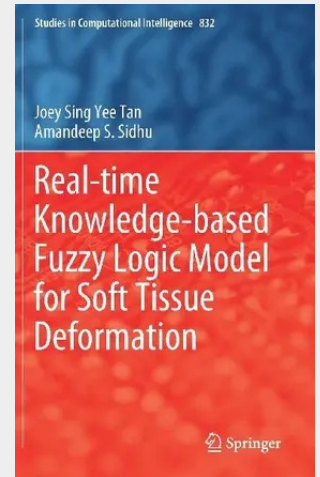


Real-time Knowledge-based Fuzzy Logic Model for Soft Tissue Deformation

This book provides a real-time and knowledge-based fuzzy logic model for soft tissue deformation. The demand for surgical simulation continues to grow, as there is a major bottleneck in surgical simulation designation and every patient is unique. Deformable models, the core of surgical simulation, play a crucial role in surgical simulation designation. Accordingly, this book (1) presents an improved mass spring model to simulate soft tissue deformation for surgery simulation; (2) ensures the accuracy of simulation by redesigning the underlying Mass Spring Model (MSM) for liver deformation, using three different fuzzy knowledge-based approaches to determine the parameters of the MSM; (3) demonstrates how data in Central Processing Unit (CPU) memory can be structured to allow coalescing according to a set of Graphical Processing Unit (GPU)-dependent alignment rules; and (4) implements heterogeneous parallel programming for the distribution of grid threats for Computer Unified Device Architecture (CUDA)-based GPU computing.

This book provides a real-time and knowledge-based fuzzy logic model for soft tissue deformation. The demand for surgical simulation continues to grow, as there is a major bottleneck in surgical simulation designation and every patient is unique. Deformable models, the core of surgical simulation, play a crucial role in surgical simulation designation. Accordingly, this book (1) presents an improved mass spring model to simulate soft tissue deformation for surgery simulation; (2) ensures the accuracy of simulation by redesigning the underlying Mass Spring Model (MSM) for liver deformation, using three different fuzzy knowledge-based approaches to determine the parameters of the MSM; (3) demonstrates how data in Central Processing Unit (CPU) memory can be structured to allow coalescing according to a set of Graphical Processing Unit (GPU)-dependent alignment rules; and (4) implements heterogeneous parallel programming for the distribution of grid threats for Computer Unified Device Architecture (CUDA)-based GPU computing.



106,99 €

99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030155841
Medium: Buch
ISBN: 978-3-030-15584-1
Verlag: Springer
Erscheinungstermin: 19.04.2019
Sprache(n): Englisch
Auflage: 1. Auflage 2019
Serie: Studies in Computational Intelligence
Produktform: Gebunden
Gewicht: 325 g
Seiten: 88
Format (B x H): 160 x 241 mm

