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   Titolo Computer Science in Sport : Modeling, Simulation, Data Analysis and Visualization of Sports-Related Data / / edited by Daniel Memmert

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   Disciplina 796.07

   Soggetti Sports sciences
   Recreation - Equipment and supplies
   Artificial intelligence - Data processing
   Medical informatics
   Quantitative research
   Sport Science
   Sport Analytics
   Sport Technology
   Data Science
   Health Informatics
   Data Analysis and Big Data

   Lingua di pubblicazione Inglese

   Formato Materiale a stampa

   Livello bibliografico Monografia

   Nota di bibliografia Includes bibliographical references and index.

   Nota di contenuto I HISTORY -- History -- II DATA -- Artificial data -- Text data -- Video data -- Event data -- Position data -- Online data -- III MODELING -- Modeling -- Predictive models -- Physiological modeling -- IV SIMULATION -- Simulation -- Metabolic simulation -- Simulation of physiological adaptation processes -- V PROGRAMMING LANGUAGES -- An introduction to the programming language R for beginners -- Phyton -- VI DATA ANALYSIS -- Logistic Regression -- Time Series Data Mining -- Process Mining -- Networks Centrality -- Artificial Neural Networks -- Deep Neural Networks -- Convolutional Neural Networks -- Transfer Learning -- Random Forest -- Statistical learning

for the modeling of soccer matches -- Open-Set Recognition -- VII VISUALIZATION -- Visualization – Basics and Concepts -- VIII OUTLOOK -- Outlook. .

Sommario/riassunto	In recent years, computer science in sport has grown extremely, mainly because more and more new data has become available. Computer science tools in sports, whether used for opponent preparation, competition, or scientific analysis, have become indispensable across various levels of expertise nowadays. A completely new market has emerged through the utilization of these tools in the four major fields of application: clubs and associations, business, science, and the media. This market is progressively gaining importance within university research and educational activities. This textbook aims to live up to the now broad diversity of computer science in sport by having more than 30 authors report from their special field and concisely summarise the latest findings. The book is divided into four main sections: data sets, modelling, simulation and data analysis. In addition to background information on programming languages and visualisation, the textbook is framed by history and an outlook. Students with a connection to sports science are given a comprehensive insight into computer science in sport, supported by a didactically sophisticated concept that makes it easy to convey the learning content. Numerous questions for self-testing underpin the learning effect and ensure optimal exam preparation. For advanced students, the in-depth discussion of time series data mining, artificial neural networks, convolution kernels, transfer learning and random forests offers additional value. The Editor Prof. Dr Daniel Memmert is the executive director and professor at the Institute of Exercise Training and Sport Informatics at the German Sport University Cologne. He is the editor and author of numerous textbooks with a focus on exercise science, sports psychology and informatics. His institute organises two certificate programmes (Game Analysis Team Cologne / Sports Director in Youth and Amateur Soccer) as well as the first international Master's degree programme "Match Analysis".