

Special Issue on
Technologies-Based Advanced Machine Learning Models: Applications in Civil Engineering 2021

CALL FOR PAPERS

The existence of uncertainty, nonlinearity, and nonstationary characteristics in critical civil engineering problems have necessitated the analysis of nonlinear systems with stochastic parameters, input, and boundary conditions. Stochastic methodologies present a rational basis for system analysis and sustainable design. In addition, solving stochastic dynamics is the main interest of multidisciplinary engineers and scientists. Subsequently, the advancement of the utilization of theoretical research has been an essential motivation toward simulating the stochastic behavior of complex systems, prediction, and nonlinear dynamic phenomena. Implementing and adopting new theoretical methodologies can offer a robust and reliable tool for diverse engineering applications.

With the great development of modern computer aid and computational models, computational science and engineering have accomplished massive success over the past two decades. However, there are still several limitations in civil engineering problems using computational science methodologies. The field of machine learning “artificial intelligence (AI)” was launched in 1956. However, it has been only in the last decade that significant progress has been made to allow the technology to be widely used and experienced by many outside technology circles. Today, AI is one of the fastest-growing emerging technologies and describes machines that can perform tasks that previously required human intelligence. Although noticeable progress has been achieved to date in the domain of civil engineering applications, the exploration of new robust machine learning models is still in progress and several scientists are establishing a new era in this domain for solving complex problems.

This Special Issue invites researchers and scientists to contribute by submitting their related research on the practicability of AI technologies for solving civil engineering complex problems. The focus of civil engineering applications shall be related to structural, geotechnical, material, construction management, hydraulic, and environmental problems. Submissions to this Special Issue must be concentrated on solving complex civil engineering problems that can facilitate new solutions and technologies for diverse civil engineering domains. The submissions shall also cover the new prospective of soft computing topic such as optimization, prediction, tools, analysis, measurement, and theoretical applications.

Potential topics include but are not limited to the following:

- ▶ Advanced artificial intelligence applications
- ▶ Non-linear and nonstationary simulation
- ▶ Solving civil engineering problems
- ▶ Data mining and decision analytics
- ▶ Modeling stochastic problems
- ▶ Optimization and analysis
- ▶ Construction management engineering
- ▶ Simulation of environmental problems
- ▶ Solving complexity dynamic problems
- ▶ Deep learning models applications
- ▶ Machine learning and data analytics
- ▶ Statistical methodologies in materials science
- ▶ Mechanical process and system dynamics

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.hindawi.com/submit?journal=complexity>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Haitham Abdulmohsin Afan, Duy Tan University, Da Nang, Vietnam
haafan.87@gmail.com

Guest Editors

Mostafa Al-Emran, The British University in Dubai, Dubai, UAE
mustafa.n.alemran@gmail.com

M. Z. Naser, Clemson University, Clemson, USA
mznaser@clemson.edu

Submission Deadline

Friday, 8 April 2022

Publication Date

August 2022