

Metaheuristics in Reliability and Risk Analysis

ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems: Part A

Guest Editors

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Call for Papers

Real-life civil and environmental engineering reliability and risk analysis problems are highly complex and include different design variables and complicated constraints. Metaheuristic algorithms are efficient tools to deal with such tough modelling and optimization problems. Metaheuristic techniques are robust tools that attempt to reproduce natural phenomena or social behavior, e.g., biological evolution, stellar evolution, thermal annealing, animal behavior, music improvisation, etc. Two important characteristics of the metaheuristic methods are intensification and diversification. Intensification serves to search around the current best model or solutions and to select the best candidate designs. Diversification allows a metaheuristic to explore the search space more efficiently, often by randomization.

In engineering domain, a variety of modern and computationally efficient metaheuristic algorithms have been presented to tackle complex problems. However, metaheuristics have not been investigated enough for reliability and risk analysis problems. In addition, several new metaheuristics have been merged recently and they have not been applied to these class of nonlinear problems such as reliability-based optimization and risk–cost tradeoff. The aim of this special issue is to address these points and highlight the most significant and recent applications of metaheuristics in reliability and risk analysis of civil and environmental engineering area. Topics of interest in computing domain include (but not limited to):

- Swarm intelligence;
 - Particle Swarm Optimization
 - Ant Colony Optimization
 - Firefly Algorithm
 - Krill Herd Algorithm
- Genetic and evolutionary computation;
 - Genetic Algorithm
 - Genetic Programming

- Differential Evolution
- Harmony Search
- Interior Search Algorithm
- Artificial neural network;
- Fuzzy Logic
- Hybrid algorithms.

Contribution addressing the reliability and risk analysis in the following domains are welcome:

- Structural
- Mechanical
- Geotechnical
- Earthquake
- Material
- Transportation
- Construction
- Water resources
- Environmental

We invite investigators to contribute original research articles, as well as review articles.

Timetable:

Call for papers:	October 2015
Deadline for submission of manuscripts:	February 28, 2016
Review period:	March 1, 2016- July 01, 2016
Revision and re-review (if required)	July 31, 2016
Final decision due:	August 15, 2016

Submission Guideline

To submit a manuscript for consideration for the special issue, please visit the journal website at: <http://www.editorialmanager.com/jrnrueng/>. State the title of the special issue: “SI: Metaheuristics in Reliability and Risk Analysis” and the Guest Editor’s names in the cover letter as well as when answering the submission questions (under Additional Information). The submission deadline is Feb. 28, 2016.

Journal Contacts

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