

Introduction

The world of mechatronics has evolved rapidly in the two years since the last volume in this series. The introduction of more powerful processors and single board PCs, allowing real-time evaluation and processing of sensor data, for example, has meant that even more data can be processed. This is especially true in the field of machine vision, where it is now possible to manipulate data from high resolution raw video images instead of having to sample via an image grabber, as previously. At the same time, the revolution in micro- and nano- engineering means that mechatronics now encompasses devices that can only be seen through a microscope.

The concurrent evolution of the web has also begun to make its mark on mechatronics and machine vision. Low-cost cameras, originally designed for web communication, are now finding their way into ever more interesting applications, and the adoption of internet protocols and wireless LAN technology is helping to lower the cost of developing mobile robots, as well as remote sensing and control.

These rapid developments are finding their way into manufacturing; one section of this book considers the recent development of integrating intelligent sensors and actuators into the production process itself. Another section looks at similar developments in manipulator design.

Probably the most exciting area of this evolution is the emergence of mechatronic and vision technologies into agriculture and food processing. Although these are early days, the coming few years will see an explosion of applications 'down on the farm'. If just some of these developments meet their promised potential then 21st century agriculture will look nothing like that of the past century.

All of these changes, and more, are reflected in the papers collected in this book; the editors are convinced that the words 'Current Practice' in the title are an accurate description of the contents. The book is divided into six sections, roughly reflecting the developments mentioned above. Inevitably, it has been impossible to bundle all the papers into neat groupings, as subject matter in this area is very broad. Consequently, the section headings are for guidance and convenience only. We hope that you find the papers stimulating, as well as interesting.

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