Special Issue

Artificial Intelligence in 3D Fire Modeling and Simulation

Message from the Guest Editors

Artificial Intelligence (AI) is increasingly used in 3D fire modeling and simulation to enhance fire safety, enabling real-time fire prediction, smoke movement analysis, and improved rescue plans. In fact, accurately predicting fire growth and exchanging real-time information about onsite conditions and resources are essential for improving fire risk monitoring and firefighting with increased intelligence and dependability. By using the most recent data communication and modeling techniques to create a functional and interactive virtual representation of real-world items or activities, digital twins offer a potential solution that replicates the geometrical or semantic gualities and behavior patterns of objects. Nonetheless, AI mathematical models. trained on simulated events and real-world data. can predict burning settings, flame dimensions, and spread in real-time scenarios. These models can visualize the 3D fire scene, thus assisting in firefighting and emergency safeguard actions. This is extremely important for critical occurrences with huge smoke layering phenomena.

Guest Editors

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- Dr. João Pedro Matos-Carvalho
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About the Journal

Message from the Editor-in-Chief

Fire is an international open-access journal about the science, policy, and technology of fires and how they interact with communities and the environment. *Fire* seeks to provide a forum to help the fire science community convey how we can live with fire in a changing world. *Fire* seeks submissions from interdisciplinary studies that take a pyrogeography perspective of fires occurring in natural, cultural, and industrial landscapes and how they interact with communities in the science-policy interface. *Fire*'s Editorial Board are widely recognized international leaders. The journal emphasizes quality and innovation and has a rigorous peer-review process. I strongly recommend *Fire* for the rapid publication of your innovative research publications and case studies.

Editor-in-Chief

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