

IT-Information Technology – Call for Papers

Special Issue: Approximate Computing

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 System designers are constantly faced with the task of designing faster systems with larger throughput. This demand is partially fueled by the ever increasing use of machine learning applications, a domain that is known for its high demand on computational power and, hence, high energy consumption.

Many practical applications are capable of tolerating a certain degree of incorrectness of the results. This can be, for example, due to the limited perception of the human eye (e.g., image processing applications) or the inherently probabilistic nature of the application (e.g., machine learning).

This fact is exploited by the *Approximate Computing* design paradigm. The core idea behind this paradigm is to sacrifice the absolute correctness of computed results (within well-defined bounds) for (possibly significant) gains in non-functional aspects such as energy/power consumption, area, latency, or costs.

While the research area is still quite young, many different means of approximating the design, ranging from voltage over-scaling to training neural networks with bit-width reduced numbers, have been explored.

The aim of this special issue is to provide an overview over Approximate Computing techniques and applications at all levels of abstraction, from circuit to software. Articles contributing ideas, methods and case studies for Approximate Computing are welcome. In particular, the topics of interest encompass, but are not limited to:

- Approximation techniques for the circuit, architecture, and/or software layer
- Approximation techniques exploiting (hardware) features of the target platform
- Number formats designed/suitable for Approximate Computing
- Techniques for the evaluation of approximate designs and/or the propagation of errors due to approximation through larger designs
- Applications for Approximate Computing
- Software and tools for Approximate Computing

Submission Authors are invited to kindly submit their manuscript online at

<http://www.editorialmanager.com/itit>

The style guide for preparing the manuscript (Word or L^AT_EX) 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 not exceed 8 pages.

Dates

- First submission: 31.08.2021
- First notification: 31.10.2021
- Second submission: 30.11.2021
- Second notification: 15.01.2022
- Camera-ready version of papers: 15.02.2022

Special Issue Editor

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