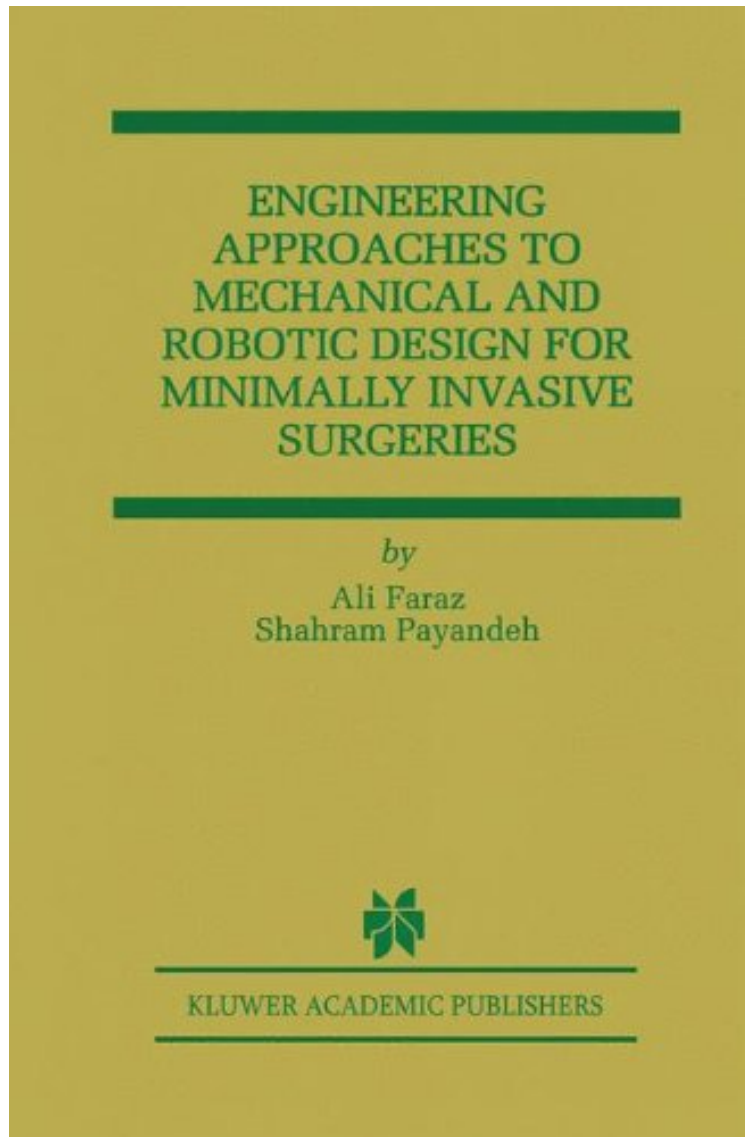


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# Engineering Approaches to Mechanical and Robotic Design for Minimally Invasive Surgery (MIS) (The Springer International Series in Engineering and Computer Science)

*Ali Faraz, Shahram Payandeh*  
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**Ali Faraz, Shahram Payandeh : Engineering Approaches to Mechanical and Robotic Design for Minimally Invasive Surgery (MIS) (The Springer International Series in Engineering and Computer Science)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Engineering Approaches to

Mechanical and Robotic Design for Minimally Invasive Surgery (MIS) (The Springer International Series in Engineering and Computer Science):

0 of 0 people found the following review helpful. a good introduction for laparoscopic, single-port, NOTES device  
By JJ You  
This book is based on the thesis of Ali Faraz. The references collection is well and this book is friendly reading. A 6 joints (DoF) laparoscopic device (Ch2,3); a suture device (Ch4); hepatic sensation (Ch5) are developed, and it is focus on the arm and joint mechanics. Most of the new books, concerning of laparoscopic/robotic devices, will not cited the old references. Inside the abdominal cavity, the limitation of space is quite different with industry robotic arm. The authors introduced some basic problems, and step by step why the model was chosen, the calculation process. I'd specially like page 23: about the PRR (SCARA) model. page 50: concerning about dexterous measurement. page 59: capturing and oriented the needle cost 40-60% time. page 75: sensation near joint/page 135: sampling frequency is around/below 2kHz. page 138: spherical joints got 3 DoF. page 114, p164: 6 DoF Jacobian matrix is complex, the authors cited Waldron method for calculation. Though it is published 10 years ago, it is still a very interesting book. And some of the theory had evoluted, continuous used in single-port, NOTES, and robotic surgery.

Within the past twenty years, the field of robotics has been finding many areas of applications ranging from space to underwater explo rations. One of these areas which is slowly gaining popularity among the users group is the notion of service robotics. This book is an in vestigation and exploration of engineering principles in the design and development of mechanisms and robotic devices that can be used in the field of surgery. Specifically the results of this book can be used for designing tools for class of Minimally Invasive Surgery (MIS). Generally, Minimal Invasive Surgery (MIS), e. g. laparoscopic surgery, is performed by using long surgical tools, that are inserted through small incisions at the ports of entry to the body (e. g. abdominal wall) for reaching the surgical site. The main drawback of current designs of endoscopic tools is that they are not able to extend all the movements and sensory capabilities of the surgeon's hand to the surgical site. By im proving surgical procedures, training, and more practice, it is possible for surgeons to reduce completion time for each task and increase their level of skill. However, even in the best cases the level of performance of a surgeon in Minimally Invasive Surgery is still a fraction of the con ventional surgery. Any dramatically improvement is usually driven by introduction of new tools or systems that in turn bring totally new pro cedures and set of skills.