

# Runtime Verification

Dependable Systems - Dirk Nowotka

## Project Description

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Runtime Verification of a system is concerned with extracting information from a running system and determine whether the program satisfy/violate certain correctness criteria. Putting aside how information is extracted from the executing system, this project is about developing efficient technique for monitoring specifications given in temporal logics - both memory-wise and time-wise. LTL is a fairly well-known temporal logic. It is usually translated to a Non-deterministic Büchi Automaton (NBA). A Büchi Automaton that cannot be determinised. The observation algorithm therefore has to resolve this non-determinism on-the-fly, but the longer a system is running, the more non-determinism has to be resolved. The first question would therefore be how to resolve the non-determinism efficiently. A second, and perhaps more interesting, is determining when we can conclude an execution can no longer satisfy an LTL property? The problem, in general, is how to get some confidence that a program has a given infinite behaviour - using only finite executions.

## Applicable For

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Bachelorstudents   
Masterstudents

## Keywords

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LTL  
Runtime Verification

## Contact

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