Tactile Sensing and Displays: Haptic Feedback for Minimally Invasive Surgery and Robotics
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DESCRIPTION

Comprehensively covers the key technologies for the development of tactile perception in minimally invasive surgery

Covering the timely topic of tactile sensing and display in minimally invasive and robotic surgery, this book comprehensively explores new techniques which could dramatically reduce the need for invasive procedures. The tools currently used in minimally invasive surgery (MIS) lack any sort of tactile sensing, significantly reducing the performance of these types of procedures. This book systematically explains the various technologies which the most prominent researchers have proposed to overcome the problem. Furthermore, the authors put forward their own findings, which have been published in recent patents and patent applications. These solutions offer original and creative means of surmounting the current drawbacks of MIS and robotic surgery.

Key features:-

- Comprehensively covers topics of this ground-breaking technology including tactile sensing, force sensing, tactile display, PVDF fundamentals
- Describes the mechanisms, methods and sensors that measure and display kinaesthetic and tactile data between a surgical tool and tissue
- Written by authors at the cutting-edge of research into the area of tactile perception in minimally invasive surgery
- Provides key topic for academic researchers, graduate students as well as professionals working in the area
ABOUT THE AUTHOR

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Dr. Dargahi received his PhD from Glasgow Caledonian University, Glasgow, in the area of "Robotic Tactile Sensing", in 1993. He joined Concordia University, as an Assistant Professor in the Department of Mechanical and Industrial Engineering, in September 2001. He received his tenure and was promoted to associate professor in June 2006. His research areas include: Design and fabrication of haptic sensors and feedback systems for minimally invasive surgery and robotics, micromachined sensors and actuators and teletaction. Dr. Dargahi has published 65 journal and 65 refereed conference papers.

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Saeed Sokhanvar is Senior Project Engineer at Helbling Precision Engineering, Cambridge, MA. Before this he was a PostDoctoral Fellow at MIT. He has received many academic awards and co-authored multiple articles in refereed journals and conference proceedings.

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Prof. S. Najarian is Full-Professor of Biomedical Engineering at Amirkabir University of Technology. He completed his PhD in Biomedical Engineering at Oxford University, and had a post-doctoral position at the same university for one year. His research interests are the applications of artificial tactile sensing (especially in robotic surgery), mechatronics in biological systems, and design of artificial organs. He is the author and translator of 26 books in the field of biomedical engineering, 9 of which are written in English. Prof. Najarian has published more than 170 international journal and conference papers in the field of biomedical engineering along with two international books in the same field.

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