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   Autore   Mercère Guillaume

   Titolo   Data Driven Model Learning for Engineers : With Applications to Univariate Time Series / / by Guillaume Mercère

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   Descrizione fisica   1 online resource (X, 212 p. 93 illus., 54 illus. in color.)

   Disciplina   519.55
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   Soggetti   Time-series analysis
   Machine learning
   Statistics
   Time Series Analysis
   Statistical Learning
   Statistics in Engineering, Physics, Computer Science, Chemistry and Earth Sciences
   Enginyeria
   Models matematics
   Processament de dades
   Anàlisi de sèries temporals
   Llibres electrònics

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

   Sommario/riassunto   The main goal of this comprehensive textbook is to cover the core techniques required to understand some of the basic and most popular model learning algorithms available for engineers, then illustrate their applicability directly with stationary time series. A multi-step approach is introduced for modeling time series which differs from the mainstream in the literature. Singular spectrum analysis of univariate time series, trend and seasonality modeling with least squares and residual analysis, and modeling with ARMA models are discussed in more detail. As applications of data-driven model learning become

widespread in society, engineers need to understand its underlying principles, then the skills to develop and use the resulting data-driven model learning solutions. After reading this book, the users will have acquired the background, the knowledge and confidence to (i) read other model learning textbooks more easily, (ii) use linear algebra and statistics for data analysis and modeling, (iii) explore other fields of applications where model learning from data plays a central role. Thanks to numerous illustrations and simulations, this textbook will appeal to undergraduate and graduate students who need a first course in data-driven model learning. It will also be useful for practitioners, thanks to the introduction of easy-to-implement recipes dedicated to stationary time series model learning. Only a basic familiarity with advanced calculus, linear algebra and statistics is assumed, making the material accessible to students at the advanced undergraduate level.