

1. Record Nr.	UNINA9910483526703321
Autore	Leke Collins Achepsah
Titolo	Deep Learning and Missing Data in Engineering Systems // by Collins Achepsah Leke, Tshilidzi Marwala
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-01180-1
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (188 pages)
Collana	Studies in Big Data, , 2197-6503 ; ; 48
Disciplina	006.31 519.5
Soggetti	Computational intelligence Big data Artificial intelligence Computational Intelligence Big Data Artificial Intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction to Missing Data Estimation -- Introduction to Deep Learning -- Missing Data Estimation Using Bat Algorithm -- Missing Data Estimation Using Cuckoo Search Algorithm -- Missing Data Estimation Using Firefly Algorithm -- Missing Data Estimation Using Ant Colony Optimization Algorithm -- Missing Data Estimation Using Ant-Lion Optimizer Algorithm -- Missing Data Estimation Using Invasive Weed Optimization Algorithm -- Missing Data Estimation Using Swarm Intelligence Algorithms from Reduced Dimensions -- Missing Data Estimation Using Swarm Intelligence Algorithms: Deep Learning Framework Analysis -- Conclusion.
Sommario/riassunto	Deep Learning and Missing Data in Engineering Systems uses deep learning and swarm intelligence methods to cover missing data estimation in engineering systems. The missing data estimation processes proposed in the book can be applied in image recognition and reconstruction. To facilitate the imputation of missing data, several artificial intelligence approaches are presented, including: deep

autoencoder neural networks; deep denoising autoencoder networks; the bat algorithm; the cuckoo search algorithm; and the firefly algorithm. The hybrid models proposed are used to estimate the missing data in high-dimensional data settings more accurately. Swarm intelligence algorithms are applied to address critical questions such as model selection and model parameter estimation. The authors address feature extraction for the purpose of reconstructing the input data from reduced dimensions by the use of deep autoencoder neural networks. They illustrate new models diagrammatically, report their findings in tables, so as to put their methods on a sound statistical basis. The methods proposed speed up the process of data estimation while preserving known features of the data matrix. This book is a valuable source of information for researchers and practitioners in data science. Advanced undergraduate and postgraduate students studying topics in computational intelligence and big data, can also use the book as a reference for identifying and introducing new research thrusts in missing data estimation.
