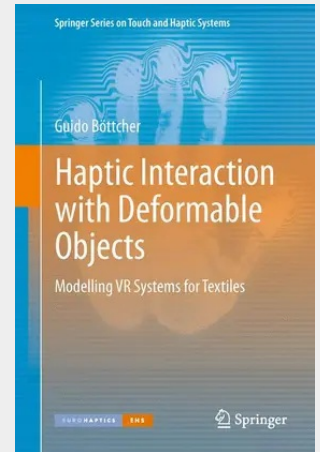


Haptic Interaction with Deformable Objects

Modelling VR Systems for Textiles

The focus from most Virtual Reality (VR) systems lies mainly on the visual immersion of the user. But the emphasis only on the visual perception is insufficient for some applications as the user is limited in his interactions within the VR. Therefore the textbook presents the principles and theoretical background to develop a VR system that is able to create a link between physical simulations and haptic rendering which requires update rates of 1\,kHz for the force feedback. Special attention is given to the modeling and computation of contact forces in a two-finger grasp of textiles. Addressing further the perception of small scale surface properties like roughness, novel algorithms are presented that are not only able to consider the highly dynamic behaviour of textiles but also capable of computing the small forces needed for the tactile rendering at the contact point. Final analysis of the entire VR system is being made showing the problems and the solutions found in the work.

The focus from most Virtual Reality (VR) systems lies mainly on the visual immersion of the user. But the emphasis only on the visual perception is insufficient for some applications as the user is limited in his interactions within the VR. Therefore the textbook presents the principles and theoretical background to develop a VR system that is able to create a link between physical simulations and haptic rendering which requires update rates of 1\,kHz for the force feedback. Special attention is given to the modeling and computation of contact forces in a two-finger grasp of textiles. Addressing further the perception of small scale surface properties like roughness, novel algorithms are presented that are not only able to consider the highly dynamic behaviour of textiles but also capable of computing the small forces needed for the tactile rendering at the contact point. Final analysis of the entire VR system is being made showing the problems and the solutions found in the work



106,99 €

99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780857299345

Medium: Buch

ISBN: 978-0-85729-934-5

Verlag: Springer

Erscheinungstermin: 26.08.2011

Sprache(n): Englisch

Auflage: 2011

Serie: Springer Series on Touch and Haptic Systems

Produktform: Gebunden

Gewicht: 401 g

Seiten: 140

Format (B x H): 160 x 241 mm

