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# Exploiting task models to assess and ensure effectiveness during the programming of interactive software

by **Célia Martinie**, Associate Professor in Computer Science at the University of Toulouse III – Paul Sabatier (France)

As part of the subject Human-Computer Interaction of the Degree in Computer Engineering, next Thursday, May 18, Célia Martinie, Associate Professor in Computer Science at the University of Toulouse III – Paul Sabatier (France) will offer th

15.00 - 16:50, May 18th, 2023

Classroom 0.04, Higher Polytechnic School Building, University of Lleida

## Summary

Ensuring the effectiveness factor of usability consists in ensuring that the application allows users to reach their goals and perform their tasks. The interactive application shall implement all of the needed functionalities and these functionalities shall be accessible when needed (e.g. made available to the user in an order that is compatible with the one needed to reach the goals). Ensuring the effectiveness of an interactive application thus requires an explicit description of users' goals and tasks. The only mean for ensuring that this need is met requires an explicit description of users' goals and tasks. Task models is one of the very few means for explicitly and exhaustively describing user tasks at design time. We will discuss how to understand these goals and tasks and how to demonstrate that an interactive application supports them all.

Célia Martinie

Célia Martinie is Associate Professor in Computer Science at the University of Toulouse III – Paul Sabatier (France), where she leads the ICS (Interactive Critical Systems) research group. Her research focuses on engineering interactive systems and in particular, on methods, processes, techniques and tools for the design and development of large-scale interactive systems, while explicitly taking into account multiple properties (such as usability, reliability, safety, user experience...) in an even way. Since more than ten years, she is involved in projects with partners in the safety critical application domains. She participated to the specification of future interactive cockpits and their interactions, as well as to the modelling of operational states of civil aircraft (with direct support from and close collaboration with Airbus). She also contributed in research projects with CNES (French National Space Agency) on human-computer interaction for ground segment systems dealing with multiple aspects such as automation, operator's training and human error prevention. She is currently involved in the specification of the ground segment for the future operation center of the Guiana Space Center (CSG European space port). She is also the principal investigator of the TEAM UP project that recently started and that targets the design and development of post-stroke rehabilitation training systems. She co-authored more than 70 refereed publications in international conferences and journals. She is member of the IFIP Working groups 13.5 on Resilience, Reliability, Safety and Human Error in System Development and 13.2 on Methodology for User-Centered System Design.

More details: <https://www.irit.fr/recherches/ICS/people/martinie/> [ <https://www.irit.fr/recherches/ICS/people/martinie/> ]



## **Interactive Critical Systems (ICS) - Research Group**

The Interactive Critical Systems (ICS) team gathers professors, researchers, engineers, phd students who are interested in the engineering of interactive systems. Our research targets notations, processes and tools for the design, implementation and evaluation of interactive systems thus having a strong bias towards software engineering. ICS team focusses on the integration of multiple and sometimes conflicting properties such as usability, user experience, dependability and safety. We have a long-term experience in safety critical application domains including interactive cockpits, satellite ground segments and air traffic management. Beyond these well-known safety critical domains, we address domains where the potential costs of a failure is much higher than development costs. Our main topics are: formal design of critical interactive systems description language, task models engineering, methods to embed multiple properties in interactive systems, automation, dependable and usable touch interactions.

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