

Lind, M (2003). Making sense of the abstraction hierarchy in the power plant domain. *Cognition, Technology & Work*, 5: 67-81.

Abstract

The paper discusses the abstraction hierarchy proposed by Rasmussen [(1986) Information processing and human-machine interaction, North-Holland] for design of human-machine interfaces for supervisory control. The purpose of the abstraction hierarchy is to represent a work domain by multiple levels of means-end and part-whole abstractions. It is argued in the paper that the abstraction hierarchy suffers from both methodological and conceptual problems. A cluster of selected problems are analyzed and illustrated by concrete examples from the power plant domain. It is concluded that the semantics of the means-end levels and their relations are vaguely defined and therefore should be improved by making more precise distinctions. Furthermore, the commitment to a fixed number of levels of means-end abstractions should be abandoned and more attention given to the problem of level identification in the model-building process. It is also pointed out that attempts to clarify the semantics of the abstraction hierarchy will invariably reduce the range of work domains where it can be applied.