

# Plasticity of User Interfaces: Framework and Research Agenda

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**ABSTRACT** This paper introduces the notion of plasticity, a new property of interactive systems that denotes a particular type of user interface adaptation. Plasticity is the capacity of a user interface to withstand variations of both the system physical characteristics and the environment while preserving usability. Typically, a "plastic" electronic agenda would run both on a workstation and on a handheld computer without requiring a complete system redesign and re-implementation. We present a generic framework inspired by the model-based approach, for supporting the development of plastic user interfaces. Within this framework, a plastic user interface is specified once and serves multiple sources of physical variations. The goal is to guarantee usability continuity under variations in physical constraints while minimizing development and maintenance costs. This framework is illustrated with two simple case studies. Preliminary results and the state of the art in HCI open a new research agenda for the design and development of plastic user interfaces.

**KEYWORDS** User interface adaptation, plasticity, user interface development process, usability.