ACM/IEEE DESTION 2022 CALL FOR PAPERS
The 4th Workshop on Design Automation for CPS and IoT
May 3, 2022, part of CPS-IoT Week 2022
https://cps-vo.org/group/DESTION22

Overview:

Cyber-Physical Systems (CPS) such as aircraft, automobiles, industrial robots, medical devices, and Internet-of-Things (IoT) applications, promise significant economic and societal benefits. The design, verification, validation, testing, and operation of such systems present several challenges induced by scale, complexity, uncertainty, and many stringent requirements on safety, performance, security, availability, and many other metrics.

There has been a drastic shift in the manner in which products are designed in the past few decades, from being predominantly mechanical and having independent components to being cyber-physical with highly interacting components. This has resulted in an explosion in the design complexity, leading to very long design cycle times. For several of the complex systems presented above the design process can last years involving several redesign loops. To circumvent this issue, the current state of practice relies on "hot-starting" a new design from a known baseline, which unfortunately limits innovation, preventing a detailed exploration of the design space. The design space, on the other hand, is significantly more complex given the interdependent nature of the multidisciplinary design problem. There have been numerous advances in the area of **AI for Design Automation** methods that have been shown to help in the design of these complex systems, as well as in their autonomous operations. These methods range from natural language processing for requirements engineering, physics-informed models to accelerate simulations, Bayesian methods for uncertainty quantification, probabilistic programming methods to represent designs as a handful of examples. On the other hand, as AI is integrated into a diverse variety of systems such as autonomous vehicles, energy grids, health care, IoTs, and social network platforms, the challenge of design and verification of AI-enabled systems has become extremely important. This has led to new **Design Automation for AI** methods of interest including network architecture exploration techniques, AI testing and verification methods, and simulation tools.

DESTION provides a premier forum for researchers and engineers from academia, industry, and government to present and discuss challenges, promising solutions, and applications in design automation for CPS and IoT. DESTION 2022 has a broad scope covering techniques and tools for modeling, simulation, synthesis, validation, and verification of CPS and IoT, with a focus on "AI for Design Automation" and "Design Automation for AI", and their applications in a variety of domains, such as automotive and transportation systems, avionics, robotics, building architectures, grid, and medical devices.

We invite contributions in the following main topics (but not limited to):

- Machine learning in CPS/IoT
- Assurance and formal verification methodologies
- Correct-by-construction design and evolution
- Requirement engineering
- Real-time execution
- Test and evaluation

- Languages and tools for specification and design
- Architectural design
- Circuit design
- Run-time monitoring
- Benchmarks and datasets

Submissions:

Papers: All submissions must be in English. Only original papers that have not been submitted or published in other conferences or journals will be considered. Full technical contributions should have no more than 6 pages, excluding references and appendix. We also welcome shorter papers.

Tool Papers, Benchmark Releases, and Demos: DESTION 2022 also seeks 2-page abstracts (excluding references) describing benchmarks, tool descriptions, and demos. Supplementary materials for tools and demos such as videos, repository links, and online accessible web-applications are encouraged.

Please submit your papers and abstracts at https://easychair.org/conferences/?conf=destion2022. The submission must be in the IEEE format, and authors can use the Latex template available at https://www.ieee.org/conferences/publishing/templates.html. All accepted papers and demo abstracts will be published in IEEE Xplore as part of the DESTION 2022 proceedings.

Important Dates:

February 13, 2022: Submission deadline
March 1, 2022: Author notification
March 5, 2022: Camera-ready due

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