1. Record Nr. UNINA9910367759403321

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Titolo	Machine Learning, Low-Rank Approximations and Reduced Order Modeling in Computational Mechanics / Felix Fritzen, David Ryckelynck
Pubbl/distr/stampa	MDPI - Multidisciplinary Digital Publishing Institute, 2019 Basel, Switzerland : , : MDPI, , 2019
ISBN	9783039214105 3039214101
Descrizione fisica	1 electronic resource (254 p.)
Soggetti	History of engineering and technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	The use of machine learning in mechanics is booming. Algorithms inspired by developments in the field of artificial intelligence today cover increasingly varied fields of application. This book illustrates recent results on coupling machine learning with computational mechanics, particularly for the construction of surrogate models or reduced order models. The articles contained in this compilation were presented at the EUROMECH Colloquium 597, « Reduced Order Modeling in Mechanics of Materials », held in Bad Herrenalb, Germany, from August 28th to August 31th 2018. In this book, Artificial Neural Networks are coupled to physics-based models. The tensor format of simulation data is exploited in surrogate models or for data pruning. Various reduced order models are proposed via machine learning strategies applied to simulation data. Since reduced order models have specific approximation errors, error estimators are also proposed in this book. The proposed numerical examples are very close to engineering problems. The reader would find this book to be a useful reference in identifying progress in machine learning and reduced order modeling for computational mechanics.