Preliminary Call for Participation
First Workshop on Open-Source Computer Architecture Research (OSCAR)
(co-located with ISCA 2022, in New York City)

OSCAR 2022 is the first edition of a workshop aimed at fostering the community of researchers who are interested in developing and sharing open-source hardware and software for the design of next-generation computer architectures.

Motivation. Next-generation computer architectures will combine general-purpose processors with a growing variety of heterogeneous components, including special-purpose processors, graphics-processing units, application-specific hardware accelerators, reconfigurable hardware modules, and analog/mixed-signal components. In any given application domain, the success of a new computer architecture is bound to the particular, application-specific mix of heterogeneous components. This heterogeneity brings new challenges to hardware designers as well as software programmers. Addressing many of these challenges requires collaborative and open-source research. This is the premise of OSCAR. The rationale is that many innovations are best evaluated in the context of complete system-level implementations, which go beyond traditional simulation methods, and that most individual research groups do not have the resources to realize such implementations. The goal of OSCAR is to bring together a community of researchers from academia, industry and government labs who are interested in open-source computer architectures. The recent past has seen significant progress in this direction, including contributing open-source hardware components, software tools, as well as integration platforms to simplify the realization of system prototypes with FPGA or ASIC technologies. The number of developers and users of these open-source artifacts has increased substantially. It is time to provide a venue that promotes the growth of this community and fosters its efforts.

Scope: Topics of interest of the OSCAR workshop include, but are not limited to:
- Open-source processors (CPU, GPU, AI processors…)
- Open-source accelerators (programmable, configurable, fixed-function…)
- Open-source components (e.g., caches, busses, network-on-chip, peripherals, sensors…)
- Software aspects of heterogeneous component integration
- Security, reliability, and verification of open-source architectures and components
- CAD tools and methodologies for design and integration of open-source components
- Full-system simulation of open-source architectures
- Infrastructures specialized for FPGA prototyping or chip designs of open-source architectures
- Design experiences with the use of open-source components, tools, and platforms
- Discussion of case studies, applications that benefit from open-source architecture research

Workshop Format: OSCAR will have a mix of invited talks and presentations selected from the submissions to this call for participation. Abstract should be submitted in PDF format (max 2 pages) and include title, authors, affiliations and e-mail address of the contact author. Submissions of early works and position papers are encouraged. Workshop submissions do not preclude publishing at future conference venues. While no formal proceedings are planned, the OSCAR organizers may seek the realization of a journal special issue collecting a subset of the contributions, after the workshop.

Organizers:
- Sarita Adve (University of Illinois)
- Luca Benini (ETH Zurich and University of Bologna)
- Pradip Bose (IBM)
- Luca Carloni (Columbia University)

Important Dates:
Abstract submissions: April 20, 2022
Author notification: April 29, 2022
Workshop Date and Venue: TBD, June 11 or 12, 2022, (co-located with ISCA 2022, in New York City, NY.)