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Titolo	Deep Learning and Medical Applications / / edited by Jin Keun Seo
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Descrizione fisica	1 online resource (349 pages)
Collana	Mathematics in Industry, , 2198-3283 ; ; 40
Disciplina	610.28563
Soggetti	Mathematical models Mathematical analysis Mathematics Mathematical Modeling and Industrial Mathematics Analysis Applications of Mathematics Intel·ligència artificial en medicina Aprenentatge automàtic Enginyeria biomèdica Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Image Processing Techniques -- Medical image computing using Computerized Tomography -- Multiphysics imaging modalities using MRI (electrical, mechanical, optical) -- Imaging modalities using electrodes -- Multiphysics imaging modalities using ultrasound and light -- Emerging tissue property imaging.
Sommario/riassunto	Over the past 40 years, diagnostic medical imaging has undergone remarkable advancements in CT, MRI, and ultrasound technology. Today, the field is experiencing a major paradigm shift, thanks to significant and rapid progress in deep learning techniques. As a result, numerous innovative AI-based programs have been developed to improve image quality and enhance clinical workflows, leading to more efficient and accurate diagnoses. AI advancements of medical imaging not only address existing unsolved problems but also present new and complex challenges. Solutions to these challenges can improve image

quality and reveal new information currently obscured by noise, artifacts, or other signals. Holistic insight is the key to solving these challenges. Such insight may lead to a creative solution only when it is based on a thorough understanding of existing methods and unmet demands. This book focuses on advanced topics in medical imaging modalities, including CT and ultrasound, with the aim of providing practical applications in the healthcare industry. It strikes a balance between mathematical theory, numerical practice, and clinical applications, offering comprehensive coverage from basic to advanced levels of mathematical theories, deep learning techniques, and algorithm implementation details. Moreover, it provides in-depth insights into the latest advancements in dental cone-beam CT, fetal ultrasound, and bioimpedance, making it an essential resource for professionals seeking to stay up-to-date with the latest developments in the field of medical imaging.
