

# AI AT WORK

Guest Editors

**Jan Aikins, Trinzic Corporation  
Bernadette Kowalski-Minton,  
Academic Systems Corporation**

A change of title accompanied a change in focus for CAIA '92: The Conference on AI Applications became the *Conference on AI for Applications*. The next five articles not only represent some of the best work from that gathering, they also demonstrate the conference's new emphasis: Each of them offers a persuasive look at how AI technology can be used to build or enable a useful application.

Tej Anand and Gary Kahn's system produces English-language reports, plus graphs, tables, and so on, to make sense of the masses of data accumulated via scanners at supermarket checkout counters. The system, which has been commercially available for two years, uses expert heuristics, plus selection and generation rules.

Uwe Nonnenmann and John Eddy's prototype system automates the functional testing of telephone switching software by translating English-language test cases into a formal testing language, and then correcting and extending those cases.

Robert Paasch and Alice Agogino's automated diagnosis system was designed to monitor a complex particle detector used in nuclear physics. The detector has since become obsolete, but the researchers' multilevel model-based approach could be scaled to handle many kinds of large detector systems.

Monika Pfau-Wagenbauer and Wolfgang Nejdli's system uses both model-based and heuristic reasoning to determine the relative importance of alarms in a power distribution network and to locate and identify network disturbances. The system has been in use for more than two years.

R. Bharat Rao and Stephen Lu's prototype system discovers equations in engineering domains. Their algorithms take advantage of the synergy between discovering the mathematical relationships inherent in a set of data and partitioning the data according to discovered relationships.

We believe you will find these five papers thought-provoking, and we hope you can apply some of their ideas to your own AI applications.

Jan Aikins is vice president of technology at Trinzic Corporation, a member of *IEEE Expert's* editorial board, head of the magazine's Industry Advisory Board, and program cochair of CAIA '92. She received her PhD in computer science from Stanford University in 1980. Aikins can be reached at Trinzic Corp., 101 University Ave., Palo Alto, CA 94301.

Bernadette Kowalski-Minton works at Academic Systems Corporation, where she is developing multimedia mathematics courseware for college students. Her research interests include the use of machine learning and student modeling techniques in intelligent tutoring systems. She received her MS in computer science from Carnegie Mellon University. Kowalski-Minton can be reached at Academic Systems Corp., 444 Castro St., Suite 1200, Mountain View, CA 94041.