

IT-Information Technology – Call for Papers

Special Issue: System Correctness under Adverse Conditions

Scope of the journal IT-Information Technology is a strictly peer-reviewed scientific journal. It is the oldest German journal in the field of information technology. Today, the major aim of IT-Information Technology is highlighting issues on ongoing newsworthy areas in information technology and informatics and their application. It aims at presenting the topics with a holistic view. It addresses scientists, graduate students, and experts in industrial research and development.

Aim of the Special Issue Emerging smart technologies are often built on systems being in an ongoing interaction with a physical environment which can manifest itself in physical processes and/or physical entities as, for instance, traffic participants in the environment of a highly automated driving car. Despite the fact that this interaction may yield reciprocal effects where the behaviour of the ego system has an impact on the environmental behaviour, the environment has to be considered to be uncooperative in the sense that it is usually outside the engineers' sphere of influence and cannot be designed such that its behaviour is adapted to that of the ego system under development. Moreover, the ego system is often operating under partial information as the environment's state and behaviour may be estimated only or even unknown. Examples for such systems can be found in, e.g., any flavour of the domain of control theory: in addition to many household appliances of daily use, automated transportation systems, Industry 4.0 applications, or smart health systems are prominent instances thereof.

Such systems often implement safety-critical applications which are required to be robust against unexpected situations or component failures. As a result, rigorous analysis of the system behaviour under the aforementioned adverse conditions is required in order to prove system correctness, i.e. to prove that the joint behaviour of the ego system and its environment satisfies a given specification of safety, stability or liveness properties.

This special issue aims at contributions presenting current research on system correctness under adverse conditions at an overview level. The scope encompasses (but is not limited to) projects covering correctness under

- limited knowledge, i.e. systems interacting with an environment that is only partially known or imprecisely observed via error afflicted measurements,
- unpredictable behaviour, i.e. systems that a) exhibit sporadic or persistent errors or component failures caused by design errors, aging effects, or environmental effects occurring at runtime, or that b) interact with an environment that unseals unexpected behaviour, and
- changing system environment and system structure, i.e. systems interacting with an environment changing due to, e.g., physical positions changing over time and thereby changing the ego system's context which in turn might cause a change of the system structure by enabling or disabling components, for instance.

Submission Authors are invited to submit their manuscript online at <http://www.editorialmanager.com/itit>. The style guide for preparing the manuscript (Word or LaTeX) is listed there. A step by step guide through the submission process will be provided after registration. The publication language is English. The length of a contribution to the special issue should be at most 10 printed pages.

Dates

- First submission: 28.02.2021
- First notification: 25.04.2021
- Second submission: 23.05.2021
- Second notification: 18.07.2021
- Camera-ready version of papers: 18.08.2021

Special Issue Editors

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