

**GUEST EDITORIAL**

## Special Issue: Topological representation and reasoning in design and manufacturing

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Topology deals with geometric properties which are dependent only upon the relative positions of the components of figures and not upon such concepts as length, size, and magnitude. Topology supports design and representation of mechanical devices, communication and transportation networks, topographic maps, and planning and controlling of complex activities. In addition, aspects of topology are closely related to symbolic logic, which forms the foundation of artificial intelligence. By approaching engineering design from this abstract point of view, it is possible to use topological methods to study collections of geometric ob-

jects or collections of entities that are of concern in design analysis or synthesis. The importance of topological representation and reasoning in analysis, design, and manufacturing is heightened by the contemporary view that stresses the need for conceptual design.

The first and second special issues on Topological Representation and Reasoning in Design and Manufacturing appeared in the 2000 issue number 5, and 2001 issue number 1. The third and final special issue is included herein. This series of special issues is oriented toward the exploration of recent advances in Artificial Intelligence related to Topological Design and Manufacturing, and we hope that it will stimulate further research in this area as a unifying design abstraction. Special thanks to Professor William P. Birmingham, Editor-in-Chief, *AIEDAM*, for supporting this endeavor.

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