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Theory and Applications of Machine Learning and Artificial Intelligence

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Message from the Guest Editors

Machine learning and artificial intelligence are the next steps forward in making the world safer, better, and more sustainable. To this end, intelligent learners are being used to create optimal designs of decision and control systems that can extract the maximum efficiency from embedded sensor arrays to trigger warnings or shutdowns in addition to automated maintenance and failure analyses. At its crux, machine learning relies on having relevant input data, as well as their processing and fusion, to learn how to map into the desired outputs using numerical models. More often than not these inputs are signals from sensors or observations coming from their analyses, which entail some preprocessing of the observed data. Thus, signal processing plays an important role in many machine learning and decision making applications, and their combined analyses are of great importance to researchers. Therefore, the research topic of machine learning would also include several associated tasks, such as the following: 1) signal processing of multiple sensor data; 2) fusion of the resulting information; and 3) decision making based on the fused information.