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 qualities 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

Dr. José M. P. do Nascimento

Dr. Houda Harkat

Dr. João Pedro Matos-Carvalho

Dr. Hasmath Farhana Thariq Ahmed

Deadline for manuscript submissions

31 March 2026

Fire

an Open Access Journal by MDPI

Impact Factor 2.7
CiteScore 3.9

mdpi.com/si/237845

Fire
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
fire@mdpi.com

mdpi.com/journal/fire

Fire

an Open Access Journal by MDPI

Impact Factor 2.7
CiteScore 3.9

mdpi.com/journal/fire

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

Dr. Grant Williamson
School of Biological Sciences, University of Tasmania, Private Bag 55, Hobart, TAS 7001, Australia

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), AGRIS, PubAg, and other databases.

Journal Rank:

JCR - Q1 (Forestry) / CiteScore - Q1 (Forestry)

MDPI