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Editorials

'I dipt into the future as human eye can see
Saw the vision of the world and all the wonder that would be'

Tennyson

Robotica is now entering upon a second decade of its existence with a change from a quarterly into a bimonthly, while preserving its essential character as 'an excellent focal point for a diversity of disciplines with a fine cutting edge' (*Vide* Editorial by F.H. George, *Robotica* **1**, Part 2, 62, 1983), all aiming at advancing the concepts and practice of automation in general, and robotics in particular. As mentioned by the outstanding pioneer of robotics, J. F. Engelberger in the first issue of the journal in January 1983, *Robotica* has 'a broad charter without barriers to any class of relevant contributions, since robotics is so very multidisciplinary'.

On looking back at *Robotica*'s activities, it is satisfying to note the adherence of the publication to the aims stated above. The statistics are quite impressive: Over 350 papers contributed by active and dedicated research workers, academics and industrial personnel of many countries, covering a wide spectrum from artificial intelligence aspects in automation to robot vision, without excluding social and economic considerations, or sacrificing depth of treatment or coverage in any particular field. In addition, four special issues published in 1984–87 ('FMS', 'CAD Tools in Robotics', 'Artificial Intelligence in Production Engineering and Automation', 'Robot Vision') emphasized the commitment of *Robotica* to its original aims and principles. Furthermore, nearly 200 reviews of books, many conference reports and other useful features formed a valuable addition to the armoury of multidisciplinary robotics. Finally, the occasional R. & D. Profiles of robotics research institutions, and the comprehensive and informative Reports and Surveys sections in each issue of the journal made it possible to obtain a complete picture in depth of the advance of robotics worldwide. Indeed, in order to accommodate this wealth of information about progress it was necessary to double the number of pages in each issue, and now to convert the quarterly into a bimonthly.

A decade is a long time in robotics. Many dreams have been put into practice, and much dross and exotic claims jettisoned on the way. While Disraeli's dictum that 'the mystery of mysteries is to view machines making machines' is now a reality, there is still a considerable distance to traverse to reach H.G. Wells' vision of a world in which 'there will be little drudgery, and natural power harnessed in machines will be the general drudge'. There is still much room for profound discovery and even startling invention. Though great progress has been achieved in automation in the last two decades, there is still some way to go in the realm of flexible quasi-complete automatic control, navigation in hostile or unknown environments, robotic vision, fuzzy control and other areas. It is our intention to act as a catalyst for advancing this process of generating new ideas and their realization in practice in these closing years of the twentieth century, bearing in mind Walter Bagehot's saying that 'the greatest pain to human nature is the pain of a new idea'. It is intended to continue our successful policy of providing a comprehensive balance of peer reviewed papers from many countries in order let our readers obtain an accurate picture of current worldwide activity in robotics without fancy dreams and obtuse mathematical treatment of no particular significance, masquerading as academic research.

It would be remiss of me not to mention in this anniversary issue the valuable and constructive efforts made by our patient referees of papers, helpful members of the Editorial Board (past and present), and reviewers of books. In particular, I wish to express my sincere thanks to the past and present Deputy Editors who have rendered loyal and efficient service to the journal and thus enable us to achieve our aims. Finally, my thanks are due to the Publishers, Cambridge University Press, and its staff for their

valuable help and patience and to the printers, Belfast Universities Press, for their co-operation and goodwill.

J. Rose
Editor

WHERE IS MY ROBOT BUTLER?

It has been a decade of progress in our field; we have seen steady improvements in our techniques, many chronicled in these pages. Yet, we expected more; where are the revolutions in manufacturing, or the machines that can replace people? Where is my robot butler? This may be a predictable disappointment when an enthusiastic young discipline meets the slow reality of scientific progress. Still, we may ask if we have yet addressed the right issues. Looking over the last decade of publications in *Robotica* and its companion journals, one thing stands out missing in our articles: fundamental theory. This is a field in which elegant mathematical gymnastics pass as true theory, and in which successful, but *ad hoc*, new ideas are received as basic progress. What is missing, to start with, is a true *semantics* for autonomous systems, not a semantics for humans designing autonomous systems. It is not enough that we have a clear notion what *we* mean by such things as "goal", "planning", "object", "action", and the like, nor is it enough that our programs implicitly embody the *programmer's* understanding of them. It is necessary that our machines explicitly represent the semantics of such concepts for themselves. The fundamental issue here is representation of meaning in terms of machine actions and machine sensing. This is a necessary precondition for a real theory of autonomous systems. Only then will we be on the road to creating intelligent machines, rather than putting some of our intelligence into a machine. Only then will I get my robot butler.

E.W. Kent
Deputy Editor (The Americas)

As a professional (male) *pythoness*, a modern version of a priestess of Apollo in ancient Delphi, let me give you the contents of *Robotica* Volume 110, Part 1, published in 2091 A.D.

1. An example of software treatment for the robot disease known as loss of memory.
2. Why robots have fired the last workmen in a car factory of General Motors?
3. A new robot model designed by robots.
4. Robot and man intelligence: A comparison in applications of house building.
5. A new method to be sure your robot has corrently understood your oral orders.
6. Electronic war: How robots succeeded in escaping military police investigations.
7. Robotized car driving: Next year it will be forbidden to have a human driver in domestic cars.

Joking apart, I am convinced that almost all these subjects will be very much up to date on the closing decade of the 21st century and that *Robotica*, carrying on its excellent activity, will reach one million readers, as well as a premier journal devoted to robotics.

My only apprehension is a replacement of the editorial board by robots!

Long life to *Robotica* and congratulations to professor Rose for his hard and successful work during the ten past years.

Ph. Coiffet
Deputy Editor (Europe)

The founder and editor, Professor Rose, can be justly proud of the decade of outstanding success of this journal. Initially, there was some doubt whether it could be sustained and good contributions were not easily obtained from a field that seemed

uncertain of its own future, but thanks to the dedication and enthusiasm that has characterised the Editor's involvement, success was ensured.

Thus the tenth volume anniversary would not be complete without a tribute to his foresight and our thanks are given for his untiring efforts in maintaining such high standards in both the quality of the published contributions and in their actual presentation and printing.

It is easy to forget that when the journal was first published the attitude of the public, and of scientists in general, was one of scepticism to a world of automation and robots which was seen as a sort of science fiction in which Karel Capek's universal robots existed. At the same time the second, or perhaps, yet another computer revolution, was in progress and the public's thirst was soon to be whetted by the new and more fashionable robotics revolution. Scientists and engineers from the traditional disciplines became converted to the new interdisciplinary study and any new publication in the field had to set a delicate balance between the practical and the theoretical approach to automation and robotics. Not only did the journal receive the necessary practical support by way of subscriptions, but also worthwhile contributions from industry and academia, without which it could not have continued. The struggle to obtain such contributions is long since over and now more issues are needed to satisfy the demand for high quality articles and papers. One of the more enlightened features of its editorial policy has been that of featuring the development of automation systems rather than concentrating on individual devices which may or may not have useful applications.

The outmoded industrial process may be improved by the installation of an individual robot, but it is only revolutionised when an automation system takes over its functions.

In contrast to the day of its inception we now celebrate the existence of a publication that enjoys the confidence of people who work in this area and one which has made a major contribution to the advancement of this new and exciting field of robotics and automation.

B.H. Rudall
Section Editor

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