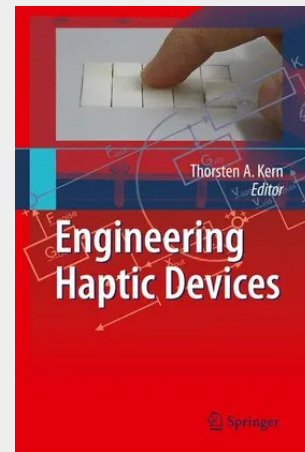


Kern

Engineering Haptic Devices

A Beginner's Guide for Engineers

Tactile perception and haptics are essential for us, as we gain information about structures and surface properties of physical objects by using the sense of touch. Haptics also enables us to manipulate the physical world. The emphasis of this book is put on technologies for artificially deceiving our haptic perception. First, examples and a definition of haptics from a physiological point of view are given. Thereby, one focus is on cases of loss of haptics in everyday professional routine, in order to emphasize the impact of haptics. Then, an overview of products with extraordinary haptic properties leads to a more precise terminology. In the second part of the book, concrete technical aspects of haptic manipulation and manipulators are considered beginning with higher-level subjects like control and kinematics and proceeding with a detailed discussion of actuators and sensors and the interfaces to and from the mechanical environment. In the final chapter fundamental software engineering is introduced, including haptic interaction in virtual reality simulations. "Engineering Haptic Devices" is intended to be a reference book for technologies of haptic relevance as well as a textbook on methods of haptic engineering and applications. It is addressed to students and professionals of engineering disciplines or natural sciences.



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