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	Nota di contenuto	Chapter 1. Mathematical Preliminaries -- Chapter 2. Positive Semidefinite Matrices -- Chapter 3. Euclidean Distance Matrices (EDMs) -- Chapter 4. Classes of EDMs -- Chapter 5. The Geometry of EDMs -- Chapter 6. The Eigenvalues of EDMs -- Chapter 7. The Entries of EDMs -- Chapter 8. EDM Completions and Bar Frameworks -- Chapter 9. Local and Infinitesimal Rigidities -- Chapter 10. Universal and Dimensional Rigidities -- Epilogue.
	Sommario/riassunto	This book offers a comprehensive and accessible exposition of Euclidean Distance Matrices (EDMs) and rigidity theory of bar-and-joint frameworks. It is based on the one-to-one correspondence between EDMs and projected Gram matrices. Accordingly the machinery of semidefinite programming is a common thread that runs throughout the book. As a result, two parallel approaches to rigidity theory are presented. The first is traditional and more intuitive approach that is based on a vector representation of point configuration. The second is

based on a Gram matrix representation of point configuration. Euclidean Distance Matrices and Their Applications in Rigidity Theory begins by establishing the necessary background needed for the rest of the book. The focus of Chapter 1 is on pertinent results from matrix theory, graph theory and convexity theory, while Chapter 2 is devoted to positive semidefinite (PSD) matrices due to the key role these matrices play in our approach. Chapters 3 to 7 provide detailed studies of EDMs, and in particular their various characterizations, classes, eigenvalues and geometry. Chapter 8 serves as a transitional chapter between EDMs and rigidity theory. Chapters 9 and 10 cover local and universal rigidities of bar-and-joint frameworks. This book is self-contained and should be accessible to a wide audience including students and researchers in statistics, operations research, computational biochemistry, engineering, computer science and mathematics.