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Improvement of Human Thinking Factors In Machine Using Artificial Intelligence

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ABSTRACT

Now a day the machine became as much as intelligent like human. The machine don't have their own intelligence logic so in the modern science we need to have a human thinking logic which can be made incorporate in the machine to improve their intelligence factor. Increasing machine intelligence leads to a shift from a mere interactive to a much more complex cooperative human-machine relation requiring a multidisciplinary development approach. This paper presents a generic multidisciplinary cognitive engineering method (CE+) for the integration of human factors and artificial intelligence in the development of human machine cooperation. For each system design the method supports research and development activities in such a way that sound knowledge bases, methodologies, and user interfaces for human-machine cooperation could be established. However, the method always needs to be tailored to the specific goals and circumstances, such as the available time, novelty, and required integration. this really requires researchers with different backgrounds to believe in a more multidisciplinary approach.

Key words: Human intelligence, Machine Intelligence, Artificial Intelligence, Cognitive.

I. INTRODUCTION

Artificial Intelligence is the modern technology which is mostly applied in the every field of science to make a system more intelligent as like as human thinking. It provide a great contribution to modern science, such as knowledge systems and machine learning [2]. It provides a way to transform the technology from science to real-world applications. Decades of AI research precede a rather short but significant period, in which companies report the useful exploitation of AI technology [7].

Living, travel and working environments contain a growing number of networked information compilations and electronic services (e.g., health-care and security services), which are accessible to an increasing number of diverse user groups.

In current human-computer interaction (HCI) research, personalization, adaptive interfaces and electronic assistants are proposed to enable easy access to the proliferating functions and services in such environments for both the consumer and professional domain (e.g., [1]). As we know that the machine intelligence can be used to describe the by outing the logic in terms of algorithms. So the increasing intelligence of machines leads to a shift from HCI to human-machine cooperation (HMC) [2]. So the basic assumption of using this is to determine, about the future machines which will either be designed to cooperate, or designed to learn how to cooperate, with humans. They will be able to assess and adapt to human goals [3]. It was only first mentioned in [4] that there is a growing need for humans and machines to comprehend each other's reasoning and behavior. And since the last decade or so, one is beginning to realize that exactly

For HMC the aim is to customize support by accommodating individual user characteristics, tasks and contexts in order to establish HMC in which the computer provides the "right" information and functionality at the "right" time and in the "right" way [5].

The customization that one encounters today at work, during travel or at home is rather limited, appearing as static user interfaces with simple or "local" adaptations [6]. The possibilities for HMC are extensive, however knowledge is lacking on both the specific human factors (HIF), the artificial intelligence (AI) prospects and on ways of successfully integrating both HF and AI during development.

II. PROCESSING OF KNOWLEDGE IN MACHINE

As we know that, A Computer/Machine is an electronic device which works under the stored programs. It means a computer can respond to us accordingly as we like to do. But have we ever thought how? Yes it is because of algorithms which consist of a set of decision making instruction held in logical manners, which helps the machine to take the decision and perform the action accordingly. Here the integration of HIF (Human Intelligence Factor) and AI during research and development (R&D) of HMC. An extensive and diverse set of HF methods and tools are distinguished and proposed for the design of tasks and user interfaces, for instance from the perspective of (cognitive) task analysis (e.g., [7]), HCI (e.g., [8]) and usability engineering (e.g., [9]). Furthermore, there is an extensive and diverse set of guidelines and standards for HCI in general (e.g., [10]), and for specific application domains (e.g., [11]). If we take the case of knowledge systems, we can say that knowledge is nothing but the decision taking

capability. So how a system can easily take a decision within the small time span as soon as we give the instruction? The general research goal was to create computer programs with the power of general problem solvers [17, 16, 8]. It quickly becomes apparent, however, that the development of such general-purpose programs was infeasible, as research projects lacked the expected results. Consequently, the research begun to focus on rather specific and Narrow application areas, in which knowledge systems were remarkably successful. — such as industrial process control, aerospace and traffic control — is to develop HMC and realize concrete design practices in the near future.

III. THE COGNITIVE ENGINEERING METHOD CE+

Cognitive engineering (CE) approaches originated in the 1980s to improve computer-supported task performance (e.g., [12]) and emerged from the fields of cognitive science and AI. The AI is much more efficient itself, but still its implementation is too tuff in machine. Here the CE aims at generating new or enhanced HCI by increasing insight in the cognitive factors of human performance [13]. Furthermore, CE guides the iterative process of development in which an artifact is specified in more and- more detail and specifications are assessed more or less regularly to refine the specification, to test it, and to adjust or extend it. The basic approach of this method is to inject the human ability to the machine so that the machine can take the proper decision according to the given environment. The original CE methodology was extended with an explicit technology input thus creating the CE+ method. This extension was primarily made because of two reasons.

First, the technological design space sets a focus in the process of specification and generation of ideas. Second, the reciprocal effects of technology and HF are made explicit and are integrated in the developent process. In Figure 1 the development process of the extended method CE+ is shown.

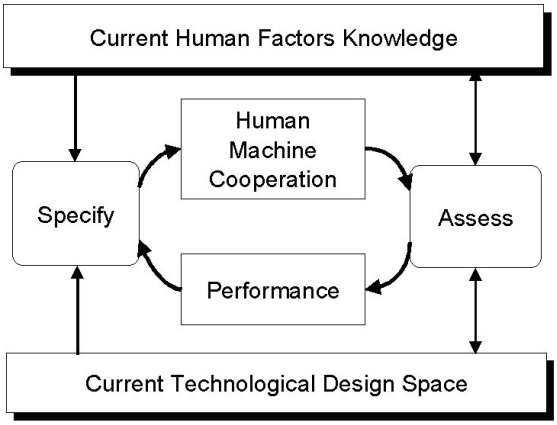

Fig. 1. The development process of the CE+ method.

IV. DESCRIPTION OF THE SYSTEM

Here in the above schematic diagram, The HF knowledge provides relevant expertise (i.e., guidelines and support concepts) and techniques for the specification and assessment of HMC. The technological design space sets the technological and operational requirements for HMC. In the specification both the guidelines and the technological design space must be addressed concurrently. In the assessment it is checked whether the specifications agree with these guidelines and the technological design space. An assessment will provide qualitative or quantitative results in terms of effectiveness, efficiency, satisfaction and user experience which are used to refine, adjust or extend the specification. Eventually, the process of iteration stops when the assessment shows that the HMC satisfies all requirements [14]. The above thus suggests dynamic integration of knowledge into the design process rather than a priori specification of guidelines.

V. CONCLUSION

Increasing machine intelligence leads to a shift from a mere interactive to a much more complex cooperative human machine relation. Exactly this really requires researchers and engineers to believe in a more multidisciplinary approach. This paper stressed validity and therefore usability of a generic multidisciplinary cognitive engineering method CE+ in human machine cooperation system design. For each system design the method supports research and development activities in such a way that sound knowledge bases and user interfaces for human-machine cooperation could be established. This, for example, has been proven useful for deriving artificial intelligence and human factors requirements for the attention driven dialogue [15], for hypotheses generation, approval or falsification [16], for adaptive automated decision support [17], and agent selection in large ad-hoc environments [18]. However, the method always needed to be tailored to the specific goals and circumstances, such as the available time, novelty, and required integration.
We can conclude that due to the complexity of system design processes, their success depends upon integration of human factors and artificial intelligence research early on in the development process.

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