Wizard Navigation Functionality to Automated User Interfaces Using Finite State Machines

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ABSTRACT

In this thesis a formal approach and methodology for analysis and generation of human-machine interfaces has been proposed, with special emphasis on human-automation interaction. A conceptual approach for modeling, analyzing, and verifying the information content of user interfaces is discussed. The formal approach includes the Finite State Machines which forms the basis of the automation on the user interface. The approach focuses on a methodology which is guided by two criteria: First and foremost, the interface must be correct. That is, given the interface indications and all related information (e.g., user manuals, training material, etc.); the user must be able to successfully perform the specified tasks. Second, the interface and related information should be succinct—that is, the amount of information (e.g., mode indications, mode buttons, parameter settings, etc.) presented to the user should be reduced (abstracted) to the minimum necessary. A step-by-step procedure for generating the information content of the interface that is both correct and succinct is presented and then explained and illustrated.

The algorithmic approach for generation of succinct user models and associated interfaces is based on the fact that not all the system's internal states need to be individually presented to the user.

The work entails the manual reduction of the number of states based on existing knowledge (merger tables) and the subsequent utilization of finite state machines in user interface generation.

Incorporated, is the concept in a Christian website taking the concept of the FSM for the web site and incorporated user controls and an FSM engine to allow the control of all navigation from a single XML file, removing the need to hard-code navigation. It incorporates the wizard-like functionality using a sequential wizard. The Sequential Wizard is designed with Evaluation, the

Wizard has a submit step where the Portfolio Owner is expected to submit their work for Evaluation. It also has a 'create Portfolio' capability with an associated Portfolio Template.

Every user interface is an abstract description of the underlying system. The correspondence between the abstracted information presented to the user and the underlying behavior of a given machine can be analyzed and addressed formally. The procedure for generating the information content of user interfaces can be automated, and a software tool, being the website, for its implementation has been developed. Potential application areas include adaptive interface systems and customized/personalized interfaces