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## EDITORIAL

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This special issue, *Recent Advances in Approximate Reasoning*, presents six papers which were carefully selected from many papers presented at the Second IFSA (International Fuzzy Systems Association) Congress held in Tokyo, Japan from July 20 to 25, 1987.

Of the many fields in both the fundamentals and applications of fuzzy theories, fuzzy inference or approximate reasoning is considered as a key concept, and recently, remarkable advances have been made in fundamental theories for fuzzy inference. The papers in this special issue mark some of these milestones.

In two-valued logic, the inference mechanism and its interpretation, which are clear and simple but are far beyond our everyday reasoning, are determined uniquely. However, once we attempt to extend the inference mechanism and its interpretation to the fuzzy environment, or once we try to acquire a method of approximate reasoning which reflects our everyday reasoning involving ambiguity, we realize that there are many directions in which the inference mechanism and its interpretation can be extended. We also find that there are many feasible methods of approximate reasoning based on how the ambiguity in a system is represented and manipulated.

Obviously we must establish sound theories for approximate reasoning. The criteria for extending the two-valued inference mechanism to the fuzzy inference mechanism are: first, that the interpretation of the method of treating ambiguity should appeal to our everyday intuition; and second, that the system to be constructed using this method should be useful in and applicable to our everyday life.

In light of these challenges, each of the six papers in this special issue is interesting because it proposes a new interpretation of ambiguity and a new inference mechanism for treating ambiguity. Sound and practical theories for approximate reasoning can only be established through fundamental research about the issues discussed in these six papers.

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