Special Issue

Numerical Fluid Flow Simulation Using Artificial Intelligence and Machine Learning

Message from the Guest Editor

The massive computational footprint of numerical simulation models limits their practical use for objectives such as detail analyses, uncertainty quantification, and process optimization. To overcome such limitations, proxy models have been developed in the past several decades. The traditional approaches to developing proxy models include reduced order models (ROM) and statistical response surfaces. Utilizing the pattern recognition capabilities of artificial intelligence and machine learning introduces a paradigm shift on how proxy models are developed. These smart proxy models accurately mimic the performance of highly complex numerical simulation models at speeds that are multiple orders of magnitude faster. Modelling fluid flow that is of high interest in many industries can immensely benefit from smart proxy modelling. The focus of this Special Issue is on the application of smart proxy modelling in computational fluid dynamics (CFD) and numerical reservoir simulation.

Guest Editor

Prof. Dr. Shahab D. Mohaghegh

Department of Petroleum and Natural Gas Engineering, West Virginia University, Morgantown, WV 26506, USA

Deadline for manuscript submissions

closed (30 April 2019)

MDPI

Fluids

an Open Access Journal by MDPI

Impact Factor 1.8
CiteScore 4.0

mdpi.com/journal/
fluids

About the Journal

Message from the Editor-in-Chief

Fluids (ISSN 2311-5521) is an international journal on all aspects of fluids in open access format: research articles, reviews and other contents are released on the internet immediately after acceptance. You are invited to contribute a research article or a comprehensive review for consideration and publication in *Fluids*. The scientific community and the general public have unlimited free access to the content as soon as it is published. Please consider *Fluids* as an exceptional, exciting enterprise ready to reward your trust, attention, and active participation.

Editor-in-Chief

Prof. Dr. D. Andrew S. Rees
Department of Mechanical Engineering, University of Bath, Bath BA2 7AY, UK

Author Benefits

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

High Visibility:
indexed within Scopus, ESCI (Web of Science), Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:
CiteScore - Q2 (Mechanical Engineering)