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Altri autori (Persone)	Bartz-BeielsteinThomas ZaeffererMartin MersmannOlaf
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Sommario/riassunto	This open access book provides a wealth of hands-on examples that illustrate how hyperparameter tuning can be applied in practice and gives deep insights into the working mechanisms of machine learning (ML) and deep learning (DL) methods. The aim of the book is to equip readers with the ability to achieve better results with significantly less time, costs, effort and resources using the methods described here. The case studies presented in this book can be run on a regular desktop or notebook computer. No high-performance computing facilities are required. The idea for the book originated in a study conducted by Bartz & Bartz GmbH for the Federal Statistical Office of Germany (Destatis). Building on that study, the book is addressed to practitioners in industry as well as researchers, teachers and students in academia. The content focuses on the hyperparameter tuning of ML and DL algorithms, and is divided into two main parts: theory (Part I) and application (Part II). Essential topics covered include: a survey of important model parameters; four parameter tuning studies and one

extensive global parameter tuning study; statistical analysis of the performance of ML and DL methods based on severity; and a new, consensus-ranking-based way to aggregate and analyze results from multiple algorithms. The book presents analyses of more than 30 hyperparameters from six relevant ML and DL methods, and provides source code so that users can reproduce the results. Accordingly, it serves as a handbook and textbook alike.
