

Preface

The forthcoming fourth industrial revolution era depends on the smooth running of numerous cyber-physical systems (developed and constructed by humans) that deliver a variety of outputs in the form of products and services. Robotic system, as many other systems (e.g., power distribution system, transportation system, communication system, infrastructure system, manufacturing system, health service system, financial system, etc.), is prone to degradation caused by poor maintenance which needs to be carefully addressed, particularly when robots cohabit with humans. Although maintenance was once regarded as a pure engineering activity, it has nowadays moved beyond that constraint and gradually penetrated into every stage of a complex system's life cycle. The aim of this book is thus to categorize the scattered robotic system maintenance relevant literature (scrutinized via intelligent search algorithms) into different compartments. In each compartment, representative smart maintenance avenues for a harmonized human–robot interaction are elaborated. It is hoped that the result of this book could patch the mismatch between theory and practice to some degree which in turn may trigger novel smart maintenance research directions for a blurring human and robot divide.

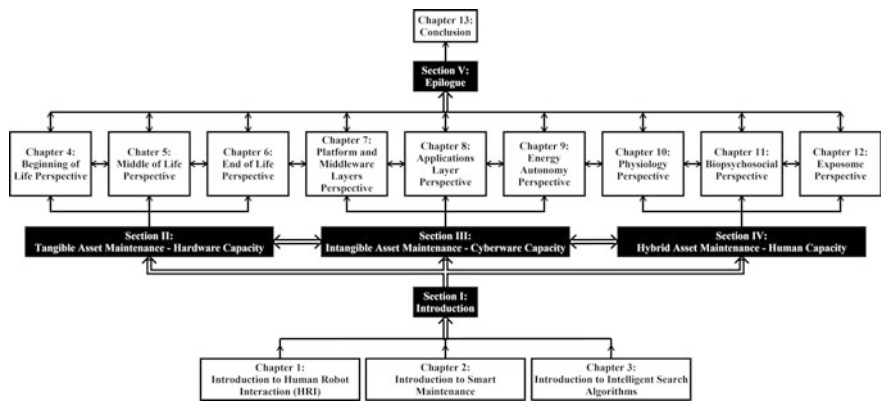


Fig. 1 Interrelationship among the different chapters of the book

Outline

This book consists of 13 chapters which are organized into three parts. The inter-relationship of chapters and sections is illustrated in Fig. 1.

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