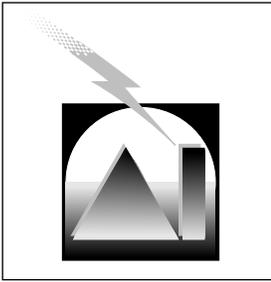


Editorial Introduction to this Special Issue of AI Magazine

The Twelfth Innovative Applications of Artificial Intelligence Conference (IAAI-2000)

Robert Englemore (Program Chair) and Haym Hirsh (Program Cochair)

The Twelfth Innovative Applications of Artificial Intelligence Conference was held 1 to 2 August 2000, in Austin, Texas. As in past years, papers were solicited in two categories: (1) deployed applications and (2) emerging applications and technologies. *Deployed applications* are systems that have been in use for at least several months by individuals or organizations other than their developers, have measurable benefits, and incorporate AI technologies. *Emerging applications* are systems that are close to deployment and clearly show an innovative implementation of AI technologies. Papers submitted in this track can also describe efforts that examine the utility of different AI techniques for specific applications. All these case studies are of value not only to other application developers looking for guidance in applying various techniques to their own applications but also to researchers who need to understand the technical challenges provided by real-world problems.

Six deployed applications and 12 emerging application papers were presented plus 2 invited talks. Although no single theme emerges from this panoply of excellent applications, they served to demonstrate that the field continues to be fertile ground for innovation. Deployed application areas covered financial modeling, e-mail moni-

toring, nurse scheduling, personalized TV guides, medical coding, and a development environment for artists. Emerging applications explored a variety of techniques, such as heterogeneous data integration, semantic networks, content-based retrieval of three-dimensional scenes, speech input for information access, multimodal dialog, machine learning in engineering design, ontologies, agent models, and case-based reasoning.

In this special issue, we selected six of the papers, including one of the invited talks, and asked the authors to expand their conference presentations to provide more explanatory material. We believe these articles are representative of the current state of the art in innovative applications of AI. The first paper, by John Laird and Michael van Lent, "Human-Level AI's Killer Application: Interactive Computer Games," was presented as an invited talk and argues that the increasingly complex and realistic worlds of computer games offer an unprecedented opportunity to experiment with techniques for exhibiting human-level AI.

"SciFINANCE: A Program Synthesis Tool for Financial Modeling," by Robert L. Akers, Ion Bica, Elaine Kant, Curt Randall, and Robert L. Young, might well be the most sophisticated demonstration to date of the power of program synthesis (once called automatic programming). The SciFINANCE

tool permits financial analysts to develop models of financial risk management an order of magnitude more quickly than with conventional programming.

"An Innovative Application from the DARPA Knowledge Bases Programs: Rapid Development of a Course-of-Action Critiquer," by Gheorghe Tecuci, Mihai Boicu, Mike Bowman, and Dorin Marcu, describes a critiquing agent for military courses of action, a challenge problem set by the Defense Advanced Research Projects Agency's (DARPA) High-Performance Knowledge Bases Program. Murray Burke, the DARPA manager for this program, introduces the article by setting the context for the application. The system is a successful integration of knowledge acquisition, learning, and problem-solving methods within an agent shell and makes use of an ontology imported from the cyc effort. Ontologies also play a key role in the creation and management of a web portal developed by Steffen Staab and his colleagues at the University of Karlsruhe, discussed in their article, "Knowledge Portals: Ontologies at Work."

"LIFE CODE: A Deployed Application for Automated Medical Coding," by Daniel T. Heinze, Mark Morsch, Ronald Sheffer, Michelle Jimmink, Mark Jennings, William Morris, and Amy Morsch, uses natural language process-



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ing and expert system techniques to intelligently extract demographic and clinical information from free-text medical records and produce coded information that is appropriate for an electronic medical record system.

"Personalized Electronic Program Guides for Digital TV," by Barry Smyth and Paul Cotter, attacks the information-overload problem by showing how one can personalize a system to give its user the right information at the right time, on the display system of his/her choice (PC based, web application protocol based, and so on).

We believe these six articles are representative of current-day applications that are making or soon might make a difference in the lives of people who

are not AI practitioners. In all these applications, AI technology plays an important but not necessarily dominant role; system integration and input-output design are often the major implementation concerns. Nonetheless, without the previous decades of research and development in AI, few if any of these applications would be possible today. We in the AI community can take pride in these innovative applications and look forward to even more fascinating uses of our technology in the future.

Acknowledgments

We thank the authors for their efforts in rewriting and expanding their conference papers. We also thank the

IAAI-2000 program committee members for their help and expertise in the selection of the papers and invited talks presented at the conference: Bruce Buchanan, Steve Chien, Usama Fayyad, Neil Jacobstein, Philip Klahr, Alain Rapaport, Charles Rosenberg, Ted Senator, Reid Smith, Shirley Tessler, Sam Uthurusamy, and Marilyn Walker. Thanks also to the office staff of the American Association for Artificial Intelligence for their tireless and cheerful help and to David Leake and Mike Hamilton of *AI Magazine*.