

# Developing a Formal Methods Solution for System Monitoring

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**Abstract:**

In this day and age, various services such as e-government, e-mail, e-shopping and e-news are provided via web-based technologies. Reliability and accessibility for these types of services are critical. Those properties are enhanced via deployment of monitoring systems that detect unusual events in time to avoid system and security failures. Such systems evaluate metrics produced by the software systems according to certain criteria. Experts define the metrics and such criteria and the cost of the mistakes done in this step can be very high. Our goal is to express the system monitoring criteria in a formal language and generate the criteria that maximize the success of the monitoring system in an automated way. The derivation of a formula expressed in a formal language from signals is called requirement-mining. Direct applications of it such as deriving requirements for legacy systems and verifying cyber-physical systems resulted in an increased interest in the requirement-mining problem. However, a general solution has not been developed yet. We aim at developing a comprehensive solution to the requirement-mining problem with a focus on online monitoring application. In this talk, we will elaborate on the problem and share our ongoing work.