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# Designing and Assessing Interactive Systems Using Task Models

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# Designing and Assessing Interactive Systems Using Task Models

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## Abstract
This two-part course takes a practical approach to introduce the principles, methods and tools in task modelling. **Part 1:** A non-technical introduction demonstrates that task models support successful design of interactive systems. **Part 2:** A more technical interactive hands-on exercise of how to "do it right", such as: How to go from task analysis to task models? How to assess (through analysis and simulation) that a task model is correct? How to identify complexity of user tasks …

## Author Keywords
User Interaction Design, Task description and modelling

## ACM Classification Keywords
D.2.2 [Software] Design Tools and Techniques, H.5.m. Information interfaces and presentation (e.g., HCI)

## Introduction
Task analysis is meant to identify user goals and tasks when using an interactive system. In the case of users performing real life work, task analysis can be a cumbersome process gathering a huge amount of unorganized information.
Task Models (TM) provide a mean for the analyst to store information gathered in an abstract way that can be further detailed and analyzed if needed. A task model allows HCI researchers and practionners to record in a systematic, complete and unambiguous way the set of user goals and the way those user goals can be performed on an interactive system. Reasoning about the Task Models produced supports the assessment of effectiveness of an interactive system (which is one of the most difficult dimension of usability to assess).
Task models have also proven being of great help for structuring user documentation, designing and assessing a training program, assessing the complexity of the users' work. If used for analysis, they can also provide support for identifying types, location and likelihood of human errors. When used for design they

also provide precious support for identification of good candidates for task migration towards automation.

## Contribution and benefit

This course intends to provide newcomers with background in task modeling. It provides an overview on how the recent advances in task description techniques can be exploited to design and assess interactive systems. As task models can be large, it is important to provide the analyst with computer-based tools for editing task models and for analyzing them. To this end, this course provides attendees with the HAMSTERS task modeling tool that can be directly applied in practice.

## Objectives

On completion of this tutorial, attendees will:

- Know the benefits of using task modeling techniques to design, structure and assess UIs,
- Be able to describe users' activities in a systematic and structured way,
- Have experience in analyzing an interactive systems focusing on the tasks users have to perform with it,
- Know how to use the HAMSTERS tool suite for editing, analyzing and simulating task models.

## Instructors' background

The instructors have applied task modeling techniques to several industrial projects such as the design of collaborative environments to manage collision risks between satellite and space objects, to improve interactive satellite Ground Segment Systems, to assess impact of dependability on usability for interactive cockpits and in Air Traffic Management (http://www.irit.fr/recherches/ICS-site).

Philippe Palanque is Professor in Computer Science at University of Toulouse 3. The main driver of Philippe's research has been to address in an even way Usability, Safety and Dependability in order to build trustable safety critical interactive systems. As for conferences he is a PC member of conferences in these domains such as DSN 2014 (44th conference on Dependable Systems and Networks), and was co-chair of CHI 2014.

Célia Martinie (PhD) is Assistant Professor in Computer Science at University of Toulouse 3. She has been working on task modeling techniques for the design and development of interactive systems since 2009 and led the development of HAMSTERS tool.

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