

## Topical Collection

# Feature Papers in Algorithms and Mathematical Models for Computer-Assisted Diagnostic Systems

### Message from the Collection Editor

Machine learning, deep learning, algorithms and mathematical models have recently seen broad use in computer-assisted diagnostic systems due to their dramatic advance in image analysis, computer vision, and time-series analysis. Algorithms and mathematical models have demonstrated their considerable potential to transform computer-aided diagnosis in a wide variety of areas. These areas range from medical disease diagnostics and classification, through mechanical systems condition monitoring, to diagnosis for chemical industries. Similarly, the structural health diagnosis of different structures such as bridges, buildings, oil platforms, wind turbines, or rails and railroad switches can be considered. The aim of this Topical Collection is to illustrate innovative work and frontier research that explores recent advances, prospects, and challenges in algorithms and mathematical model applications to reduce the chances of either missing, misclassifying, or over-diagnosing suspicious targets on diagnostic systems. Similarly, we expect to propel the path into computer-assisted prognostics.

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### Collection Editor

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## Algorithms

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## About the Journal

### Message from the Editor-in-Chief

Algorithms are the very core of Computer Science. The whole area has been considered from quite different perspectives, having led to the development of many sub-communities: Complexity theory (limitations), approximation or parameterized algorithms (types of problems), geometric algorithms (subject area), metaheuristics, algorithm engineering, medical imaging (applications), indicates the range of perspectives. Our journal welcomes submissions written from any of these perspectives, so that it may become a forum for exchange of ideas between the corresponding scientific subcommunities.

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### Editor-in-Chief

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