⚠️ AAAI News

AAAI-91 Conference Features

The 1991 National Conference on Artificial Intelligence (AAAI-91) saw some changes in the presentation format of previous years. This section outlines what these changes were and generally summarizes some of the invited talks and panels.

New Conference Format

This year's conference featured a new format designed to encourage greater interaction among attendees with similar interests. The conference was organized around specialized forums, each emphasizing a different set of coordinated topics. Each forum featured a schedule of presentations, meet-the-author sessions, and panels united by a set of related research issues. Scheduling was arranged to encourage staying in one place for extended periods, and seating facilitated note taking and audience participation. There was time to interact closely with the authors in a poster session following each set of presentations.

Specialized forums were based on themes and interactions that emerged among the accepted papers. Rather than adopting forums based on traditional divisions within the field (for example, vision versus natural language), program committee members identified ways in which papers from individual fields naturally overlapped. For example, two of the more interdisciplinary forums were Communication and Cooperation and Planning, Perception, and Robotics, each of which ran for two consecutive days during the conference. The emergence of the forum Planning, Perception, and Robotics reflected a recent trend in AI for interaction between researchers from these different fields. Planning, Perception, and Robotics included sessions such as Path and Assembly Planning, which covered planning for robotic tasks. Communication and Cooperation included papers that focused on interaction between

man and machine or between machine and machine. Issues in AI and education, user interfaces, natural language, and multiagent systems were addressed in this forum. Other forums were Reasoning about Physical Systems, Formal Methods in Knowledge Representation, Learning, Case-Based Reasoning, Issues in Automated Reasoning, and Constraint Reasoning and Component Technologies The American Association for Artificial Intelligence (AAAI) hopes that these forums brought together researchers and practitioners from different subfields who share common interests and offered an opportunity for them to interact.

Balance between Practice and Theory

This year's program represented an attempt to present a balanced program, addressing concerns that arise both in theoretical branches and more practical branches of AI. Constraint Reasoning and Component Technologies combined concerns from both groups in a single forum, with sessions such as Temporal Reasoning and Parallel Support for Rule-Based Systems. Highlights from the program that addressed the concerns of those more interested in practice included a talk by Stephen Cross of the Defense Advanced Research Projects Agency (DARPA) on the use of AI in the Gulf War: "Scaling Knowledge-Based Planning Technology to Meet Large-Scale, Real-World Problems." Another panel argued what is needed from knowledge representation in large-scale systems. A panel entitled "How Long Until the Household Robot: The State of the Art in Robotics" featured speakers from industry and Carnegie Mellon's Robotic Institute, who detailed the latest advances in robots with videotapes and a live robot demonstration. Highlights from the theoretical side included Formal Methods in Knowledge Representation, which began with a session on logics for time and action; Issues in Automated Reasoning, which

addressed issues in improving search algorithms (probably the most used technique for AI problem solving); and an invited talk by Kurt Konolige on mental states and representation.

Some Invited Talks and Panels

Experimental Methods: This panel addressed the concern that AI approaches and methods must have some means for validation: How can we tell when a program is successful? How can we tell when one AI approach is better than another? The panel included members from the research community who have participated in various attempts to develop measures for evaluating AI systems and have reported on pros and cons.

Cognitive Modeling and AI: A talk by Jim Greeno addressed modeling situated cognition in AI. Although AI used to involve many systems based on cognitive models of human performance, this approach is not seen as often today. What is the value of cognitive modeling for AI? Where is it necessary, and how can it be used?

Descriptive Complexity: A talk by Ed Pednault, AT&T Bell Laboratories, focused on a presentation on minimal-length encoding and applications in which it has proven useful

LP to LP, Constraint-Programming Paradigm: A talk by Jean-Louis Lassez overviewed these types of languages and explained when they are appropriate.

IAAI-91 and AI Online Show Broad Current AI Use

For the first time, Innovative Applications in Artificial Intelligence (IAAI) presentations and AI Online interactive panels were presented concurrently at this year's national conference, providing an impressive demonstration of AI's current penetration into a widening sphere of core business processes

Presentations of the 21 winning IAAI and over 30 AI Online case histories demonstrated new advances in

AI technology. They also clearly showed AI's ability to deliver measurable benefits to ordinary tasks that spread across all businesses; at the same time, the technology is solving enormously complex and often unique problems.

Among the IAAI-91 conference winners, new AI systems illustrated real advances achieved in routine tasks, such as expense account processing, maintenance scheduling, and handling individualized customer service correspondence. Other systems represented sophisticated advances in technology, with AI moving into fields such as computer-aided design and computer-aided manufacturing and quality control and diagnostics.

IAAI Conference Chair Reid Smith highlighted the importance of having IAAI-91 and AAAI-91 take place at the same time. "AI Online provides good counterpoint to the more in-depth IAAI presentation. The combination, along with AAAI's technical sessions and exhibits, gives both scientists and business users a chance to understand each other's viewpoints, while both get needed updates on advancing technology."

Seven AI Online panels were on the program, each panel presenting four to six case histories with equal time for audience interaction. The presentations were based on specific organization experience. They dealt with a range of practical topics: AI hybrid systems, case-based reasoning, neural networks and expert systems, AI problem solving, advances in design automation with AI, and the involvement of management for AI success.

IAAI-91 presentations are available in book form. AI Online panels are available on tape. For information, contact AAAI, 445 Burgess Drive, Menlo Park, CA 94025, (415) 328-3123, Fax: (415) 321-4457.

AAAI National Conference Features Kahn and Amarel

Saul Amarel and Robert Kahn delivered major addresses at AAAI-91.

Amarel, Alan M. Turing professor of computer science at Rutgers University, delivered the talk "Themes and Directions of Artificial Intelligence." He has been active in AI research since the early 1960s and was director of the Information Science and Technology Office at DARPA. Kahn, president of the Corporation for National Research Initiatives, addressed the

audience with "Shared Knowledge and Infrastructure Development." After working at Bell Laboratories and the Massachusetts Institute of Technology, Kahn developed the first packet-switched network and was director of DARPA's Information Processing Techniques Office AAAI President Daniel Bobrow, Xerox Palo Alto Research Center, introduced the speakers, saying they will help the AI community look into a future that is both increasingly mainstream and increasingly challenging.

"These special presentations," Bobrow said, "center on the emerging relationship of the technical and the practical in AI. One of our primary objectives is to draw both scientific and business communities, helping scientific participants see how AI theory is employed, while AI business practitioners view current successes and innovations in AI science."

AAAI Recognizes 23 Fellows

At a dinner on July 17, AAAI recognized 23 Fellows for "sustained contributions to the field of artificial intelligence."

Receiving the honors as 1991 Fellows of AAAI were Robert C. Boyer, University of Texas at Austin; Jaime Carbonell, Carnegie Mellon University; Alain Colmerauer, University of Marseille; B. Chandrasekaran, Ohio State University; Jon Doyle, Massachusetts Institute of Technology; Mark S. Fox, Carnegie Mellon University; Barbara Hayes-Roth, Stanford University; Elaine Kant, Schlumberger Laboratory for Computer Science; Robert A. Kowalski, Imperial College of Science and Technology; Wendy G. Lehnert, University of Massachusetts; Vladimir Lifschitz, University of Texas at Austin; J. Strother Moore, Computational Logic Inc.; Robert C. Moore, SRI International; Fernando C. N. Pereira, AT&T Bell Laboratories; Elaine A. Rich, Microelectronics Computer Consortium (MCC); Edwina L. Rissland, University of Massachusetts; Oliver G. Selfridge, GTE Laboratories; Candace L. Sidner, Digital Equipment Corporation; Aaron Sloman, University of Sussex; Richard J. Waldinger, SRI International; Robert Wilensky, University of California at Berkeley; Yorick A. Wilks, New Mexico State University; and Lotfi A. Zadeh, University of California at Berkeley.

The nominating process for 1992

Fellows will start in the fall of 1991. Nominations can be made by any AAAI member.

For information, contact AAAI, 445 Burgess Drive, Menlo Park, CA 94025, (415) 328-3123, Fax: (415) 321-4457.
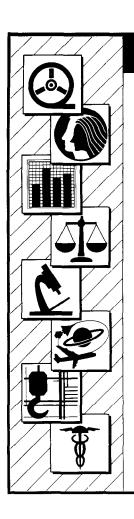

Hayes, Grosz Head New AAAI Team

Patrick Hayes and Barbara Grosz take over top leadership positions in AAAI for the next two years. Hayes, with MCC, is the new president. He succeeds Daniel Bobrow of Xerox Palo Alto Research Center. Grosz, Gordon McKay professor of computer science at Harvard University, is president-elect.

In a joint statement, Hayes, Grosz, and Bobrow clearly defined AAAI's continuing leadership role in providing a focus for both scientific and business aspects of AI. "Current advances in AI technology are combining with more complex problem-solving requirements everywhere to generate new growth in AI awareness and use. Our AAAI mission is to arrange the dynamic support systems and forums that will encourage information flow to enhance AI research and AI awareness, from pure science to deployed applications. The extent of AI applications around the world confirms the judgment of MCC's Craig Fields that AI is in fact 'the most important technology being developed today.' AI is solving problems that have resisted solution by any other means. What most people do not realize [is that] AI is creating a new way of thinking, and in [the] process is creating an intellectual revolution that will help us bridge the troublesome gap between the sciences and the humanities."

Hayes, born in England, has been involved with AI for a quarter century. He did some of the pioneering work on logic programming. Coming to the United States in 1981, he organized the first conference on cognitive curricula. He is currently a consulting professor in computer science at Stanford University and a visiting

scholar at CSLI and is working on the Cyc Project. Long active in AI organizations and conferences, Hayes is the only person to have been an officer of AISB, the International Joint Conference on Artificial Intelligence (IJCAI), and AAAI.

Grosz, a research pioneer in computational models of discourse, has published papers on natural language interfaces to databases. Her current research interests include development of models of collaborative planning for joint human-computer problem solving She is conference chair for IJCAI-91 and chair of IJCAII.

AAAI Honors
Dennis O'Connor

AAAI presented its first AAAI Innovative Applications of Artificial Intelligence

Outstanding Contribution Award to Dennis O'Connor. The award was presented by AAAI President Daniel Bobrow at the national conference.

O'Connor is director of the Corporate AI Technology Center at Digital Equipment Corporation in Marlboro, Massachusetts He has spearheaded Digital's pioneering efforts in AI for more than a decade. Digital has won widespread acclaim for its AI successes and currently has more than 50 AI systems in place The company has documented savings of more than $200,000,000 as a result of AI use. Its XCON system is considered the world's first successful large-scale industrial expert system

In addition to leading the AI technology program at Digital, O'Connor is responsible for technology transfer between universities and the company and has been a leader in encouraging scientific research in AI that has led to business application.

Criteria for the award, Bobrow said, include having made a sustained

contribution to the practical implementation of AI, being a champion of AI within a corporate setting, developing successful applications of AI technology over time, and doing significant volunteer work in the field.

Innovative Application Awards

The 1991 Innovative Application Awards were presented at the IAAI-91 Conference. The review committee, chaired by Reid Smith and Carli Scott, evaluated all papers for significance, payoff, AI technology use and integration, deployment, innovation, maintenance, importance of use, and technical quality. Awards were given as follows:

1. CALTREC, Expert Systems in Data Processing: Travel expense claim system that automates processing of 400,000 travel expense claims annually, including auditing
   —State of California Health and
   Welfare Agency

2. ICG, Automatic Letter Composition: AI technology that automates customer service letter writing for a major credit card organization; cuts three-day

turnaround to five minutes, improves letter quality; called Intelligent Correspondence Generation

—*Cognitive Systems*

3. MOCA, Maintenance Operations Controller Adviser: AI-based expert system that automates planning and document maintenance, establishes schedules that take into account both maintenance requirements and emergencies, and schedules maintenance

—*American Airlines*

4. Airline Frequent Flyer Record Keeping: Program that meets a competitive challenge through innovative use of AI using pattern matching to deal with 10 million customer records with 98-percent accuracy, providing significant advantages in both operations and marketing

—*American Airlines*

5. PRA, Expert Auditing System for Airline Passenger Tickets: A batch expert AI system that audits 60,000 daily passenger tickets in the face of today's constantly changing and complex fares; savings estimated at $10–20 million each year

—*Northwest Airlines*

6. CAMES, Computer-Aided Mechanical Expert System: System that puts knowledge-based concepts to work in mechanical design; has automatically designed over 800 machines used in pulp and paper mills, saving 8000 Lamb person-hours over 4 years

—*Lamb Group, Hoquiam, Washington*

7. QDES, AI Expert System for Quality Design of Steel Products: Support system that cuts design time while it increases accuracy, replicating expert skill in dealing with ambiguity as well as experience and new knowledge

—*Nippon Steel*

8. RRN, Case-Based Reasoning Solution to the Problem of Redundant Resolutions of Nonconformance in Large-Scale Manufacturing: AI system that helps eliminate nonproductive investment in duplicate problem solving in building a single large ship over extended time frames

—*General Dynamics*

9. Intelligent Decision Support of CAD-CAM Assembly System Design: AI program that helps consultants integrate the separate systems developed for modeling, assembly design, sequence selection, process planning, and assembly line design

—*Charles Stark Draper Laboratory*

10. MAX, Telephone Trouble Screen-

ing Expert: System that diagnoses customer-reported telephone troubles, emulating knowledge and experience of maintenance administrators in an AI expert system; reported savings of $6 million each year

—*NYNEX*

11. AES, Appointment Expert System: AI knowledge-based system that eliminates paper manuals and human memory in complying with state and federal insurance regulations when appointing agents and broker-dealers

—*SunAmerica*

12. Integrated Expert System to Test and Diagnose PC Boards: AI system that makes it possible to automate testing of the increasingly complex PA-RISC processor boards in RISC architecture

—*Hewlett-Packard*

13. TDW, Learning to Diagnose Heart Imagery from Examples: Thallium Diagnostic Workstation that learns diagnostic rules from training sets of images, uses machine vision to identify image features, then describes significant findings to the physician

—*U.S. Air Force School of Aerospace Medicine*

14. Expert System for Evaluation of Commercial Bank Financial Stability: System that helps private-sector auditors make recommendations to clients and provides decision support for bank management

—*AL2S Development*

15. TIME, Criticism-Based Knowledge Acquisition for Document Generation: AI application that bridges the gap between headquarters' decision makers who know how to write documents and the authors spread across the United States who know what to put into it; an expert critiquing and tutoring system

—*U.S. Army Training and Doctrine Command*

16. Credit Clearing House Expert System: System that automates the designation of credit ratings, speeding the time required and increasing quality and consistency

—*Dun & Bradstreet*

17. CUBUS, Assistant for Fundamental Corporate Analysis: AI support system that quickly provides bank management with general valuations and global impressions needed to start the credit-granting function

—*Swiss Bank Corporation*

18. CANASTA, Crash Analysis Troubleshooting Assistant: AI knowledge-based

system that provides guidance to computer support engineers in the difficult, time-consuming task of analyzing operating system crashes; being used in over 800 customer calls monthly

—*Digital Equipment Corporation*

19. Using AI in Meeting Chemical Regulation Requirements: Expert system that provides a way to meet the voluminous requirements of producing material safety data sheets for 10,000 chemicals

—*Lubrizol Corporation*

20. SYLLABUS, Interactive, Constraint-Based Scheduler: Timetable AI package that helps schools and colleges manage the class scheduling problem in the face of limited teaching resources and myriad variables

—*Scientia Ltd., London*

21. ESAL, AI Expert System for Association and Location: Supporting Nuclear Test Ban Treaty Verification, a DARPA-funded study that provides technology for monitoring compliance, using signals from a network of seismic stations

—*Science Applications International*

This collection of award-winning papers has been published in *IAAI-3* by the AAAI Press.

Symposium to Honor Woody Bledsoe

The University of Texas at Austin Department of Computer Science is sponsoring Frontiers in Computing, a symposium to honor former AAAI President Woody Bledsoe on the occasion of his 70th birthday. To be held November 15–16, the conference is a series of 17 presentations by leading AI researchers. It will be held at the Joe C. Thompson Conference Center.

A member of the AI community for more than 20 years, Bledsoe received the 1991 AMS Milestone Prize in Automatic Theorem Proving and was also recognized at the 1991 International Joint Conferences on Artificial Intelligence with the Distinguished Service Award.

For more information on the symposium, contact Joanne Click, Department of Computer Sciences, The University of Texas at Austin, Austin, TX 78712-1188, (512) 471-9729/9730, E-mail: click@cs.utexas.edu.

Executive Council Meeting Minutes

Anaheim, California July 14, 1991

Participants· Daniel Bobrow, Bruce Buchanan, Jaime Carbonell, Bill Clancey, Paul Cohen, Tom Dietterich, Bob Engelmore, Ed Feigenbaum, Richard Fikes, Mark Fox, Ken Forbus, Barbara Grosz, Pat Hayes, Barbara Hayes-Roth, Geoffrey Hinton, Elaine Kant, Wendy Lehnert, Kathy McKeown, Peter Patel-Schneider, Raj Reddy, Elaine Rich, Howard Shrobe, Candy Sidner, Reid Smith, Bill Swartout, Claudia Mazzetti and Carol Hamilton

Danny Bobrow opened the meeting at 8:45 am, commencing with the Standing Committee reports.

Standing Committee Reports

Conference: Conference Chair Howard Shrobe announced that Bill Swartout will be taking over as Conference Committee Chair. Kathy McKeown, AAAI-91 Program Cochair, briefly reviewed the experiments in this year's program, including the establishment of technical forums, self-selection in the reviewing process, and the acceptance of papers from newly established research programs. Howard Shrobe announced that Paul Rosenbloom and Peter Szolovits will serve as the Program Cochairs for AAAI-92.

Reid Smith, Program Chair for IAAI-91, announced that an effort will be made to have the Innovative Applications Conference and AI-on-Line merge in 1992 to avoid conflicts in schedules. In addition, Reid suggested that a concerted effort be made by the program committee members to reach out to the international community for paper submissions.

Publications: Bill Clancey, Editor-in-Chief of the AAAI Press, announced the acceptance of one additional manuscript since the last meeting. The AAAI Press is currently experimenting with various methods of production in order to be more cost efficient. Some loss is considered normal in the first stages of establishing a press, and will decrease over a three-year period. Danny Bobrow emphasized the importance of centralizing publications relating to AAAI programs, and the dissemination of this information. The importance of quality and timeliness was stressed.

Bob Engelmore, Editor-in-Chief of the *AI Magazine,* reported that the transition in editorship from himself to Ramesh Patil and Elaine Rich is progressing well. The publishing criteria of the magazine will be published periodically to encourage submissions.

Symposium: Symposium Chair Peter Patel-Schneider reported that nine symposia have been selected for the 1992 Spring Symposium Series. The Spring Symposium will be held at Stanford University again. Jim Hendler will be taking over as Symposium Chair in 1992, and Paul Cohen will serve as the Council representative. The 1992 Fall Symposium Series will be held at the end of October in the Boston area and will be temporally sequential to the Knowledge Representation Conference.

Workshop Grants: Kathy McKeown, Workshop Grants Chair, announced that seven workshop grants have been approved over the past year, ranging from $1500 to $10,000 each. It was agreed that future workshop grants could be used for more than just student travel money, and may be used for general logistical support. Kathy reported that Geoffrey Hinton will serve as the new Workshop Grants Chair.

Finance: Bruce Buchanan, Secretary-Treasurer, upon the recommendation of AAAI's investment managers, proposed that the endowment be invested at 50% equities and 50% percent fixed income. A motion was made in support of this proposal allowing up to 60% equities and 40% fixed income. The motion passed unanimously. Bruce also proposed a life membership in AAAI at $500 (US/Canada) and $750 (International) which also passed.

Scholarship: Scholarship Chair Barbara Hayes-Roth announced that a total of $44,800 has been awarded this year for student scholarships to the National Conference, including international scholarships. It was agreed that in 1992 scholarships should be available to all students, whether they have submitted a paper to the conference or not. A statement written by an advisor or professor explaining why a student should attend the conference must accompany each application. An announcement regarding AAAI's student scholarship program will appear in the AI Magazine along with a list of criteria. The Council approved $50,000 for student scholarships to the National Conference in 1992, including $10,000 allocated for international students.

Barbara also reported that $14,880 was awarded in student scholarships for the AAAI Spring Symposium Series. In addition, the Council voted to continue $20,000 in support of the Women and Minority grants in 1992. Barbara announced that she will be stepping down as Scholarship Chair in 1992.

Fellows: Fellows Committee Chair Raj Reddy announced that 23 individuals had been elected to Fellowship in the AAAI this year. The Council agreed that AAAI members should be encouraged to nominate deserving candidates whether their research contributions have been in academia or industry.

New Business

Specialized Conferences: In response to a request for support from the 1992 AI in Planning Conference, there was a discussion regarding AAAI's support of specialized conferences. Danny Bobrow proposed that AAAI support the first year of an area conference for up to $10,000 with the agreement that the area conference would provide speakers or reviews to be presented at the AAAI National Conference. Richard Fikes moved that AAAI provide up to $25,000 annually for support of area conferences with no more than $10,000 per conference. The motion passed contigent upon the development of an agreement by the Conference Committee.

It was also suggested that AAAI encourage cooperation with area conferences by collocating AAAI's conferences with them, or by incorporating them into the Spring Symposium Series or National Conference.

AAAI/IJCAII Agreement: Barbara Grosz, Chair of IJCAII, announced that the ten-year AAAI/IJCAII agreement is up for renewal, and is currently being renegotiated. A motion was made to delegate final approval to the Presidential Board of AAAI and passed unanimously. AAAI will cosponsor IJCAI-95 in Montreal.

AAAI Approval Journals: Mark Fox, Publications Chair, requested that the Machine Learning Journal be included on the list of AAAI Approved Journals.

Ken Forbus moved that this recommendation be accepted, and the motion passed unanimously. An application form will be included with the AAAI membership packet. Jaime Carbonell will serve as the liaison with the Machine Learning Journal.