

Special Issue on  
**Artificial Intelligence and Machine Learning Algorithms in Software Engineering**

# CALL FOR PAPERS

The rapid evolution of search-based algorithms and machine learning techniques has brought about a change in traditional software development. These provide solutions to optimization problems, particularly when dealing with incomplete or imperfect information. Search-based techniques offer a suite of adaptive automated and semi-automated solutions for large complex problems that contain competing and conflicting objectives.

One of the reasons for the growing role of search-based techniques is their use in the development of intelligent products and services and improving internal processes through root cause analysis. They have various applications in software development, such as code optimization, testing, and deployment. Automation in the software development process increases time efficiency productivity and increases the software quality with the available resources. Although for some specific problems, while exact algorithms have been improved significantly, no search method can outperform other methods simultaneously in many domains. A randomly selected search algorithm may tackle one aspect of the problem, which can lead to an overall lack of knowledge about the other parts of the problem. The applications of search-based techniques and machine learning with respect to autonomy are limited, and there is a need to incorporate machine learning techniques to improve the accuracy of project-cost estimations.

The aim of this Special Issue is to gather research into the improvement of software testing techniques, using machine learning and search-based techniques, to produce accurate and refined results. We welcome both original research and review articles.

Potential topics include but are not limited to the following:

- ▶ Machine learning-augmented application design
- ▶ Agent-based software programming
- ▶ Use of machine learning and artificial intelligence (AI) for project cost estimation
- ▶ Application of machine learning in understanding user behavior
- ▶ AI based software quality and data management
- ▶ Multi-objective optimization in software testing
- ▶ Search-based algorithms for faster and easier test creation
- ▶ Monitoring the performance of tests using machine learning techniques
- ▶ Use of computer vision techniques in simplifying test analysis
- ▶ Test maintenance with machine learning
- ▶ AI approaches in reliability estimation for open-source software

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.wiley.com/submit?specialIssue=353151>.

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

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