Natural-Language Processing

Guest Editors:
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PROCESSING NATURAL LANGUAGes such as English has always been one of the central research issues of artificial intelligence, both because of the key role language plays in human intelligence and because of the wealth of potential applications. Many of the knowledge-representation and inference techniques that have been applied successfully in knowledge-based systems were originally developed for processing natural language, but the language-processing applications themselves have always seemed far from being realized.

This special series on natural-language processing is an attempt to bring language processing and its applications into focus — to demonstrate techniques that have recently been applied to real-world problems, to identify research ripe for practical exploitation, and to illustrate some promising combinations of natural-language processing with other emerging technologies. Each of the four articles in the series provides some insight into the state of the art and conveys the practical significance of recent research in the field.

Ronnie Smith addresses a critical issue in language processing: the need to deal with language beyond the level of individual sentences. In much of human language processing, and in many potential applications of natural-language processing, language is used in a dialogue in which control (or *initiative*) shifts between the participants. Smith presents some new techniques that should open the door to practical applications involving mixed-initiative, human-computer dialogues.

Minhwa Chung and Dan Moldovan describe a system that uses parallel processing techniques to understand natural language. In addition to the theoretical and practical significance of merging the two technologies, this work demonstrates some of the research done for DARPA's Message Understanding Conferences. MUC systems are subjected to a common, objective evaluation using a large corpus of real-world data.

In the April issue, Oliviero Stock will describe how processing natural language fits into another emerging technology: multimedia. Here, two human-computer interfaces exploit some of the nonverbal communication methods, such as pointing, that people often use to complement natural language.

In a future issue, Eli Goldberg, Richard Kittredge, and Norbert Driedger will describe a natural-language system that is being used in Canada to generate weather reports in both French and English.

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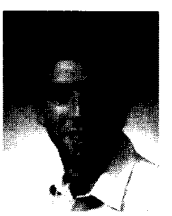

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