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[ISCAIE 2024] Submission Update ID 29

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Submission ID: 29

Title: Fire Simulation and Modelling for Data Centers

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Topic(s): Computational Intelligence

Keywords: Data, data centers, fire detection, fire suppression, machine learning based approach, K Nearest Neighbor, Support Vector Machine and Random Forest Classifier, model simulation

Abstract: Data in our modern world is the most important currency. The whole world works on various kinds of data. It is crucial that this data is safely stored and not lost. Servers come to mind when large data storage is required. Many servers are needed, so server racks are grouped together in buildings - called data centers. Though data centers are typically safe, at anytime disaster can strike. Fires often break out of data centers which are difficult to control. All data in the racks are destroyed. As such, fire modelling in data centers are essential to stop fires from destroying servers. Details of cloud servers, sources of fires, causes of fires and fire detection software is discussed in the background. Fire detection in data center is elaborated in details, with prior systems and modern systems in place today. Fire suppression is then discussed again with prior and modern systems. A machine learning based approach is utilized with the K Nearest Neighbor (KNN), Support Vector Machine (SVM) and Random Forest Classifier (RFC) algorithms. The model is simulated and results recorded. Findings are concluded and plans for future research are discussed.

Comments: