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# Computational Radiology for Orthopaedic Interventions

- Discusses the technical and clinical aspects of computational radiology
- Covers intra-operative imaging and computing for orthopaedic procedures
- Incorporates cutting-edge image acquisition technologies such as intra-operative 3D fluoroscopy, ultrasound, and molecular imaging

This book provides a cohesive overview of the current technological advances in computational radiology, and their applications in orthopaedic interventions. Contributed by the leading researchers in the field, this volume covers not only basic computational radiology techniques such as statistical shape modeling, CT/MRI segmentation, augmented reality and micro-CT image processing, but also the applications of these techniques to various orthopaedic interventional tasks. Details about following important state-of-the-art development are featured: 3D preoperative planning and patient-specific instrumentation for surgical treatment of long-bone deformities, computer assisted diagnosis and planning of periacetabular osteotomy and femoroacetabular impingement, 2D-3D reconstruction-based planning of total hip arthroplasty, image fusion for computer-assisted bone tumor surgery, intra-operative three-dimensional imaging in fracture treatment, augmented reality based orthopaedic interventions and education, medical robotics for musculoskeletal surgery, inertial sensor-based cost-effective surgical navigation, and computer assisted hip resurfacing using patient-specific instrument guides. Edited and authored by leading researchers in the field, this work is an essential reference for biomedical engineers, computer scientists and orthopaedic surgeons to develop or use computational radiology approaches for orthopaedic surgery and interventions.

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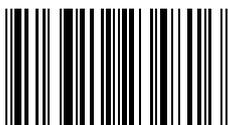
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