AxC20: 5th Workshop on Approximate Computing

Moscone Center
San Francisco, CA, USA | July 19, 2020

CALL FOR PAPERS

Approximate Computing leverages the intrinsic error resilience of applications to inaccuracy in their inner calculations, in order to achieve a required trade-off between efficiency, in terms of performance and power demanding, and acceptable error of returned results. In particular, for audio, image and video processing, data mining and information retrieval, approximate results turn out hard to distinguish from perfect ones. In recent years, Approximate Computing applicability is broadening and it has been representing a breakthrough in many scientific areas. Suitable solutions come from approximate arithmetic operators, implemented both at hardware and software level, but from unreliable memory architectures, integrated circuit test, compilers and many others.

This year event will be in conjunction with DAC'20.

The aim of this workshop is the investigation of connections between approximate computing paradigm and the verification, the test and the reliability of digital circuits from two points of view:

1. how the approximate computing paradigm impacts the design and manufacturing flow of integrated circuits;
2. how the verification, testing and reliability disciplines can be exploited in the approximate computing paradigms.

The areas of interest include, but not limited to, the following topics:

- Approximation for Deep Learning Applications
- Approximation techniques for emerging processor and memory technologies
- Approximation-induced error modeling and propagation
- Approximation in Edge computing applications
- Approximation in HPC and Embedded systems
- Approximation in Near-Memory and Database Processing
- Architectural support for Approximation
- Dependability of approximate circuits and systems;
- Design automation of Approximate architectures
- Design of reconfigurable Approximate architectures
- Error Resilient Near-Threshold Computing;
- Test and fault tolerance of approximate systems
- Hardware/software co-design of Approximate systems
- Language, compiler, and operating system support for approximate architectures
- Modeling, specification, and verification of approximate circuits and systems;
- Safety and reliability applications of approximate computing
- Security in the context of Approximation
- Software-based fault tolerant technique for approximate computing;
- Techniques for monitoring and controlling approximation quality

Contributions: AxC20 accepts **Extended Abstract** submissions, up to **2 pages**. Accepted papers can be candidate for either an oral presentation or poster presentation. Authors are also invited to extend their accepted papers for a full-paper submission, up to 6 pages.

Publication: AxC20 will distribute electronic format informal proceedings online on the workshop website. No formal proceedings will be available.

Submission: Papers should be submitted in a standard IEEE format (you can find a template https://www.ieee.org/conferences_events/conferences/publishing/templates.html). Further submission guidelines can be found on the workshop webpage: **http://perso.ec-lyon.fr/alberto.bosio/AXC20**.

Key dates for submission:

Abstract Registration Deadline: **April 25th, 2020**
Submission Deadline: **May 02nd, 2020**
Notification of acceptance: **May 30th, 2020**

Further information:

General Chair:
Alessandro Savino
Politecnico di Torino
Email: alessandro.savino@polito.it

Program Chairs:
Alberto Bosio
École Central de Lyon (FR)
Email: alberto.bosio@ec-lyon.fr

Jürgen Teich
FAU (DE)
Email: juergen.teich@fau.de