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Generalized/Extended Finite Element Methods, Meshless Methods and Related Developments in Machine Learning

Guest Editor:

Prof. Dr. Qinghui Zhang
School of Science, Harbin Institute of Technology, Shenzhen 518000, China

Deadline for manuscript submissions:
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Message from the Guest Editor

Dear Colleagues,

In generalized/extended finite element methods and meshless methods, regular meshes or particles that are independent of the non-smooth properties of fundamental solutions are adopted, and the complexity of the resulting mesh generation is reduced significantly. ML methods construct loss functions based on sampling points so that they can also be viewed as instances of MMs. The objective of this Special Issue is twofold. The first aim is to collate the progress made in using GFEMs/XFEMs, MMs, ML, NNs, and PINNs in engineering computations and numerical solutions to partial differential equations. The second aim is to bridge the connection between GFEMs/XFEMs/MMs and ML/NNs to foster potential research directions. All topics related to GFEMs/XFEMs/MMs/ML/NNs are welcome, including but not limited to the following: high-precision algorithms, engineering applications, theoretical and mathematical analysis, nonlinearities, dynamic analysis, large deformations, multi-physics, evolving PDEs, high-dimensional PDEs, optimization, adaptive algorithms, and unfitted mesh methods.

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Prof. Dr. Francisco Chiclana
School of Computer Science and Informatics, De Montfort University, The Gateway, Leicester LE1 9BH, UK

Message from the Editor-in-Chief

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Mathematics Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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