

November 11-13, 2022 | Shenzhen, China

## CONFERENCE INTRODUCTION

<http://www.apccas2022.org/cfss.html>

The IEEE Asia Pacific Conference on Circuits and Systems (APCCAS) is the regional flagship conference of the IEEE Circuits and Systems Society in Asia. APCCAS 2022 will be held in Shenzhen, China during November 11-13, 2022. Shenzhen is the electronics R&D world center with more than 300 global or regional centers from Fortune Global 500 companies. Besides, Shenzhen is also suitable for tourism, which is ranked No. 2 in the list of best cities for travel by Lonely Planet.

## SPECIAL SESSION ON

Session Title

**Application-specific AI inference on FPGAs**

Special Session Organizer

**Kumm Martin, Fulda University of Applied Sciences**

### ABSTRACT

FPGAs offer both reconfigurability and power-efficiency for AI inference. In contrast to generic ASIC-based AI inference accelerators, FPGAs can offer unique flexibility for the user: the underlying inference architecture is designed from scratch to get the best performance while fulfilling user-given constraints. As a consequence, a huge design space must be explored in search for the best trade-off between inference accuracy and performance.

This session addresses different approaches for inference optimization on FPGAs utilizing application-specific knowledge. Various computing paradigms are exploited, including approximate computing, alternative number representations as well as classic and reconfigurable multiplierless techniques.

This customized arithmetic calls for a design space exploration and even specialized hardware-aware optimizations in which both the network and the architecture are tuned simultaneously.

Depending on the applications, which range from image classification to neural control, the accuracy requirements will have different impact on the resulting design. The presented contributions explore several approaches how the inference accuracy can guide the hardware-aware optimization.

## IMPORTANT DATES

Submission of Special Session Full Papers

August 6, 2022

## PUBLICATION

Accepted papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements. Selected papers will be invited to submit extended full papers to IEEE Transaction on Circuits and Systems I (TCAS-I), IEEE Transaction on Circuits and Systems II (TCAS-II) and IEEE Open Journal of Circuits and Systems (OJCAS).

## SUBMISSION METHOD



Papers for publication must be submitted in full paper electronically. All edition and update must be done up until the submission deadline. Papers submitted to APCCAS Conference will undergo a double-blind review process. Submissions must have all details identifying the author(s) removed from the original manuscript (including authors' names, affiliations, acknowledgments and other related personal information).

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