

1. Record Nr.	UNINA9911064734103321
Autore	Singh Madhusudan
Titolo	Quantum Minds: Exploring Quantum Computing and AI Synergy : From Qubits to Neural Nets—A Journey into Intelligent Computation // by Madhusudan Singh, Bharat S. Rawal
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2026
ISBN	981-9524-98-9
Edizione	[1st ed. 2026.]
Descrizione fisica	1 online resource (182 pages)
Collana	Artificial Intelligence (R0) Series
Disciplina	006.3
Soggetti	Artificial intelligence Quantum computers Machine learning Artificial Intelligence Quantum Computing Machine Learning
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Quantum Mechanics Primer for Non-Physicists -- Overview of Quantum Computing -- Quantum Computing Keys -- Quantum Circuits -- Executing Circuits on Real Devices -- Quantum Algorithms -- Applications for Quantum Computing -- Quantum Computing with Artificial Intelligence: Introduction -- Quantum Machine Learning: A Primer -- Quantum Enhancements for AI Models -- Optimization and Portfolio Management -- Risk Assessment and Fraud Detection -- Decision-making and Strategy Formulation -- Quantum Hardware Landscape -- Programming Quantum Computers -- Realizing Quantum AI Projects -- Getting Involved in Quantum Computing -- The Future of Quantum Computing -- Quantum AI Trends and Future Outlook.
Sommario/riassunto	This book serves as an accessible yet in-depth introduction to this cutting-edge intersection, where quantum theory and machine learning unite to unlock new computational possibilities. This book is crafted for students, educators, researchers, and forward-looking professionals in STEM and business fields who wish to gain a foundational understanding of Quantum AI. It breaks down complex topics into

digestible concepts, guiding readers through the fundamentals of quantum mechanics, the mechanics of intelligent systems, and the emerging field of quantum machine learning. While tremendous progress has been made individually in both quantum computing and AI, there remains a gap in accessible resources that explain their integration. This book fills that void by presenting a holistic overview of how quantum principles can elevate machine learning processes—offering insights into optimization, modeling, simulation, and data processing at scales previously unimaginable with classical methods. Students gain a valuable interdisciplinary foundation in a rapidly growing area of computing, learning both the technical underpinnings and applied potential of Quantum AI. Educators appreciate the book's structured layout, engaging content, and classroom-ready elements—such as illustrative examples, reflection prompts, and references for further study—that support both conceptual understanding and practical exploration. Whether you're a learner preparing for the next wave of technological disruption or an instructor shaping tomorrow's innovators, quantum minds equips you with the tools to navigate and contribute to the evolution of intelligent, quantum-powered technologies.
