Recently published books and new periodicals may be submitted for review to the Book Reviews Editor:

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B80-5 Robotics Age—Robotics Pub. Corp. (PO Box 801, La Cañada, CA 91011; Quarterly, $8.50/year, $16/two years).

In the last 20 years, the number of publications has increased so dramatically that one is tempted to ignore them all rather than sift through myriad pages, gleaning substance from between the lines. So it is not surprising that my reaction to hearing that another periodical was making its debut was less than mild enthusiasm. Although keenly aware of the need for complete yet concise material on robotics, I could not help but think that this journal would be just another addition to the layers of shelf-cluttering, dust-gathering landfill which has overrun the markets in recent years. But the moment I opened the cover, I realized that this magazine was unique, in that it ushered in a new era in man's history—the age of robotics.

The first issue [Summer 1979] begins with John Craig's "Digital Speed Control of DC Motors"—undoubtedly the most entertaining and informative article in the issue from a hobbyist's point of view. After briefly introducing the principles of feedback control, Craig presents an inexpensive servomechanism which uses a phase-locked loop to attain an amazing degree of accuracy. The servocircuit—consisting of only five ICs, a few discrete components, a motor, and an encoder—is said to be capable of regulating the motor to within 0.02 percent of the commanded speed. Since encoders are generally too expensive for the average hobbyist's budget, Craig describes a simple optical-to-TTL device which can be built with a photo-diode and a slotted wheel. The article serves as an excellent introduction to one of the most basic robot functions, locomotion.

The second article, "Industrial Robotics '79," briefly reviews some of the more significant papers presented at the International Symposium on Industrial Robots. This article, like many of the articles, was written anonymously by an author who is either very humble or very embarrassed. A nonstop barrage of overly succinct material drawn from 51 technical papers, this article quickly becomes monotonous and dry. Were it not for the figures carefully dispersed throughout the pages, I am sure many serious readers would find themselves in the proverbial infinite loop—didn't I just read this line? To be fair, this overview of the ninth ISIR is informative, despite the awkward condensation.

Machine vision is one of the most pressing and relevant topics in robotic research today, so it is appropriate that the first issue of a periodical devoted to robotics should include a survey of visual sensory input. Presented as the first in a series, "Introduction to Robot Vision" by Alan Thompson considers both the practical and theoretical aspects of visual perception. Beginning with the basic elements of machine vision—the raw
video image, conversion techniques, pixels, and gray scale—Thompson progresses to low-level processing such as edge detection and region growing, and then smoothly transitions to image recognition through template-matching and model-matching techniques. Using actual systems as a medium to convey the central themes, the article maintains credibility while simultaneously introducing the reader to some of the aspects of vision research at JPL, GM, and SRI International. While not intended as a complete survey, the article is nevertheless of sufficient scope and depth to introduce the reader to the fundamentals of machine vision.

The fourth and last article considers a simple three-axis manipulator called the “GRIVET Series-2,” which can position its end effector in three Cartesian dimensions without the trigonometric calculations normally associated with angular joints. Clearly aimed at the novice roboticist, this article illustrates many of the fundamental problems associated with manipulator design and control. Although the mechanical arm is rather unsophisticated and of limited application, the quality of the ideas expressed in the article makes it a must for the hobbyist embarking on his first home-built manipulator.

The remainder of the magazine includes a short piece on robotics in the Soviet Union, a section presenting technical abstracts of recent work done in the field, a number of book reviews, and a section on new products related to robotics. Indeed, if the quarterly continues to survey the relevant products and technical abstracts as completely as it does in the first issue, Robotics Age would be well worth reading just to stay abreast of the latest technological developments.

There is little doubt in the minds of those close to the field that robotics will experience an explosive growth in the next decade. This excellent magazine undoubtedly will function as more than a mere witness to this growth—it will be a catalyst. I have my subscription in. Do you?

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