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Titolo	The Geometry of Intelligence: Foundations of Transformer Networks in Deep Learning // by Pradeep Singh, Balasubramanian Raman
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Collana	Studies in Big Data, , 2197-6511 ; ; 175
Altri autori (Persone)	RamanBalasubramanian
Disciplina	006.3
Soggetti	Computational intelligence Artificial intelligence Telecommunication Machine learning Computational Intelligence Artificial Intelligence Communications Engineering, Networks Machine Learning
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Foundations of Representation Theory in Transformers -- Word Embeddings and Positional Encoding -- Attention Mechanisms -- Transformer Architecture: Encoder and Decoder -- Transformers in Natural Language Processing -- Transformers in Computer Vision -- Time Series Forecasting with Transformers -- Signal Analysis and Transformers -- Advanced Topics and Future Directions -- Convergence of Transformer Models: A Dynamical Systems Perspective.
Sommario/riassunto	This book offers an in-depth exploration of the mathematical foundations underlying transformer networks, the cornerstone of modern AI across various domains. Unlike existing literature that focuses primarily on implementation, this work delves into the elegant geometry, symmetry, and mathematical structures that drive the success of transformers. Through rigorous analysis and theoretical insights, the book unravels the complex relationships and dependencies that these models capture, providing a comprehensive understanding of their capabilities. Designed for researchers,

academics, and advanced practitioners, this text bridges the gap between practical application and theoretical exploration. Readers will gain a profound understanding of how transformers operate in abstract spaces, equipping them with the knowledge to innovate, optimize, and push the boundaries of AI. Whether you seek to deepen your expertise or pioneer the next generation of AI models, this book is an essential resource on the mathematical principles of transformers.

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