About This Issue

I am pleased to present this issue, most of which is devoted to a single subject—Spatial Reasoning. Our guest editor is Avi Kak, of Purdue University. Avi called me in the Summer of 1987, very enthused about a workshop he had recently attended. He proposed that several of the best presentations at the workshop could, if appropriately expanded and edited, become important contributions to the AI literature, and suggested a special issue of the *AI Magazine* for their presentation. The idea of a "theme issue" on spatial reasoning sounded like a winner to me. I asked Avi to take the responsibility for selecting and editing the articles, and he agreed. The five articles published herein are the result of his conscientious effort.

We also round out the issue with the final installment of Steven Frank's discussion of AI and the law, and a comprehensive report, prepared by Bill Swartout, on an AAAI-sponsored Planning Workshop, held last year.

Spatial reasoning, like natural language understanding, is something that we humans can do almost effortlessly, yet is one of the most difficult tasks to automate. Why is that? My own opinion is that the task, like language understanding, is essentially knowledge-based, and not a matter of special hardware in the brain. However (again like language understanding), that knowledge is accumulated over a lifetime of experience, and becomes compiled knowledge that resists introspection. Because the knowledge is potentially "open-ended" (i.e., almost any aspect of the experienced world might be relevant to the problem at hand), progress will come first in the form of systems that solve specialized problems in restricted spatial domains. Generalized tools and representation techniques are in an early stage of development. We will have to wait for a few more special-purpose successes before we can see if such generalizations are really possible.

The five articles in this issue should give the reader a pretty good perspective on where we are today in the very challenging field of spatial reasoning.