

Tabula Rasa

towards a personalised human-computer interface

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Abstract

Making inefficient use of computer programs is a major cause of productivity drawback, mistakes, stress and illnesses like Repetitive Strain Injury (RSI) and Technology Related Anger. This research aims at developing a method to free the user from the burden of repeated mouse positioning, clicking and dragging as is required by the average application program. The basic assumption of this research is that technically speaking there is no necessity for the present situation. Too often the user is bothered by actions and messages that are inherent to the structure of the program used but have no relevance whatsoever to the task at hand. A personalised interface is envisioned that develops incrementally from scratch to a state where the man-machine combination produces in every stage an optimal solution for their combined productivity. It is expected that the incremental simplification of user interaction can be realised by intelligent agents that recognise the user, learn from his actions, and propose simplifications on demand.

Introduction

What is the look and feel of the future human computer interface? The present interface, consisting of input media keyboard and mouse with a screen that offers feedback, acts as the most important means of human computer interaction for nearly twenty years now. Its adverse effects become more and more known. We see a gradual but steady degradation of the usability of the PC mainly due to its increasing complexity combined with its dated interface.

At present in the Netherlands approximately 30% of the working population has health problems due to operating the PC. Approximately 2500 people yearly develop a form of Repetitive Strain Injury (RSI) so serious that they have to abandon working with the computer completely. This number is rising every year. In Canada the number of people suffering from RSI has doubled over the last five years, in the United States the number has even tripled. What is the reason of all these casualties? The user-interface seems to play an important role in the amount of stress that the user experiences while working. Computer users are confronted with at times unpredictable behaviour of computers. Computers for instance interact faster or slower than the pace of the user causing a variety of misunderstandings. And sometimes they abruptly stop all activity without previous warning and with no other explanation then: "general exception error!". This unpredictability leads to