

Distributed Algorithms: A Challenging Playground for Model Checking

Nathalie Bertrand  

Univ Rennes, Inria, CNRS, IRISA, France

Abstract

Distributed computing is increasingly spreading, in advanced technological applications as well as in our daily life. Failures in distributed algorithms can have important human and financial consequences, so that it is crucial to develop rigorous techniques to verify their correctness. Model checking is a model-based approach to formal verification, dating back the 80's. It has been successfully applied first to hardware, and later to software verification.

Distributed computing raises new challenges for the model checking community, and calls for the development of new verification techniques and tools. In particular, the parameterized verification paradigm is nowadays blooming to help proving automatically the correctness of distributed algorithms. In this invited talk, we present recent parameterized verification developments to automatically prove properties of some classical distributed algorithms.

2012 ACM Subject Classification Theory of computation → Verification by model checking; Theory of computation → Distributed algorithms

Keywords and phrases Verification, Distributed algorithms

Digital Object Identifier 10.4230/LIPIcs.OPODIS.2021.1

Category Invited Talk



© Nathalie Bertrand;

licensed under Creative Commons License CC-BY 4.0

25th International Conference on Principles of Distributed Systems (OPODIS 2021).

Editors: Quentin Bramas, Vincent Gramoli, and Alessia Milani; Article No. 1; pp. 1:1–1:1

Leibniz International Proceedings in Informatics



LIPICs Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany