

Brief Insights on
Medical Robotics

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Book Reviews

“The developing and expanding field of robotics can be deployed into medicine and can revolutionise healthcare in several ways. These emerging technologies have the potential to improve precision and reduce the invasiveness of surgical procedures with a reduction in recovery time and associated cost. It can also substitute limb movement and correct sensorimotor deficits and holds enormous promise, particularly for surgical interventions that require high levels of precision. This concise and simple book by Sina Kahen can summarise and define the goal of improving patient lives through medical robotics and AI.”

- **Mr Peter Domos MD, FRCS (Tr & Ortho), Consultant Orthopaedic Surgeon**

“The issue with the existing literature on Medical Robotics lies in its lack of accessibility to the general audience. The field is saturated with overly complex reports and technical jargon that require extensive knowledge in clinical or engineering research to comprehend. Sina Kahen has successfully crafted an exceptional, concise introduction to medical robotics that is both easily understandable and highly informative. This book serves as a valuable resource for individuals seeking a quick understanding of the sector, and I wholeheartedly recommend it to anyone interested in the subject.”

- **Henry Norton, Host of the Surgibots Podcast**

“Robots have been a topic of excitement for one and all ever since the idea was conceived and have been (and continue to be) the central theme of many popular science fiction novels and movies, as well as endless cartoons and children’s comics. However, despite many advancements and forays into mainstream use in industrial and medical fields, a deeper understanding of robots has for decades been reserved for clever scientists and not for the common man. The author has changed the status quo of this situation with this landmark publication. Now, the

reader does not need any prior special knowledge in this field but can still gain a useful understanding of this topic, relevant to our modern-day living. This book is written in simple language without the use of jargon, and complex issues are explained in a way that anyone can easily understand. It offers a comprehensive overview of the subject of medical robotics, starting with the historical background and application in healthcare, as well as relevant information on regulation, marketing, and future possibilities. This book is an exceptionally well-written and concise book, with relevance to the current state of the NHS. It offers something for everyone, and this book is for you, regardless of your background—whether you are a healthcare provider, scientist, engineer, computer professional, or if you work in management, marketing, or insurance, or even if you are a random person who could be a patient one day and potentially receive the benefits of robotics in healthcare.”

- **Mr Senthil Muthian, MBBS, MS, DNB, MRCSEd, FRCSEd (Tr & Ortho), Consultant Orthopaedic Surgeon**

“This book offers a comprehensive analysis of the Medical Robotics field. Its greatest strength is its accessibility for the younger generation who are technologically inclined, due to the simplicity of the material. It serves as an excellent resource for understanding all aspects of the Medical Robotics field. I particularly appreciate the structured approach that connects topics from history to the current market, as well as future potential. Such a full-scope approach is seldom found, and I'm truly pleased that this book serves as a valuable resource for medical professionals, researchers, and students who are interested in revolutionizing the healthcare industry. Humanity requires such contributions for the betterment of its future.”

- **Ajay Gawade, Researcher, John Hopkins University and Laboratory for Computational Sensing & Robotics (LCSR)**

“This is an excellent guide to the fast-growing medical robotics industry, covering a wide range of topics.”

- **Josef de Pfeiffer, Founder of Surgical Robotics Technology (SRT)**

Preface

Within each of us lies a deep-seated, primal urge to enhance our circumstances and innovate. This instinct has been a driving force behind my own interest in cutting-edge technology, particularly its transformative potential in medicine. Over time, this passion has turned into a fascination for the burgeoning role of robotics in healthcare. But this fascination came with a challenge. As I sought to deepen my understanding, I found the available resources on medical robotics were scarce and often mystifying, tangled in technical jargon and difficult to access. The desire to learn more, but the difficulty in doing so, led to this publication: a concise guide to the past, present, and future of medical robotics, designed for ease of understanding.

Robots and artificial intelligence (AI) have long captivated the minds of professionals, academics, and the general public alike. In the age of rapid advancements in these areas, it is no surprise that these innovations have begun to reshape the realm of medicine. The purpose of this book is to illuminate this exciting journey and offer an accessible and comprehensive guide to understanding the role of robotics in healthcare.

In the following chapters, I will attempt to intertwine historical context, present-day advancements, and future prospects, delving into the numerous facets of medical robotics.

This book is designed to cater to a broad audience. Whether you're a healthcare professional, medical student, medical salesperson, researcher, policymaker, investor, entrepreneur, or merely a curious mind, you will find value in understanding the transformative potential of medical robotics. I aim to demystify the latest advancements and also delve into the ethical, social, economic, and design implications of incorporating robotics into healthcare practices. You can expect to find clear and accessible information about various manifestations of medical robotics, ranging from surgical robots to exoskeletons and companion robots. Additionally, the book will delve into the significance of regulations and standards, the marketing considerations for this new product category, and a glimpse into the future of medical robotics.

Much of the information provided in this book is distilled from my own experience in the commercialisation of a medical robot, supplemented by knowledge gleaned from three significant educational sources: the Biodesign course from Stanford University, the MedTech & AI course from Leeds University, and my MBA from Imperial College, University of London. It is thanks to resources like these that we can collectively participate in and understand the next technological revolution.

My hope is that this book will not only simplify the complex world of medical robotics for you but also instil a deeper appreciation for the potential of innovation in healthcare. May it inspire you to further explore the vast and exciting possibilities that lie ahead.

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About the Author



Sina Kahen has over a decade of experience in healthcare and AI, with roles in international sales, product management, and commercial strategy for established medical device companies and start-ups. His education includes an MBA from Imperial College Business School and a Biomedical Sciences degree from Royal Holloway University of London. Sina is also a published author on philosophy and religion, and a frequent speaker and lecturer on all things AI. He resides in London, England with his wife and two children.

Visit www.SinaKahen.com to stay in touch.