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Nota di contenuto

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Sommario/riassunto

A singular resource for researchers seeking to apply artificial intelligence and robotics to materials science In AI and Robotic Technology in Materials and Chemistry Research, distinguished researcher Dr. Xi Zhu delivers an incisive and practical guide to the use of artificial intelligence and robotics in materials science and chemistry. Dr. Zhu explains the principles of AI from the perspective of a scientific researcher, including the challenges of applying the technology to chemical and biomaterials design. He offers concise interviews and surveys of highly regarded industry professionals and highlights the interdisciplinary and broad applicability of widely available AI tools like ChatGPT. The book covers computational methods and approaches from algorithms, models, and experimental data systems, and includes case studies that showcase the real-world applications of artificial intelligence and lab automation in a variety of scientific research settings from around the world. You'll also find: * A thorough introduction to the challenges currently being faced by chemists and materials science researchers * Comprehensive explorations of autonomous laboratories powered by artificial intelligence and robotics * Practical discussions of a blockchain-powered anti-counterfeiting experimental data system in an autonomous laboratory * In-depth treatments of large language models as applied to autonomous materials research Perfect for materials scientists, analytical chemists, and robotics engineers, AI and Robotic Technology in Materials and Chemistry Research will also benefit analytical and pharmaceutical chemists, computer analysts, and other professionals and researchers with an interest in artificial intelligence and robotics.