

Title:

Observation-enhanced stochastic modelling

Abstract:

Stochastic modelling plays a key role in predicting the performance, dependability and other important properties of real-world systems. Supported by today's efficient probabilistic and statistical model checkers, the approach enables the analysis of alternative system designs and configurations, both during development (to select designs that comply with the system requirements) and at runtime (to select new configurations that restore this compliance after adverse events). However, the effectiveness of the approach depends on the quality of the models it operates with, and ensuring that stochastic models are accurate is a significant challenge. The talk will present recent advances in addressing this challenge by exploiting observations of the analysed system or its components, available for instance from logs, unit testing or monitoring.