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Introduction to Section B of the special issue: languages and software in robotics

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Section B of the special issue contains four papers dealing with diverse topics, viz. rehabilitation robotics applications, a software package for an automatic symbolic modelling of robots, the use of symplectic geometry, and the treatment of the Distributed Manipulation Environment method. This completes the wide review of various techniques and theoretical approaches aiming at solving the difficult problems of conventional robotics in the real world.

The first paper of this section presents the planning and structure of four rehabilitation robotics implementations which reflect a wide range of interface concepts for users of devices aimed at assisting persons with disabilities.

An important contribution to the symbolic modelling of robots is discussed in the second paper by Khalil and Creusot. The software package, SYMORO+, enables one to generate geometric models of various kinds. The authors survey the algorithms used in different models, as well as the computational cost in actual applications involving a PUMA robot.

The penultimate paper by Tar et al. introduces the concepts of symplectic geometry and canonical transformations when used to control some systems in an unmodelled environment. The results obtained are still in a preliminary stage and further investigations are in progress.

The final paper discusses the concept of Distributed Manipulation Environment as applied to robotics and flexible automation. This leads to a robust and simple control scheme.

It is hoped the two sections of the special issue in the two parts of volume 15 will shed a great deal of light in an area that is fraught with considerable practical difficulties. No doubt, other concepts will be introduced in order to increase the range of applications of robotic devices in industry, medicine, transport and other areas.

I wish to take this opportunity of expressing my thanks to the editor, authors, reviewers of the papers and Printers for their helpful cooperation and goodwill.

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