

Editorial

Advances of Artificial Intelligence in Mechanical Engineering

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Artificial intelligence (AI) is a set of nature-inspired computational methodologies and approaches to address complex problems of the real-world applications to which traditional methodologies and approaches are ineffective or infeasible. AI methods and techniques, including neural networks, evolutionary computation, and fuzzy logic systems, have rapidly evolved over the last decades. Recently, the AI algorithms have attracted close attention of researchers and have also been applied successfully to solve problems in engineering. Nevertheless, for large and complex problems, the AI algorithms consume considerable computation time due to stochastic feature of the search approaches. Therefore, there is a potential requirement to develop efficient algorithm to find solutions under the limited resources, time, and money in real-world applications.

The papers selected for this special issue represent a good panel in recent challenges. The topics of the research papers and review papers are connected with the artificial intelligence methods and their application in mechanical engineering, for example, optimum design of mechanical systems; intelligent control, system identification, and damage detection; solid mechanics, geomechanics, material modeling, and smart materials; and structural dynamics, vibration, and inverse vibration problems.

Among many papers submitted to the special issue, all of the accepted papers were carefully reviewed and found appropriate for the journal; however clearly the topics and papers are not an exhaustive representation of the area of artificial intelligence in mechanical engineering. It can be seen

that although some solutions and models become available, most problems remain open and research is highly active in this field. In the near future, we expect more contributions that will address all of the key aspects previously mentioned. Nonetheless, the special issue represents the recent concerns in the community and we have the pleasure of sharing them with the readers.

Acknowledgments

As the guest editors of the special issue, we would like to express our sincere appreciation to all the authors who contributed their work to this exciting special issue. We also thank the reviewers for their valuable and insightful comments that greatly benefited the improvement of papers quality.

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