - Intelligent User Interfaces: will introduce you to the design and implementation of Intelligent User Interfaces (IUIs). IUIs aim to incorporate intelligent automated capabilities in human computer interaction, where the net impact is a human-computer interaction that improves performance or usability in critical ways. It also involves designing and implementing an artificial intelligence (AI) component that effectively leverages human skills and capabilities, so that human performance with an application excels. IUIs embody capabilities that have traditionally been associated more strongly with humans than with computers: how to perceive, interpret, learn, use language, reason, plan, and decide.

Motivation

Augmented and mixed reality are part of the input/output side of an intelligent user interface. There is a strong relationship between the intelligence in a system and the user interaction: first, intelligent processing is found in the user interface(s) of the system, and its purpose is to enable an effective, natural, or otherwise appropriate interaction of users with the system. For example, the system may support human-like communication methods such as speech or gesture; or it may adapt its style of interaction to individual users. Second, intelligent processing is found in the “backend” of the system, and its primary purpose is to serve some beneficial function such as performing actions partly autonomously on behalf of the users. In IUI, the relevance of the system’s intelligence to interaction with users is in the fore.

In order to improve Augmented and Virtual Reality Applications, a deeper knowledge about the relationships between the aforementioned concepts/views (i.e., the intelligence in a system and the user interaction) would be highly beneficial. Mostly this demand refers to a deeper knowledge about the following major topics.

Outline

• Design aspects of state-of-the-art intelligent user interfaces / interactive intelligent systems
• Semantic technologies: knowledge engineering in IUIs; user modelling
• Learning and automatic adaptation and planning in IUIs:
• Input and output modalities (including the connection to VR/AR)
• Multimodal interaction, conversational agents, question answering
• Emotions and affective / accessible computing
• Applications and Projects, Human Computation, Collaborative Multimodality