Título: **Method for Model Checking and Testing of Adaptive Behavior in Dynamic Software Product Lines**

Data: **11/11/2016** Horário: **9h** Local: **Sala de Seminários - 942-A - Campus do Pici**

Resumo:

The adaptive behavior of Dynamic Software Product Lines (DSPLs) is typically designed using adaptation rules, context-triggered actions, responsible for features activation and deactivation at runtime. Faults in the specification of these rules can lead DSPLs to reach an undesired product configuration at runtime. Furthermore, faults can be inserted in the DSPL code even if the DSPL specification is correct. Aiming to support the identification of these faults, this work proposes a method for model checking and testing DSPLs, focusing on the adaptive behavior managed by the adaptation rules. For supporting the DSPL model checking, this proposal introduces Dynamic Feature Transition Systems (DFTSs), which allow the model checking of the DSPL adaptive behavior, and a set of behavioral properties that can be used to identify faults in the DSPL design. For supporting the DSPL testing, this proposal defines how to use the properties defined as test coverage criteria to guide the test cases design for DSPLs. Aiming to assess the applicability of DFTS, a feasibility study was conducted and its results indicate that this formalism can help in the detection of design faults in the DSPLs. Two more evaluations should be still performed, one based on a controlled experiment and other using fault injection in DSPL specifications.

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