RAPIDO 2027: Workshop on Rapid Simulation and Performance Evaluation for Design Optimization: Methods and Tools

- Workshop of HiPEAC Conference — Glasgow, United Kingdom, January 2027

19th Workshop on Rapid Simulation and Performance Evaluation for Design Optimization: Methods and Tools - in Glasgow, United Kingdom, January 2027
Held in conjunction with the HiPEAC Conference (https://www.hipeac.net/2027/glasgow/ - /)
!!! Accepted papers will be published in the ACM digital library !!!

Goal of the Workshop

The focus of the RAPIDO workshop is on **methods** and **tools** for **rapid simulation** and **performance evaluation** in embedded and high-performance computing system design. Current systems-on-chip already integrate numerous units on a single die, including multiple (heterogeneous) processor cores, multiple levels of (shared/private) caches or memories, and dedicated accelerators (in particular for AI), which are glued together through a network on-chip (NoC). Designing such complex systems requires rapid **Design Space Exploration** (DSE), considering several design metrics to extract a set of system configurations to meet the design constraints. Despite several years of research, the early stage of design phase still requires to be supported by innovative design methodologies and tools for **simulation**, **exploration** and **performance evaluation**.

RAPIDO seeks for original research papers that face this challenge for high performance and embedded computing systems, in particular for systems to accelerate **Artificial Intelligence (AI)** computations and using **AI-based techniques** for DSE and to satisfy design constraints (performance, power, security, etc).

Topics of Interest include, but are not limited to

- Rapid simulation techniques especially for new architectures: Multicores, 3D Architectures, FPGA and GPU based heterogeneous Multicores/MPSoC, ...
- Variability, reliability and power/energy consumption in simulation techniques.
- High-level modeling and simulation techniques, Transactional Level Modeling (TLM), Analytical Modeling, Trace-Driven Simulation, ...
- Rapid design space exploration (DSE) for heterogeneous and embedded systems including AI-based techniques
- Dynamic binary translation for fast simulation and DSE.
- Verification and validation through simulation methods and tools.
- Simulation of complex systems, artificial intelligence, system of systems, …
- Digital Twin simulations.
- Methods and tools for quantum computing simulation.
- Experience reports using existing simulators.
- NAS (Neural Architecture Search) for DSE approach & Implementation of neural network architectures.

The targeted **application domains** concern any physical, chemical, biological, or socio-economic system that is complex or costly to test under real conditions.
AI-based techniques, including Agentic AI, are particularly well suited to the objectives of the workshop.

Particular attention will be paid to **Open-Source Chip Design & Tools**

Submission Guidelines

- **Important dates:**
  - **Abstract Submission deadline: Oct 23th, 2026**
  - **Paper submission deadline: Oct 30th, 2026**
  - Notification to authors: Dec 11th, 2026
  - Final version of accepted papers: Jan 8th, 2027

- All papers must be original and not simultaneously submitted to another journal or conference.
- Electronic paper submission requires a full paper, up to 6 double-column ACM format pages, including figures and references. Up to 2 extra-pages can be requested for free to the organizing committee. Please use the following template when preparing your manuscript: http://www.acm.org/sigs/publications/proceedings-templates
- The paper submission will be conducted using the EasyChair conference manager. Papers should be submitted in PDF format on web site https://easychair.org/conferences/?conf=rapido2027
- *Accepted papers will be published in the ACM digital library. It should be noted that additional variable fees will be required for each paper if the contact author institution has not signed agreement with ACM, otherwise proceeding edition is free. Please refer to ACM website https://libraries.acm.org/acmopen/open-participants to verify if your institution is listed in the ACM Open Global Participation.*