Preface: Applications of Formal Methods and Digital Twins

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The model-based concept of a Digital Twin is a new development paradigm in complex systems engineering at the intersection of Cyber-Physical Systems, Software Engineering, System Engineering and Data Science.

While some connections to model-based techniques from formal methods have been recognized in academic contexts, there is no exploitation of this connection in industrial practice. The Workshop on Applications of Formal Methods and Digital Twins was collocated with the 25th International Symposium on Formal Methods and brought together researchers from Formal Methods and practitioners to explore (1) the current challenges in engineering Digital Twins, and (2) the current challenges in applying formal methods to Digital Twins.

In two sessions, the participants discussed common ground between industrial needs for model-based engineering of Digital Twins, and Formal Methods, based on 6 presentation based on the articles in this venue and the invited talk *"RoboStar Twins? "* by Ana Cavalcanti. The workshop received 6 submissions, which were all reviewed by 3 members of the program committee and accepted. All submissions have been revised based on reviews and discussions after the presentations.

Program Committee

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