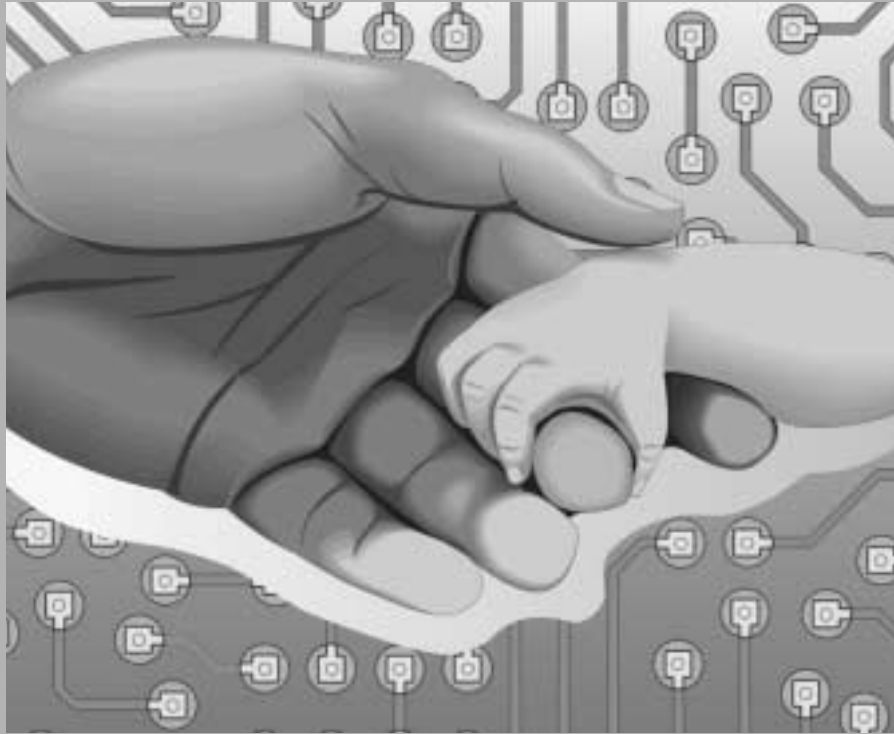


Insert Honeywell Ad

# Safe and Sound

Artificial Intelligence in Hazardous Applications



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John Fox and Subrata Das

Computer science and artificial intelligence are increasingly used in the hazardous and uncertain realms of medical decision making, where small faults or errors can spell human catastrophe. This book describes, from both practical and theoretical perspectives, an AI technology for supporting sound clinical decision making and safe patient management. The technology combines techniques from conventional software engineering with a systematic method for building intelligent agents. The book also covers a number of general AI problems, including knowledge representation and expertise modeling, reasoning and decision making under uncertainty, planning and scheduling, and the design and implementation of intelligent agents. The book includes a wide-ranging discussion of intelligent and autonomous agents, with particular reference to safety and hazard management, as well as a detailed discussion of the knowledge representation and other aspects of the agent model developed in the book, along with a rigorous formal treatment of the model.

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# AAAI News

## Spring News from the American Association for Artificial Intelligence

### AI Journal Online Access

AAAI is delighted to announce the launch of a fantastic new benefit for its regular members. In cooperation with Elsevier Science Publishers, AAAI is offering its regular members an opportunity to enjoy unlimited access to the online version of the *AI Journal*. AAAI regular members can view and browse tables of contents, view articles published in recent issues of *AI Journal*, and use the current features available through Elsevier's electronic journal service. They can also view, print, and/or download excerpts of reasonable quantity, provided that the use of such excerpts is personal and does not amount to or result in commercial distribution. Participation in this experimental program is included in your normal AAAI membership dues. AAAI and Elsevier will be working together during the coming months to assess its value and success. If all goes well, we hope to continue this cooperation next year and beyond.

If you are a current regular member and have not received your Reader Key and Instructions for accessing the online *AI Journal*, please contact membership@aaai.org for more information.

### IJCAI-01

Registration information for the Seventeenth International Joint Conference on Artificial Intelligence (IJCAI-01) will be available in March by writing to ijcai@aaai.org or at www.ijcai-01.org. Copies of the IJCAI-01 registration brochure are being mailed to all AAAI members. Please note that the deadline for early registrations is June 1, 2001.

The conference will be held August 4–10, 2001, at the Washington State Convention and Trade Center and the

Sheraton Seattle Hotel and Towers in Seattle, Washington. IJCAI-01 will feature 20 tutorials, 29 workshops, the Innovative Applications of Artificial Intelligence, the Mobile Robot Competition and Exhibition, RoboCup 2001, the AAAI/SIGART Doctoral Consortium, and the National Botball Finals. IJCAI-01 is cosponsored by AAAI.

Invited talks include "Multimodal Interaction: Principles, Practice, Impact, and Challenges" by Philip R. Cohen, Center for Human-Computer Communication, Oregon Graduate Institute; "Plausibility Measures: A General Approach for Representing Uncertainty" by Joseph Y. Halpern, Cornell University; "The Challenges and Advances in Teams of Autonomous Agents in Adversarial Environments" by Manuela Veloso, Carnegie Mellon University; and "Robust Translation of Spontaneous Speech: A Multiengine Approach" by Wolfgang Wahlster, German Research Center for Artificial Intelligence (DFKI), Germany. There will also be a Distinguished Paper Track, highlighting recent papers from international conferences in various subfields of AI.

Several other special events will take place in addition to the technical program, including a keynote address entitled "AI in the Computing Experience: Challenges and Opportunities" by Bill Gates, Microsoft Corporation; a talk by David G. Stork, Ricoh California Research Center and Stanford University entitled "The HAL 9000 Computer and the Vision of 2001: A Space Odyssey"; and two special evening events. The Opening Reception will be held at the Museum of Flight, and the conference banquet will be held at Tillicum Village, located on Blake Island in Puget Sound. Please watch the IJCAI-01 web site (ijcai-01.org) for updated information about these and other special events.

### Seattle: The Emerald City

Built on seven hills, with unmatched mountain and water views, the wealth of natural beauty in and around Seattle astonishes first-time visitors. Bounded on the west by Puget Sound, an inland arm of the Pacific Ocean, and on the east by Lake Washington, the city occupies a north-south corridor, slender at the waist, with hundreds of miles of salt and freshwater shoreline literally touching the city's boundaries. The Cascade mountain range is east of the city, and the Olympic Mountains are to the west. Thousands of square miles of evergreen forest extend out from the city, and on a clear day, the views of mountains and water are spectacular.

The Washington State Convention and Trade Center is located in the heart of the city, within walking distance of many of Seattle's best-known attractions, which include the Space Needle, Pike Place Market, Pioneer Square, Woodland Park Zoo, Waterfront, Ballard Locks, and the new Experience Music Project. The monorail speeds quickly between downtown and the Seattle Center (site of both the Space Needle and the Experience Music Project). For more information about what is happening in Seattle, please visit [www.seattleinsider.com/partners/seeseattle/](http://www.seattleinsider.com/partners/seeseattle/).

### Collocated Events in Seattle

IJCAI will welcome three collocated events in Seattle:

- The Thirteenth Conference on Innovative Applications of Artificial Intelligence (IAAI-01)—August 7–9, 2001  
[www.aaai.org/Conferences/IAAI/2001/iaai01.html](http://www.aaai.org/Conferences/IAAI/2001/iaai01.html)
- The Conference on Uncertainty in Artificial Intelligence (UAI 2001)—August 2–5, 2001  
[robotics.Stanford.edu/~uai01/](http://robotics.Stanford.edu/~uai01/)
- RoboCup-2001  
[www.cs.cmu.edu/~robocup2001](http://www.cs.cmu.edu/~robocup2001)

### IJCAI/AAAI Scholarship Programs

AAAI and IJCAI are pleased to announce the continuation of their Scholarship and Volunteer Programs

for students interested in attending the International Joint Conference on Artificial Intelligence in Seattle, Washington, USA, August 4–10, 2001. The U.S. Scholarship Program provides partial travel support and a complimentary technical program registration for students who are full-time undergraduate or graduate students at U.S. colleges and universities; are members of AAAI; submit papers to the technical program or letters of recommendation from their faculty adviser; and submit scholarship applications to AAAI by April 15, 2001. In addition, repeat scholarship applicants must have fulfilled the volunteer and reporting requirements for previous awards.

In the event that scholarship applications exceed available funds, preference will be given to students who have an accepted technical paper and then to students who are actively participating in the conference in some way. However, all eligible students are encouraged to apply.

After the conference, an expense report will be required to account for the funds awarded. For further information about the U.S. Scholarship Program, or to obtain an application, please contact AAAI at [scholarships@aaai.org](mailto:scholarships@aaai.org), or 445 Burgess Drive, Menlo Park, CA 94025, USA; 650-328-3123 phone; 650-321-4457 fax.

Separate travel award programs are available for international students through IJCAI and other national societies. In addition, IJCAI will continue its travel support program for junior scientists from developing countries who have problems with currency conversion. For information regarding any of these international programs, please write to Priscilla Rasmussen at [rasmussen@cs.rutgers.edu](mailto:rasmussen@cs.rutgers.edu), or IJCAI, 75 Paterson Street, Suite 9, New Brunswick, NJ 08901, USA, +1-732-342-9100 phone, +1-732-342-9339 fax.

International students and junior scientists should first contact their local societies to see if support is available. If no other support is available, they can apply to IJCAI for support by submitting three copies of a letter of application that includes (1) applicant name/address/e-mail, (2) status of ap-

plicant (undergraduate, graduate student, junior faculty, and so on), (3) type of planned participation at IJCAI-01 (technical or workshop paper presentation, and so on), (4) an estimate of attendance costs, (5) whether other societies have been approached for support and result; any other sources of possible support, and (6) a letter of support from the adviser (student applicants only). A postconference report and receipts will be required to obtain the award after the close of the conference. The deadline for submission of applications is April 15, 2001, to Priscilla Rasmussen at the previous address. Should applications exceed available funding, priority will be given to (1) students presenting technical session papers, (2) junior scientists from developing countries presenting technical papers, (3) students presenting workshop papers, and (4) junior scientists from developing countries participating in the conference in other ways.

All student scholarship recipients will be required to participate in the Student Volunteer Program to support IJCAI organizers in Seattle. The Volunteer Program is an essential part of the conference, and student participation is a valuable contribution.

Students not requiring travel assistance should only apply for the Volunteer Program, which provides complimentary registration to full-time students, including conference proceedings, in exchange for assisting IJCAI-01 organizers in Seattle. This program does not provide any scholarship funds and is designed for local students or students who have other sources for travel funds. For further information regarding the Student Volunteer Program, please contact AAAI at [volunteer@aaai.org](mailto:volunteer@aaai.org). The deadline for volunteer applications is May 31, 2001.

## AAAI Executive Council Elections

Please watch your mail for your AAAI ballot, which will be mailed to all regular AAAI members in late April. The membership will vote for four new councilors, who will each serve three-

year terms. Ballots will be due back at the AAAI office no later than June 22. The Annual Business meeting for AAAI will be held this summer during IJCAI-01 in Seattle, Washington. The exact day and time will be announced on the ballot, in the summer issue of the magazine, and in the conference program.

## 2000 Fall Symposium Series

The 2000 AAAI Fall Symposium Series will be held Friday through Sunday, November 3–5, 2000 at the Sea Crest Resort and Conference Center in North Falmouth, Massachusetts. The titles of the five symposia in the 2000 Fall Symposia Series are

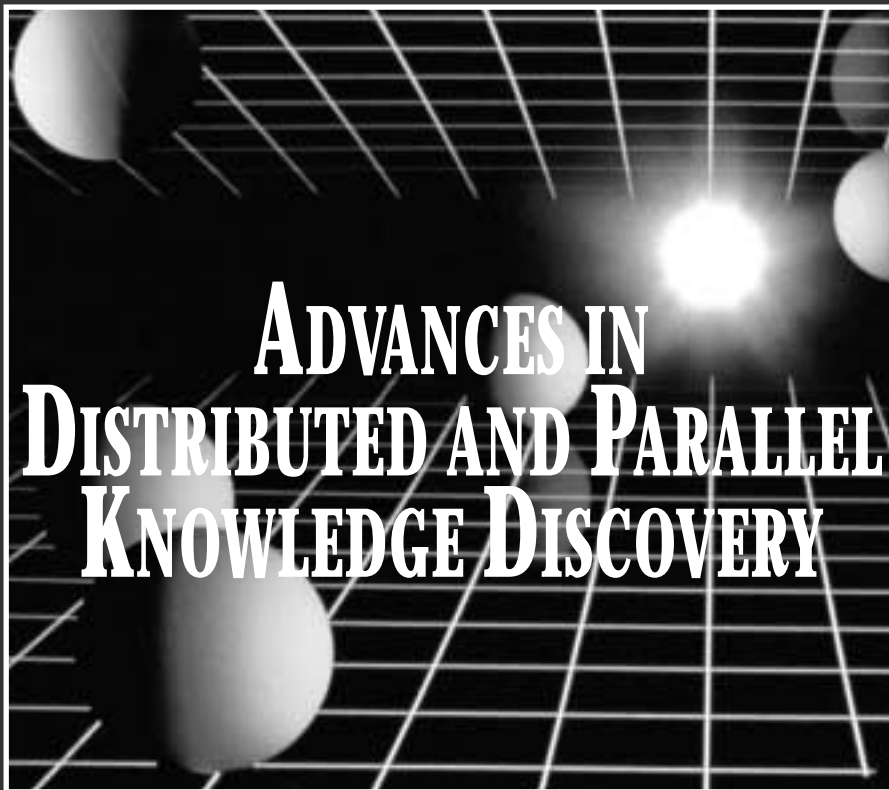
- Anchoring Symbols to Sensor Data in Single and Multiple Robot Systems  
*Cochairs:* Silvia Coradeschi ([Silvia.Coradeschi@aass.oru.se](mailto:Silvia.Coradeschi@aass.oru.se)) and Alessandro Saffiotti  
[www.aass.oru.se/Living/FSS01/](http://www.aass.oru.se/Living/FSS01/)
- Emotional and Intelligent II: The Tangled Knot of Social Cognition  
*Chair:* Lola D. Canamero ([lola@lri.fr](mailto:lola@lri.fr))  
[www.lri.fr/~lola/ei-fs01.html](http://www.lri.fr/~lola/ei-fs01.html)
- Intent Inference for Collaborative Tasks  
*Chair:* Benjamin Bell ([benjamin.l.bell@lmco.com](mailto:benjamin.l.bell@lmco.com))
- Negotiation Methods for Autonomous Cooperative Systems  
*Chair:* Costas Tsatsoulis ([tsatsoul@ittc.ukans.edu](mailto:tsatsoul@ittc.ukans.edu))
- Using Uncertainty within Computation  
*Cochairs:* Carla Gomes ([gomes@cs.cornell.edu](mailto:gomes@cs.cornell.edu)) and Toby Walsh ([tw@cs.york.ac.uk](mailto:tw@cs.york.ac.uk))  
[www.cs.york.ac.uk/~tw/fall](http://www.cs.york.ac.uk/~tw/fall)

The deadline for submissions is March 30, 2001. The Call for Participation has been sent to all AAAI members and is posted on the AAAI web site at [www.aaai.org/Symposia/Fall/2001/fss-01.html](http://www.aaai.org/Symposia/Fall/2001/fss-01.html).

## 2002 Spring Symposium Series

AAAI is currently accepting proposals for the 2002 Spring Symposium Series, to be held at Stanford University, California, March 25–27, 2001.

Approximately eight symposia on a broad range of topics within and around AI will be selected for the 2002



Edited by Hillol Kargupta and Philip Chan

**K**nowledge discovery and data mining (KDD) deals with the problem of extracting interesting associations, classifiers, clusters, and other patterns from data. The emergence of network-based distributed computing environments has introduced an important new dimension to this problem—distributed sources of data. Distributed knowledge discovery (DKD) works with the merger of communication and computation by analyzing data in a distributed fashion. This technology is particularly useful for large heterogeneous distributed environments such as the Internet, intranets, mobile computing environments, and sensor-networks. When the datasets are large, scaling up the speed of the KDD process is crucial. Parallel knowledge discovery (PKD) techniques addresses this problem by using high performance multi-processor machines. This book presents introductions to DKD and PKD, extensive reviews of the field, and state-of-the-art techniques.

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Spring Symposium Series. All proposals will be reviewed by the AAAI Symposium Chair, Dan Clancy, NASA Ames Research Center. Symposium proposals should be submitted as soon as possible but no later than April 23, 2001. The Call for Proposals has been sent to all AAAI members and is also available at the AAAI web site ([www.aaai.org](http://www.aaai.org)).

Please submit (preferably by electronic mail) your symposium proposals, and inquiries concerning symposia, to

Daniel J. Clancy  
AAAI Symposium Chair  
NASA Ames Research Center, MS 269  
Moffett Field, CA 94035-0001  
[dclancy@arc.nasa.gov](mailto:dclancy@arc.nasa.gov)  
Voice: 650-604-2257  
Fax: 650-604-4036

## AAAI/IAAI-2002 Date Change!

The dates for the Eighteenth National Conference on Artificial Intelligence (AAAI-2002) and the Fourteenth Innovative Applications of Artificial Intelligence Conference (IAAI-2002) have been shifted one week later to July 28–August 1. Both conferences will be held in Edmonton, Alberta, Canada, at the Shaw Conference Center and the nearby Westin Edmonton Hotel.

AAAI is delighted to announce the collocation of two premier conferences with AAAI-02 and IAAI-02 in Edmonton:

- The Eighth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD-02)
- The Tenth International Conference on Intelligent Systems for Molecular Biology

Please watch the AAAI web site for more information about these and other collocated events. You can also contact us at 650/328-3123 or by e-mail at [ncai@aaai.org](mailto:ncai@aaai.org).

## AAAI Member News

AAAI is sad to report the passing of Carnegie Mellon University Professor Herbert A. Simon, who died February 8, 2001, at the age of 84. Simon was winner of the 1978 Nobel Prize in economics and many prestigious international scientific awards for his work in

cognitive psychology and computer science. He was a fellow of the American Association for Artificial Intelligence and was considered one of the founders of the field of AI. Please see page 2 for more on his life and work.

## ACM/AAAI Allen Newell Award

AAAI is pleased to announce that Lotfi Zadeh of the University of California at Berkeley was the recipient of the 2000 ACM/AAAI Allen Newell Award. The ACM/AAAI Allen Newell Award is presented annually to an individual whose career contributions display breadth within computer science or bridge computer science and other disciplines. The award is endowed by AAAI. Lotfi Zadeh was recognized for his seminal contributions to the theory and applications of fuzzy sets and fuzzy logic in basic sciences, information processing, decision, and control. He will be honored at the ACM Awards Banquet on March 11, 2001, in San Jose, California.

## IJCAI-01 Award for Research Excellence

The IJCAI Award for Research Excellence is given at the IJCAI conference to a scientist who has carried out a program of research of consistently high quality, yielding several substantial results. The winner of the 2001 IJCAI Award for Research Excellence is Donald Michie, professor emeritus of machine intelligence at the University of Edinburgh, Edinburgh, Scotland. Michie is recognized for his contributions to machine learning, robotics, and knowledge-based systems. The Research Excellence Lecture will be held Thursday, August 9, at IJCAI-01.

## IJCAI Computers and Thought Award

The Computers and Thought Award is presented at IJCAI conferences to outstanding young scientists in AI. The award was established with royalties received from the book *Computers and Thought*, edited by Edward Feigenbaum and Julian Feldman; it is cur-

rently supported by income from IJCAI funds. The winner of the 2001 IJCAI Computers and Thought Award is Daphne Koller, assistant professor in the Department of Computer Science at Stanford University. Koller is recognized for her contributions to the theory and practice of probabilistic reasoning, machine learning, and computational game theory. The Computers and Thought Lecture, to be held Tuesday, August 7, at IJCAI-01, is open to the public.

## The Donald E. Walker Distinguished Service Award

The IJCAI Distinguished Service Award was established in 1979 by the IJCAI trustees to honor senior scientists in AI for contributions and service to the field during their careers. In 1993, the IJCAI Distinguished Service Award was renamed the Donald E. Walker Distinguished Service Award in memory of the late Donald E. Walker, who shaped the IJCAI organization as a secretary-treasurer. At IJCAI-01, the Donald E. Walker Distinguished Service Award will be given to Barbara Grosz, Gordon McKay professor for computer Science at Harvard University. As a pioneering researcher in discourse and collaboration in natural language, she is recognized for her outstanding service to the international AI community as president of AAAI (1993–1995) and chair of IJCAI (1989–1991) and for her contribution to enhancing the role of women in science.