



ACM Transactions on Design Automation of Electronic Systems

Special Issue on Machine Learning for CAD

Guest Editors:

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Advances in machine learning (ML) over the past half-dozen years have revolutionized the effectiveness of ML for a variety of applications. However, design processes present challenges that require parallel advances in ML and CAD as compared to traditional ML applications such as image classification.

This special issue seeks original submission on ML applications to the entire design flow – including ML applications to validation and test. The application of machine learning to mask preparation and layout generation are topics which are seeing very active research recently. ML is also being applied to improve the robustness of integrated circuits and systems. Power and thermal management are probably the most important limiting factors for ICs today - ML-based techniques are being explored to address this bottleneck. All these topics, as well as further potential topics mentioned below, are of interest to this special issue.

In addition to submissions from academia, submissions from industry are much welcome.

Topics

Topics of interest to this special issue include, but not limited to, the following:

- ML for system-level design
- ML approaches to logic design and synthesis
- ML for timing
- ML for clock networks and power grids
- ML for variation-aware design, analysis and optimization
- ML for physical design
- ML for analog design
- ML for power and thermal management
- ML for Design Technology Co-Optimization (DTCO)
- ML methods to predict aging and reliability
- Labeled and unlabeled data in ML for CAD
- ML techniques for resource management in many cores
- ML for verification and validation
- ML for test
- ML for library design and optimization

Important Dates

- Submissions deadline: March 5, 2025
- First-round review decisions: May 5, 2025
- Deadline for revision submissions: June 5, 2025
- Notification of final decisions: July 5, 2025

- Tentative publication: Summer 2025

Submission Information

Authors are encouraged to submit high-quality original research contributions. Please clearly identify the additional material from any original conference or workshop paper in your submitted manuscript. Submissions should be made through the ACM TODAES submission site (<http://mc.manuscriptcentral.com/todaes>) and formatted according to TODAES author guidelines at: <https://dl.acm.org/journal/todaes/author-guidelines>. Select the paper type “Special Issue on Machine Learning for CAD”.

For questions and further information, please contact **guest editors at:**

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