Título: CONTRIBUTIONS TO AUTOMATED GENERATION OF USER-TAILORED INTERFACES FOR PEOPLE WITH SPECIAL NEEDS

Nombre: MIÑON JIMENEZ, RAUL

Universidad: Universidad del País Vasco/Euskal Herriko Unibertsitatea

Departamento: Arquitectura y tecnología de computadores

Fecha de lectura: 26/02/2015

Mención a doctor europeo: concedido

Programa de doctorado: Ingeniería Informática

Dirección:

> **Director:** MYRIAM ARRUE RECONDO

> **Director:** JULIO ABASCAL GONZALEZ

Tribunal:

> **presidente:** ÓSCAR PASTOR LÓPEZ

> **secretario:** NESTOR GARAY VITORIA

> **vocal:** FABIO PATERNÒ ---

> **vocal:** CARLOS ALBERTO PACHECO DOS ANJOS DUARTE ---

> **vocal:** INMACULADA HERNÁEZ RIOJA

Descriptores:

> INTELIGENCIA ARTIFICIAL

> DISEÑO Y COMPONENTES DE SISTEMAS DE INFORMACION

> DISEÑO DE SISTEMAS DE CALCULO

El fichero de tesis no ha sido incorporado al sistema.

Resumen: The Information Society demands that accessibility issues are taken into account in all user interfaces. To this end, the inclusion of accessibility requirements in the early phases of the conceptualization and development process can lead to the creation of barrier free user interfaces. As a consequence, users with special needs may be able to interact without having to undergo problematic situations. In this sense, the model-based automated interface generation promises to be a worthwhile basis for research which seeks to find practical systems for the creation of accessible user-tailored interfaces. The main advantage of this type of system is that they enable any designer to create suitable user interfaces whatever their level of expertise in accessibility issues. Hence such systems must include all the necessary accessibility requirements throughout their entire process.This thesis defines a reference framework for the development of model-based automated user interface generation systems. The objective of this framework is to define and build a top-down methodology for improving the automated generation of user-tailored interfaces for people with special needs under different constraints and assessing the suitability of the user interfaces generated. In addition, this

reference framework enables the definition of specific constraints which must be taken into account due to the explicit requirements of some developments. The proposed reference framework has been assessed by the development of three different systems each one with specific requirements and each applicable under different scenarios in ubiquitous environments. The user-tailored interfaces obtained from these systems have been assessed using different expert-based techniques as well as by end-user testing. In addition, support tools for facilitating the creation of the necessary models according to the Cameleon Reference Framework have been developed. Thus, the tedious task of dealing directly with the specification of accessibility requirements in different models such as the abstract user interface model and the task model has been simplified. Therefore, these tools along with the systems developed based on the defined reference framework help to contribute to the easy generation, management and maintenance of accessible user-tailored interfaces.