Zoe Andrews. Towards a Stochastic Event-B for Designing Dependable Systems

Abstract. Designing dependable systems is complex and, whilst the state of the art goes some way towards assisting in the design process, existing approaches have some limitations. The benefits and limitations of existing approaches are summarised. Based on these observations, stochastic extensions to the Event-B notation are proposed that build on the strengths of the existing approaches and aim to address some of their limitations. A simple case study is used to demonstrate the use of this new language. The paper concludes with some suggestions for further work in this area.

Laura Panizo, Maria del Mar Gallardo, Pedro Merino and Antonio Linares. Integration of Quantitative Aspects into SPIN to Develop a Decision Support Tool for Dams

Abstract. In this paper, we describe a novel application of hybrid systems to model and analyze the evolution of water supply systems such as dams. The evolution of a dam depends on several components. Some of them may be constantly changing (for instance, the volume of stored water), while others may take a discrete range of values (for instance, the degree of opening of the outflow elements.) In extreme situations, human operators must make critical decisions, managing the different components of the dam to guarantee its safety and the safety of the environment. We propose the use of the model checking technique to construct a Decision Support Tool (DST) to help dam operators assess different alternatives to control a potentially dangerous evolution of the dam. We have implemented the approach in the well known model checker SPIN, and we show the applicability of the proposal in flood management of a real dam in theMediterranean region of Spain.

Federico Buti, Massimo Callisto De Donato, Flavio Corradini, Maria Rita Di Berardini and Walter Volgler. Evaluating the Efficiency of Asynchronous Systems with FASE

Abstract. In this paper, we present FASE(Faster Asynchronous Systems Evaluation) a tool for evaluating the worst-case efficiency of asynchronous systems. The tool is based on some well-established results in the setting of a timed process algebra (PAFAS: a Process Algebra for Faster Asynchronous Systems). To show the applicability of FASE to concrete meaningful examples, we consider three implementations of a bounded buffer and use FASE to automatically evaluate their worst-case efficiency. We finally contrast our results with previous ones where the efficiency of the same implementations has already been considered.

Savas Konur. Real-time System Specification with a Decidable Temporal Logic

Abstract. Many important real-time properties, such as quantitative temporal constraints, have been usually specified with expensive logics. In this paper, we show that although TL, a decidable interval temporal logic defined in Kon08 and Kon09 is computationally managable, it can properly specify these properties, which are in a way both intuitive and tractable.