Abstract

Control theory researchers have been using DEVS models to formalize discrete event systems for a long time. Despite such systems are one of the main targets of Software Engineers, the DEVS formalism lacks tools offering representing and verifying safety properties. The general scope of the paper consists of extending the DEVS framework to support safety properties and verify them by using formal methods. Thus, we offer a possibility for DEVS user to describe safety properties and to verify formally if these properties are preserved during the evolution of the system. We called the extended formalism "ΦDEVS". Safety verification is made once a "ΦDEVS" model is translated to a formal specification using Z notation by performing proof obligation.

References

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Index Terms

Computer Science Software Engineering

Keywords

Safety, DEVS, Discrete Event Simulation, Z, Formal Methods, Formal Verification