User Interface Diagnosis by Statistics of the User Activity in Service Oriented Architectures

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Service Oriented Architecture (SOA) promote collaborative development among service providers, service consumers, and service brokers. SOA provides an open platform for integrating legacy, internal, and external software components in the form of services in a uniform approach. Software development in SOA enables flexible and dynamic service registration, discovery, matching, composition, binding, and reconfiguration. SOA is considered the most promising computing paradigm for large-scale reuse, business agility support, and integration across heterogeneous environment. However, SOA implementations are typically sensitive to user errors.

This paper presents a method for usability diagnosis of user interfaces, based on time analysis of the user activity. Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal. The diagnostic reports enable user interface designers to learn about possible sources of usability barriers.

Different types of design deficiencies are associated with different patterns of the user activity. We introduce a method based on the integration of Stochastic, Bayesian and Markov models with models for estimating and analyzing the visitors' mental activities during their interaction with the user interface. Based on this approach, a seven layer model for data analysis is proposed and an example of a log analyzer that implements this model is presented.

The term "Decision Support system for User Interface Design" (DSUID) was introduced by Harel et al (2008) and refers to procedures employed during system operation for identifying user interface design mistakes. We first review definitions and key concepts in usability evaluation. Then we review the state of the art of techniques and tools implementing these methods, and maps areas for future research. The analytics models are presented with a case study.

References

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