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Sommario/riassunto

This book, 'Mathematical Modeling and Simulation Introduction for Scientists and Engineers,' provides a comprehensive guide to mathematical modeling and simulation techniques used in science and engineering. It covers the principles of mathematical models, including system definitions, simulation techniques, and the application of differential equations. The book aims to equip scientists and engineers with the necessary tools to tackle complex problems by using mathematical models. With a focus on practical application, the text delves into statistical models, regression methods, and neural networks, offering examples from biology and ecology. The authors also introduce software tools such as OpenFOAM, Python, RStudio, and Maxima to facilitate the implementation of these models. The intended audience includes professionals and students in scientific and engineering fields who require a solid foundation in mathematical modeling.