InfoWare 2021 – Tutorial Proposal

Title

Interaction Design with Discourse Models for Automated Web GUI Generation and Customization

Summary of the content

Interaction design is considered important for achieving usable Web user interfaces. *Communicative acts* as abstractions from speech acts can model basic building blocks ('atoms') of communication, like a question or an answer. When, e.g., a question and an answer are glued together as a so-called adjacency pair, a simple 'molecule' of a dialogue is modeled. Deliberately complex discourse structures can be modeled using relations from Rhetorical Structure Theory (RST). The content of a communicative act can refer to *ontologies* of the domain of discourse. Taking all this together, we created a new discourse metamodel that specifies what discourse models may look like. Such discourse models can specify an interaction design. Since manual creation of user interfaces is hard and expensive, automated generation may become more and more important.

This tutorial also demonstrates how such an interaction design can be used for *automated Web user-interface generation*. This is based on model-transformation rules according to the model-driven architecture. Based on AI optimization techniques, the graphical user interfaces (GUIs) are automatically tailored to a device such as a smartphone according to a given device specification. Since the usability of fully-automatically generated GUIs is still not satisfactory, unique *customization techniques* are employed as well. We also address *low-vision accessibility of Web-pages*, by combining automated design-time generation of Web-pages with *responsive design* for improving accessibility.

Related publications of the proposer

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