Most Influential Paper Award
SPLC 2020

24th ACM International Systems and Software Product Lines Conference

October 19-23, 2020   Montréal, Canada

Presented to

Andreas Classen, Patrick Heymans, Pierre-Yves Schobbens, Axel Legay, and Jean-François Raskin

for

Model Checking Lots of Systems: Efficient Verification of Temporal Properties in Software Product Lines

32nd International Conference on Software Engineering (ICSE 2010)

This paper was the first to consider features at first-class citizens in modeling SPL behavior, resulting in the first rigorous account of behavioral variability and an associated rigorous family-based verification method.

This paper introduced the notion of a Featured Transition System (FTS) to the community, allowing scalable SPL modeling. Concretely, the authors extended labeled transition systems with features in order to concisely describe and analyze the combined behavior of a family of behavioral models. The paper also introduced dedicated family-based model-checking techniques that have enriched model-checking algorithms by offering a means to verify whether a property is satisfied by an FTS, in which case it is also satisfied by every product of the SPL, and if a property is violated, then the algorithm reports a counterexample as well as the products of the SPL that violate the property.

Overall, by carving out the right concept, this paper paved the way for a vast amount of research on formal analysis (testing, model checking, etc.) of variability in behavioral models of SPLs and configurable systems in general, and contributed to their dissemination in industrial settings. A number of SPL analysis tools nowadays accept FTSs as input format. In fact, FTSs have become the de-facto standard formalism for the formal analysis of behavior of models with variability.

Nominators
Maurice H. ter Beek (Chair)
Philippe Collet
Carlo Ghezzi
Mohammad Reza Mousavi
Erik P. de Vink

SPL MIP Award Committee 2020
Stefania Gnesi (Chair)
David Benavides
Paulo Borba
Rick Rabiser
Don Batory