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CALL FOR PAPERS Special Issue on Machine Learning and Representation Issues in CAD/CAM

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Special Issue on Machine Learning and Representation Issues in CAD/CAM

Machine Learning (ML) as a subfield of Artificial Intelligence (AI) is transforming many critical aspects of human life. Its application to engineering systems is poised to generate solutions to problems that remain unsolved. However, the ML has also been shown to posit new questions that were not raised before. While the utility of ML cannot be overstated, there are unique challenges in using existing ML algorithms, techniques, and tools in Computer-Aided Design and Manufacturing (CAD/CAM). These relate to representation issues, an adaptation of ML techniques, and discovery of new ML techniques that would support development of CAD/CAM systems to facilitate the generation and evaluation of a broad class of design and manufacturing solutions.

This Special Issue strives to ask and answer questions pertaining to effective representation of engineering models for machine learning, neural networks and deep generative models in CAD/CAM, mathematical frameworks that combine ML with CAD/CAM in geometry and topology, data interpretation and physics-based learning. Some of the topics in this Special Issue are as follows, but this is not an exhaustive list. Please feel free to contact the Guest Editors to ensure that your submission is appropriate for this Special Issue.

Topic Areas

- Effective representations of geometric and topological models for ML
- Mathematical frameworks that bring together ML with CAD/CAM
- ML algorithms for conceptual design of engineering systems
- ML-driven automated generation and evaluation of conceptual designs
- Intelligent and predictive design
- Data creation and generation for ML in CAD/CAM
- Deep generative modeling in CAD/CAM
- Role of latent space in design exploration in deep generative frameworks

Publication Target Dates

Paper submission deadline	January 15, 2023
Initial review completed	June 15, 2023
Special Issue publication date	December 2023

Submission Instructions

Papers should be submitted electronically to the journal at journaltool.asme.org. If you already have an account, log in as an author to your ASME account. If you do not have an account, sign up for an account. In either case, at the **Paper Submittal** page, select the [ASME Journal of Computing and Information Science in Engineering](#) and then select the Special Issue **Machine Learning and Representation Issues in CAD/CAM**.

Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue. Early submission is highly encouraged. Please also email the Editor, Professor Yan Wang, at yan-wang@gatech.edu, to alert him that your paper is intended for the Special Issue.

Guest Editors

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