

AAAI News

Winter News from the American Association for Artificial Intelligence

Fellows Nominations Solicited

The 2000 Fellows Selection Committee is currently accepting nominations for AAAI Fellow. The AAAI Fellows program is designed to recognize people who have made significant, sustained contributions to the field of artificial intelligence over at least a ten-year period. All regular members in good standing are encouraged to consider nominating a candidate. Two references (at least one from a current AAAI Fellow) must accompany nominations. For further information about the Fellows Program or to receive nomination and reference forms, please contact AAAI at 650-328-3123; by fax at 650-321-4457; or by e-mail at fellows@aaai.org. Nomination materials are also available on our web site. The deadline for nominations is February 15, 2000.

AAAI-2000

Mark your calendars now for AAAI-2000! The Seventeenth National Conference on Artificial Intelligence (AAAI-2000) will be held July 31–August 3 in Austin, Texas at the Austin Convention Center and Hyatt Regency Austin. The conference will feature the usual array of programs, including the Innovative Applications of Artificial Intelligence (IAAI-2000), Intelligent Systems Demonstrations, Tutorial Forum, Workshop Program, Mobile Robot Competition and Exhibition, and Robot Building Laboratory. Please check the AAAI web site for all the details and deadlines for these programs, as well as announcements about other new features.

A few important deadlines to note

on your calendar:

- *January 18*: AAAI-2000 Electronic title pages and IAAI-2000 papers due
 - *January 19*: AAAI-2000 papers and student abstracts due
 - *February 4*: Doctoral consortium submission due
 - *February 25*: Intelligent systems demonstration proposals due
 - *March 12*: Workshop submissions due
- Information about the conference is available by writing to ncai@aaai.org or www.aaai.org/Conferences/National/2000/aaai-iaai2000.html.

Collocated Conferences in Austin

AAAI is delighted to announce the collocation in Austin of the Symposium on Abstraction, Reformulation and Approximation (SARA-2000). SARA-2000 will be held in Lago Vista on Lake Travis, Texas, July 26-29, 2000. More information about this collocated conference is available at www.cse.unl.edu/~choueiry/SARA2000

AAAI-2000 Workshop Program

The following 20 workshops have been chosen for inclusion in the AAAI-2000 Workshop Program. The workshops will be held Sunday and Monday, July 30–31 in Austin, Texas, unless otherwise noted. The dates listed below are tentative. Please consult the AAAI web site or the AAAI-2000 registration brochure for a final schedule. AAAI members will receive a Call for Participation in January. Submissions are due March 12, 2000.

- Agent-Oriented Information Systems, Sunday, July 30
Cochairs: Gerd Wagner (gw@inf.fu-berlin.de)

and Eric Yu (yu@fis.utoronto.ca)

- AI and Enterprise Resource Planning / Customer Response Management Systems, Monday, July 31
Cochairs: Daniel O'Leary (oleary@almaak.usc.edu), Rose Gamble (gamble@tara.mcs.utulsa.edu), Robert Plant (rplant@exchange.sba.miami.edu), and Alun Preece (apreece@csd.abdn.ac.uk)
- AI Planning Meets Constraint Programming, Sunday, July 30
Chair: Alexander Nareyek (alex@prosun.first.gmd.de)
- Artificial Intelligence and Music, Monday, July 31
Cochairs: William Birmingham (wpb@eecs.umich.edu), Roger Dannenberg (roger.dannenberg@cs.cmu.edu), and Gerhard Widmer (gerhard@ai.univie.ac.at)
- Artificial Intelligence for Web Search, Sunday, July 30 (may expand to 2 days)
Cochairs: Lee Giles (giles@research.nj.nec.com), Steve Lawrence (lawrence@research.nj.nec.com), and Kurt Bollacker (kurt@was.archive.org)
- Constraint Databases in AI, Monday, July 31
Cochairs: Marc Gyssens (gyssens@charlie.luc.ac.be) and Peter Revesz (revesz@cse.unl.edu)
- Integration of AI and OR: Techniques for Combinatorial Optimization, Sunday, July 30
Cochairs: James Crawford (jc@i2.com) and Paul Walser (walser@i2.com)
- Intelligent Lessons Learned Systems, Monday, July 31
Cochairs: David Aha (aha@aic.nrl.navy.mil) and Rosina Weber (weber@aic.nrl.navy.mil)
- Knowledge-Based Electronic Markets, Monday, July 31 (may expand to 2 days)
Cochairs: Tim Finin (finin@cs.umbc.edu) and Benjamin Groszof (groszof@us.ibm.com)
- Learning from Imbalanced Data Sets, Monday, July 31
Cochairs: Rob Holte (holte@site.uottawa.ca), Nathalie Japkowicz (nat@cs.dal.ca), Charles Ling (ling@csd.uwo.ca), and Stan Matwin (stan@site.uottawa.ca)
- Learning Grounded Representations, Monday, July 31
Cochairs: Paul Cohen (cohen@cs.umass.edu) and Tim Oates (oates@cs.umass.edu)
- Learning Statistical Models From Relational Data, Monday, July 31 (may expand to 2 days)
Cochairs: Lise Getoor (getoor@cs.stanford.edu) and David Jensen (jensen@cs.umass.edu)

- Leveraging Probability and Uncertainty in Computation, Monday, July 31
Cochairs: Carla Gomes (gomes@cs.cornell.edu) and Holger Hoos (hoos@cs.ubc.ca)
- Modeling Problems in Constraint Programming, Monday, July 31
Cochairs: Jean-Charles Regin (regin@ilog.fr) and Wim Nuijten (nuijten@ilog.fr)
- New Research Problems for Machine Learning, Sunday, July 30
Cochairs: Mirek Kubat (mkubat@cacs.usl.edu) and Tom Mitchell (tom.mitchell@cs.cmu.edu)
- Parallel and Distributed Search for Reasoning, Sunday, July 30
Cochairs: Joerg Denzinger (denzinge@informatik.uni-kl.de), Yasuhiko Kitamura (kitamura@info.eng.osaka-cu.ac.jp), Eugene Santos, Jr. (eugene@enr.uconn.edu), and Bruce Spencer (bspencer@unb.ca)
- Spatial and Temporal Reasoning for Collaborating Mobile Agents, Sunday, July 30
Cochairs: Frank Anger (fanger@nsf.gov), Hans Guesgen (hans@cs.auckland.ac.nz), and Gerard Ligozat (ligozat@limsi.fr)
- Spatial and Temporal Granularity, Sunday, July 30
Cochairs: Claudio Bettini (bettini@dsi.unimi.it) and Angelo Montanari (montana@dimi.uniud.it)
- Representations for Real-World Planning Problems, Monday, July 31
Cochairs: Karen Myers (myers@ai.sri.com), Yolanda Gil (gil@isi.edu), and Kanna Rajan (kanna@ptolemy.arc.nasa.gov)
- Robotics Competition Workshop, Thursday, August 3
Chair: Alan Schultz (schultz@aic.nrl.navy.mil)

AAAI-2000 Student Programs

AAAI is pleased to announce the continuation of its Student Abstract and Poster Program, the SIGART/AAAI Doctoral Consortium, and the AAAI Scholarship and Volunteer Programs. Students interested in attending the National Conference on Artificial Intelligence in Austin, July 30–August 3, 2000, should consult the AAAI web site for further information about all of these programs at www.aaai.org/Conferences/National/student.html.

Student Abstract and Poster Program

AAAI-2000 invites submissions to the Student Abstract and Poster Program. The goal of this program is to provide a forum in which students can present and discuss their work during its early stages, meet some of their peers who have related interests, and introduce themselves to more senior members of the field. The program is open to all pre-Ph.D students. Accepted abstracts will be allocated presentation time and space in the student poster display area at AAAI-2000. Submissions are due at the AAAI office no later than January 19, 2000.

SIGART/AAAI Doctoral Consortium

ACM/SIGART and AAAI invite students to participate in the Fifth SIGART/AAAI Doctoral Consortium. The Doctoral Consortium provides an opportunity for a group of Ph.D students to discuss and explore their research interests and career objectives together with a panel of established researchers. The Doctoral Consortium will be held as a workshop on July 30–31, 2000. Student participants in the Doctoral Consortium will receive complimentary conference registration and a travel reimbursement. To support additional feedback on students' research, each consortium participant will be given a place at the AAAI Student Poster Session. Submissions are due at the AAAI office no later than February 4, 2000.

Scholarship Program

The Scholarship Program provides partial travel support and a complimentary technical program registration for students who are full time undergraduate or graduate students at colleges and universities; are members of AAAI; submit papers to the technical program or letters of recommendation from their faculty advisor; and submit scholarship applications to AAAI by April 15, 2000. 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 Scholarship Program, or to obtain an application, please contact AAAI at scholarships@aaai.org, or 445 Burgess Drive, Menlo Park, CA, 94025. (650) 328-3123.

Volunteer Program

All student scholarship recipients will be required to participate in the Student Volunteer Program to support AAAI organizers in Austin. 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 AAAI-2000 organizers in Austin. This program does not provide any scholarship funds, and is designed for local students or students who have other sources for travel funds. AAAI membership is required for eligibility. For further information regarding the Student Volunteer Program, please contact AAAI at volunteer@aaai.org. The deadline for volunteer applications is May 31, 2000.

2000 Spring Symposium Series

The 2000 Spring Symposium Series will be held March 20–22, 2000 at Stanford University and will feature six symposia on the following subjects:

- Adaptive User Interfaces
- Artificial Intelligence and Interactive Entertainment
- Bringing Knowledge to Business Processes
- My Dinner with R2D2: Natural Dialogues with Practical Robotic Devices
- Real-Time Autonomous Systems
- Smart Graphics

Registration materials have been mailed to all AAAI members and to invited participants. They are also

available on the AAAI web site. Please note that the deadline for registration for invited participants is February 11 and the general registration deadline is February 25.

2000 Fall Symposium Series

The following five symposia have been selected for the 2000 Fall Symposium Series, which will be held at the Sea Crest Conference Center in North Falmouth, Massachusetts.

- Building Dialogue Systems for Tutorial Applications
Cochairs: Carolyn Penstein Rose (rosecp+@pitt.edu) and Reva Freedman (freedrck+@pitt.edu)
- Plan Acquisition for Intelligent Software Agents: Learning How to Do Things
Cochairs: Charles Rich (rich@merl.com) and Mathias Bauer (bauer@dfki.de)
- Simulating Human Agents
Chair: Michael Freed (mfreed@mail.arc.nasa.gov)
- Socially Intelligent Agents—The Human in the Loop
Chair: Kerstin Dautenhahn (kd@cyber.reading.ac.uk)
- Society of Mind
Chair: Ian Horswill (ian@ils.nwu.edu) and Alan Schultz (schultz@aic.nrl.navy.mil)

The deadline for submissions is March 29, 2000. The Call for Participation has been sent to all AAAI members and posted on the AAAI web site.

Executive Council Minutes

The AAAI Executive Council Meeting was held July 18, 1999 in Orlando Florida.

Attending: David Waltz, Bruce Buchanan, Bonnie Dorr, Jon Doyle, Tim Finin, Kenneth Ford, Barbara Grosz, Jim Hendler, Leslie Kaelbling, Henry Kautz, David Leake, Deborah McGuinness, Tom Mitchell, Mel Montemerlo, Norm Nielsen, Bart Selman, Katia Sycara, Manuela Veloso, Michael Wellman

AAAI President David Waltz opened the meeting at 9:05 AM. He thanked retiring councilors Jon Doyle, Leslie Pack Kaelbling, Mel Montemerlo, and Edwina Rissland for their three years of service on the Council. (Retiring Past President Randall Davis was thanked in a separate presentation at the Fel-

lows Dinner on Monday, July 19.)

He then welcomed the new President-Elect, Tom Mitchell, and the four elected Councilors—Bart Selman, Deborah McGuinness, Reid Simmons, and Manuela Veloso—who began their terms of office after the Annual Meeting on July 22.

Standing Committee Reports

Finance and Membership. Secretary-Treasurer Norm Nielsen reported that all cost centers are reporting as expected, with some breaking even and others supported through AAAI grants. The Executive Council has made a conscious decision to subsidize certain programs, such as the tutorial and robotic programs, in order to maintain current registration rates. AAAI Press has performed well, creating a steady revenue stream for the association. The AAAI investments have also grown. Nielsen will be reviewing the current balance between equities and cash during the next few months to be sure that percentages invested remain within the guidelines set by the Council. The AAAI membership has remained at a steady state for the past few years, but efforts continue to maintain and increase current levels.

Fellows. Carol Hamilton reported that three new Fellows had been elected in 1999: Harry G. Barrow, Schlumberger Cambridge Research; James A. Hendler, University of Maryland and DARPA/ISO; and Daniel S. Weld, University of Washington. These three individuals were honored at a dinner in Orlando during the conference.

David Waltz, the incoming Fellows Selection Committee Chair, expressed concern about the limited number of fellows that can be elected each year under the current rules. This has resulted in denial of fellowship to many qualified candidates. After several suggestions, the Council charged the Selection Committee with not sacrificing quality to adhere to an arbitrary membership percentage rule. They should continue to elect fellows at the current rate, but to not feel bound to that rule if a larger group of very qualified candidates is nominated.

It was also suggested that the nomination letter and form state more clearly that candidates will not be con-

sidered until 10 years after receiving their Ph.D. There was some concern that this was not perceived as a strict rule. In addition, the Council would like to develop a category for industrial fellows, representing the applied side of AI. Bruce Buchanan, Katia Sycara and Manuela Veloso will work on defining selection criteria for this new category.

Publications. Publications Committee Chair and AAAI Press Editor Ken Ford reported that the AAAI Press, as noted above, is operating at a profit, which helps subsidize other AAAI programs. More importantly, it provides a vital service to the AI community. The AAAI Press currently has 72 titles in print, with at least 7 more forthcoming. There are 139 technical reports, which are becoming an increasingly popular publication alternative to working notes for symposium and workshop authors. Ford noted that there was a decision several years ago that the Press should not publish theses.

AAAI members can now access the proceedings papers from 1998 and 1999, along with *AI Magazine* issues back to 1988. There are now more than 9,500 pages on AAAI's web site (not counting the Pathfinder site), including more than 3,000 papers (approximately 16,650 pages). Within the next two months, 2,282 additional papers (comprising all the AAAI Proceedings—some 12,753 pages) will also be added, thus bringing the total number of full-text papers on the site to more than 5,250 (nearly 30,000 pages). The *AI Magazine* back issues will be scanned this fall and added as well. This fall, the site is being upgraded to HTML 4.0, and a new portal for the electronic library is being designed and implemented, which will include author-title-subject access.

The new Editor of the *AI Magazine*, David Leake, reported that the editorial content of the magazine is set through the Spring 2000 issue. He hopes to maintain excellence through careful solicitation of articles. Although production costs have remained competitive, postage fees have risen by over 15 percent. There has been some increase in recruitment advertising, and membership fees continue to underwrite the magazine.

Leake also reported that both Peter Patel-Schneider, Workshop Reports Editor, and Adele Howe, Book Reports Editor, have stepped down. In addition to replacing these two individuals, Leake hopes to establish an Editorial Board, whose members will monitor areas of AI to see what should be included in the magazine.

Symposium. Leslie Pack Kaelbling reported that the 1998 Spring Symposium Series attracted 316 attendees for seven symposia. The 1999 Fall Symposium Series will feature five symposia in a more retreatlike setting on Cape Cod. The 2000 Spring Symposium Series will include six symposia and will be held at Stanford University as in the past. The smaller number of symposia at the 2000 meeting reflects the increasing difficulty in attracting good proposals for this series. Nevertheless, the attendance continues to be very healthy and the series is popular with attendees. The Council plans to continue the series, despite competition from workshops and smaller conferences. Council members suggested that after 2000, the Fall Symposium Series should move south again, possibly to the Washington, DC area. Kaelbling also reported that she will be stepping down as the Council representative on the Symposium Committee (Associate Chair), and a new representative is being sought.

Scholarships. Scholarship Chair Katia Sycara reported that AAI awarded 101 student scholarships for the national conference, totalling more than \$65,000. Student scholarships were also granted for the symposium series, robot competition, and Botball participants, bringing the overall total between August 1998 and July 1999 to almost \$132,000. Only two out of the four agencies designated for Women and Minority grants have responded to requests for reports and proposals. Each of these, the Math/Science Network and Prime, Inc., received \$5,000 grants.

Grants. Carol Hamilton reported that AAI awarded a total of \$119,000 in grants to independent workshops and conferences, special projects, national conference programs, and awards programs. Special projects included the ongoing Pathfinder web site created and directed by Bruce Buchanan; sup-

port for the *Journal of Artificial Intelligence Research*, Computing Research Association affiliation, two summer schools, and a robot film project. National Conference programs that receive subsidies include the Intelligent Systems Demos, the Mobile Robot Competition and Exhibition, the Robot Building Lab, the SIGART/AAAI Doctoral Consortium, and the Tutorial Forum. Award programs have been expanded to include the ACM Allen Newell Award, the AAI Fellows Program, the AAI Intel Science and Engineering Fair Awards, and the newly formed AAI Distinguished Service Award and Classic Paper Award. Total grants for this period are expected to climb to approximately \$210,000 once the expenses for the national conference have been reported.

It was suggested that student recipients of workshop and conference grants should be invited to participate in the student poster session at AAI. A proposal for this will be distributed to the Council for approval at a later date.

Conference. AAI-99 Program Chair Jim Hendler reported that 109 papers were accepted out of 400 submissions. Registrations returned to 1997 levels, undoubtedly because of IJCAI-99, but participation in workshops and especially tutorials increased dramatically. The number of people participating in tutorials rose 69 percent from 1997 and 77 percent from 1998, even though there were four fewer tutorials. This was due to the fact that there was no additional fee for tutorials. Programs remained the same as in 1998, except for the elimination of the Hall of Champions, which has been somewhat incorporated into the Intelligent Systems Demonstrations. An attempt to hold CHIKids at AAI-99 had to be cancelled due to lack of response from attendees. Hendler reported that the workshop chair initially experienced the same difficulties that the symposium committee has had with low submissions. He recommended that workshop chairs be instructed to be proactive for future workshops. After follow-up by Workshop Chair David Leake, AAI-99 had 16 workshops, which is quite good. The low response

rate may have been in part due to the competition from IJCAI-99. Several suggestions were also made to improve the exhibit program, including more emphasis on student recruiting by AI labs and encouraging representation from companies offering "shrink-wrapped" AI.

Hendler expressed concern about the amount of time it took to place good chairs in all of the subprograms for the conference. He suggested that a Conference Chair position be initiated, whose responsibility would be to oversee the entire conference. This would free the program cochairs to concentrate on the technical program. Carol Hamilton suggested that the Conference Committee chair position could be revamped to include these types of duties. Hamilton and Bruce Buchanan will follow up on this during the fall.

Carol Hamilton reported that efforts to have collocated conferences in Austin have not been fruitful, but that there was already interest from some conferences to collocate again in 2002. The Conference Committee Chair may be seeking 2002 cochairs this fall so that they will become familiar with the paper assignment and reviewing procedures.

Other Business

CRA Report. Tim Finin reported that two members of the artificial intelligence community had been elected to the CRA Board of Directors: Kathy McKeown of Columbia University and Bill Woods of Sun Microsystems. The annual Snowbird conference was held July 19, 1999. Unfortunately, because of the conflict with AAI, Finin was unable to attend.

Martha Pollack and Lynn Stein will represent AAI at the CRA Conference on Women later in the summer. Dave Waltz, Tim Finin, and Carol Hamilton attended the CRA Leadership Summit in the spring, during which several funding agency representatives updated association presidents and executive directors about current funding issues.

Dave Waltz was part of a contingent that visited representatives on Capitol Hill. Finin encouraged AAI to continue its participation in the CRA, which serves as an advocate for computer sci-

ence issues in Washington, and a tremendous source of information about these issues to the societies. He also noted that the CRA recently completed an excellent study on the state of information-technology workers in America.

Barbara Grosz reminded the Council that agencies are looking for both new people and new programs. Councilors should go back to their departments and encourage people to go to Washington to represent the field. The CRA is also encouraging people to contact their congressional representatives about the IT Initiative.

Awards. Dave Waltz announced that the two new awards would be presented during the conference. The Distinguished Service Award will be presented to Barbara Grosz and the Classic Paper Award to John McDermott. The original award was intended to be \$2,000 each, but the Council increased the award to \$2,500 each retroactively.

In addition to these awards, Waltz presented several other ideas for new awards in 2000. These included a Dissertation Award or an Expository Writing Award. The Expository Writing Award was approved for 2000. Criteria include high quality effective writing with sound science; interesting or nontrivial ideas; reaching a broad AI audience or general public; and written in roughly last two years. The Awards Committee will further define the criteria and award for 2000.

Waltz also reported that AAAI granted three new awards at the Intel Science & Engineering Fair to recognize outstanding achievement in the area of intelligent computation and robotics. The awards are intended for the best exhibits in the area of computer science with an artificial intelligence component. \$2,000, \$1,000, and \$500 awards were presented. The \$2,000 award winner was attending the national conference and would be introduced to the community during the opening awards ceremony. Waltz thanked Mel Montemerlo for helping to organize AAAI's involvement and also thanked judges Vijay Kumar, Pradeep Khosla and Mitch Marcus for their generous donations of time and energy. Montemerlo requested a slight-

ly different structure for the 2000 awards. He and the other judges were impressed with how many good entries there were and would like to have the ability to recognize more than just three. His proposal to allocate \$15,000 in awards was approved by the Council. There will be 15 \$1,000 awards and no travel to the conference. All winners will receive a certificate, a AAAI token (such as a pin), and a complimentary one-year membership. Each student's school will also receive a one-year membership.

AI Exploratorium. Jonathan Schaeffer presented a proposal for an online AI Exploratorium, a very extensive project to develop an exhaustive interactive AI "cyber-handbook." Unfortunately, the current projected costs were considered prohibitive for AAAI to commit resources to. However, there was general support for the idea of providing some seed money to help Schaeffer and Russ Greiner develop a few demos for the project. (In November 1999, the Executive Committee approved \$20,000 for the development of 3-4 demos.)

Sponsored Journal Program. Carol Hamilton circulated a proposal, which was approved, to reactivate and improve the Sponsored Journal Program. This proposal is in response to growing requests for this status. In addition, it includes a better mechanism for review of proposals and a fully developed list of requirement and benefits. The program is also meant to stimulate membership in AAAI. Hamilton will seek volunteers from the Publications Committee to serve on a review committee for proposals.

AAAI Affiliates Program. Hamilton also circulated a proposal for a AAAI Affiliates program, which incorporates benefits from the current cooperation and sponsorship programs and collocation programs. It is intended to forge an informal affiliation between independent workshops, conferences, or societies and AAAI, which will both benefit AAAI members and the affiliated groups. This proposal was also approved and will be administered through the Grants Committee.

Future Sites. Hamilton reported that members in Edmonton, Alberta have

submitted a proposal to hold AAAI-2002 in Edmonton. Hamilton checked with the Canadian AI Society, and they were positive about AAAI locating in Canada. If the final proposal is acceptable, the Council were generally favorable for AAAI-2002 in Edmonton.

IJCAI-03. Prior to the July 18 meeting, the Council approved a request by Mexico to submit a proposal for IJCAI-03 that would essentially treat IJCAI-03 like any other IJCAI held in North America. If approved, this means that AAAI will co-sponsor IJCAI-03, would not hold AAAI-03, and would perform the usual operating, logistical, and organizational tasks. A revenue/liability split similar to that for IJCAI-95 would be acceptable, and AAAI would have some voice in the choice of subprograms selected for IJCAI-03, such as the robot program or IAAI. AAAI would like IJCAI to return to North America no later than 2009. The Mexican proposal will be considered at IJCAI-99 and a report will be submitted at the next Council meeting.

Release of Conference Submission Data. The Council discussed a request to develop policy on whether AAAI will release anonymous data from its national conference paper submissions to researchers. It was generally agreed that no such release would be considered without express approval of authors. No plans are currently being considered to release this data, and the Council was generally not in favor of release of the data outside the AAAI office. The only time the data will be used is in connection with the development of software which would improve the operations of the AAAI office, or improve the current submission and review system. No firm policy was established, but the matter will be discussed further by e-mail and at the next Council meeting.

Electronic Proceedings. Henry Kautz and Carol Hamilton reviewed a proposal to release electronic proceedings papers to nonmembers. The options are the following: 1) release only to members; 2) release only to members, but with a document delivery option for the general public (either fee-based or limited to a certain number of papers per year or month); 3) release only to members for a specific number of years, such as

three, then to the general public afterward; or 4) release to the general public immediately. Dave Waltz asked the Publications Committee to study the issues related to finance, membership, and publications, and report back to the Council at a future meeting. In the meantime, the online proceedings papers are available to members at no additional charge.

AAAI Government Liaison. Dave Waltz announced the appointment of Jim Hendler as the AAAI Government Liaison for a one year term. Hendler is currently working as a Program Manager at DARPA/ISO. The Council affirmed this appointment.

AAAI-99 Highlights

A diverse mix of cross-disciplinary scientists gathered for the Sixteenth National Conference on Artificial Intelligence (AAAI-99), held during the week of 18 to 22 July in Orlando, Florida. Together, the attendees celebrated a last look in the close of this century at the progress and current status of AI in technologies and a glimpse at some of the promises of future AI trends. The overall tone of the conference was optimistic, speaking of the convergences ahead and the higher roles of technology integration.

This year, there was a repeated echo of the "old" and the "new," what many described as the AI winter and forthcoming AI spring. There was consensus that the years to come would promise a wealth of opportunities for new scientists interested in the field and provide new and diverse challenges for all. However, there was some disagreement regarding the viewpoint of having passed through a "cold" AI winter. What was wholly agreed on was that the age and quickening pace of technology are changing the tools that we work with; the paradigms that shape our understanding of the world; and subsequently, the science at hand. As AI begins to broaden into other sciences, the AI community is responding to the needs that are changing and exploring increased opportunities in these fields.

In a long-standing tradition of AAAI conferences, the week of exhibits and programs showcased up-and-coming

new scientists for their outstanding achievement, presenting contributions in the areas of robotics, intelligent system applications, and emergent and successfully deployed applications of AI techniques. A new generation of AI scientists was fostered through a host of student programs, including the first collocation of the national finals of the botball tournament. The perspectives shared by invited speakers communicated new opportunities for technical challenges, offering encouragement to those interested in entering and pushing the boundaries of the field.

Remembering the first half-century of AI, Nils J. Nilsson, professor emeritus at Stanford University's Robotics Laboratory, regarded these years as an auspicious beginning. Significant strides have been made in vision technology, moving robots toward recognition, computer-awareness, and obstacle-avoidance techniques. Also notable is the work done in the areas of searching algorithms and the use of probabilistic methods of problem solving, Bayes's networks and belief networks and speech recognition, and natural language processing, proving AI as a viable technology by integrating it into tools such as the highly commercialized Microsoft OFFICE ASSISTANT.

What were the challenges of the past five decades? Nilsson commented that the field has matured significantly in creating machines that will one day mimic commonsense and learned behaviors. The struggle of the past has been to not break under the frustration of trying to meet the seemingly impossible challenges of building systems with mechanisms that resemble the innate human abilities to learn or behave creatively. This emphasis on struggle is changing.

In keeping up with an ever-evolving environment of research and real-world challenges, a theme that was reiterated throughout the week was the melding of research between once disparate and disjointed efforts, work such as the study of the human genome and research by computer scientists on intelligent systems.

Both Nilsson and Patrick H. Winston, of MIT's AI Laboratory, shared the perspective that the discovery of the DNA structure by Watson and

Crick unleashed a revolutionary paradigm shift and opened new fields of exploration for both the biological and computational sciences. It also brought a point of convergence between the world of genetic and biological sciences and AI, offering new paths for research, increased funding, and opportunities for new collaborations between disparate efforts.

Nilsson believes the challenge to come might well be in maintaining technological integration among the different components of work rather than having them broken into separate areas such as databases, behavioral and cognitive sciences, and genetic algorithms.

New Robot Challenge Responds to Changing Needs

In keeping with the spirit of responding to new trends, this was the inaugural year of the challenge portion of the Robot Exhibition and Competition.

The robot programs are designed to push the state of the art in robot technology and energy and promote the sharing and transfer of technical information and know-how between scientists, according to Alan C. Schultz of the Naval Research Lab. Since the first competition in 1992, the emphases and criteria for judgment have changed greatly. In 1992, the task focused on navigational and collision-avoidance techniques. Complicated manipulations were seen in 1994 with object color recognition, and the 1996 competition brought more and more emphasis to human-computer interaction. The robot programs have showcased increasingly higher levels of deliberative and reasoning abilities in the robots and shown the emergence of something that was previously, uniquely human—personalities.

Robots are exhibiting more complex, flexible, and robust recognition skills through the layering of face, sound, color, edge-detection, and even smell recognition. As a result, this year robots performed for their audience as an acting troupe, robots managed unplanned interactions with members of the public, multiple heterogeneous robots shared sensor modality to

SARA • 2000

Symposium on Abstraction, Reformulation and Approximation

July 26 - 29, 2000

Lago Vista, Texas
Lago Vista Clubs & Resort

Invited talks by:
Patrick Cousot, *École Normale Supérieure, Paris*
Thomas Dietterich, *Oregon State University*
Rich Korf, *University of California, Los Angeles*

Submissions due March 20, 2000

For more information visit the web site

sara2000.unl.edu



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and the University of Nebraska-Lincoln
SARA is an AAAI affiliate

Nebraska
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achieve tasks, and much more.

To emphasize the push on the state of the "art" rather than the state of practice typical of the contest-evaluation process, the challenge was created to recognize the technical advances in helping to solve pieces of a complex and challenging problem. The assignment for each contending robot was to navigate and interact with its environment. Robots registered as a volunteer at the conference and delivered short talks—tasks that required the machines to manage and balance priorities with timing and scheduling constraints, all under real-time pressure.

There are no place prizes for the Robot Challenge. Rather, it is expected to help chronicle what is anticipated as a five-year effort to see a mastering of the skills required to carry out these tasks without a hitch.

Other robot competition winners included Swarthmore College (first place in the "Hors D'Oeuvres Anyone?" Competition) for its robot Alfred and

the University of North Dakota (first place in the "Scavenger Hunt" competition) for its robot Rusty. A special award for "best integrative effort across all three competitions" was presented to Swarthmore College for its robot Alfred.

IAAI Looks at Application Trends of Past and Present

During the opening remarks of the IAAI-99 program, this year's chair Ramasamy Uthurusamy placed high value on achieving technical progress through a highly focused, consolidated effort to solve technical problems such as that regarding the Y2K bug. Looking ahead, he recommended that researchers approach other challenges with like focus, diligence, and urgency.

Howard Shrobe of MIT's Media Lab remarked during his address that the goals of the IAAI program at the highest level can be regarded as simply pro-

viding an arena in which to demonstrate what can be done with current technologies to solve practical problems and to show the maturity of AI as a commercially viable technology. Since AAAI held its first national conference in 1980, AI has indeed proven itself a viable technology, reaching corporations as well as the individual PC user. As the cost of the systems comes down, expert systems are now increasingly being used, not only in the business world, but also in the home.

According to Shrobe, the AI communities of the future will celebrate applications that demonstrate coherence in the system and between the system and the environment. Integration research will again become a central theme to drive these applications and models toward mutually calibrated tools and information sensors. It will be important to look at creating autonomous systems that can respond to multiple real-time demands. Optimizing techniques become secondary

as time-critical planning techniques come to the forefront in our efforts. Robustness and flexibility will be a challenge for both software and hardware scientists; the current status reveals that not only are our machine sensors weak, but the theory of sensors is weak. Repair and recovery operations should be approached as a restructuring of signal diagnostic routines altogether, creating new rationale for codes.

The IAAI-99 Deployed and Emerging Application Awards honor those expert systems that demonstrate a response to real-life needs for machine problem solving. The following eight applications were honored this year; they demonstrated a measurable improvement in the execution of tasks while using AI techniques and were recognized for their technical responsiveness to real-world needs (details of each application, including technical innovation and architecture, are given in the conference proceedings, available from the AAAI):

- A New Basis for Spreadsheet Computing: INTERVAL SOLVER for Microsoft. EXCEL *Delisoft Ltd. (Helsinki, Finland)*
- LAST-MINUTE TRAVEL Application. *TecInno GmbH (Kaiserslautern, Germany)*
- Ramp Activity Expert System for Scheduling and Coordination at an Airport. *Inha University (Inchon, Korea) and Korean Air (Seoul, Korea)*
- HKIA SAS: A Constraint-Based Airport Stand-Allocation System Developed with Software Components. *City University of Hong Kong (Kowloon, Hong Kong)/Advanced Object Technologies Ltd. (Kowloon, Hong Kong)*
- Using Intelligent Agents in Military Simulation, or Using Agents Intelligently. *Defense, Science, and Technology Organization (DSTO) (Victoria, Australia)*
- Automated Instructor Assistant for Ship Damage Control. *Beckman Institute, University of Illinois at Urbana-Champaign (Urbana, Illinois)*
- DLMS: Ten Years of AI for Vehicle Assembly Process Planning. *Ford Motor Company (Dearborn, Michigan)*
- Using Iterative Repair to Automate Planning and Scheduling of Shuttle

Payload Operations. *Jet Propulsion Laboratory, California Institute of Technology (Pasadena, California)*

Delisoft's INTERVAL SOLVER is an add-in that extends the mathematical basis of EXCEL to provide a more versatile and useful foundation for spreadsheets. It identifies the worst- and best-case scenarios of spreadsheet formulas, solves back-argument intervals from given goals, solves equations and other constraints needed in the application, and finds the best solution to a problem. Current decisions in politics, business, engineering, education, and the sciences are being made based on spreadsheet data uses.

The LAST-MINUTE TRAVEL application uses case-based reasoning to bridge the gap between traditional database-driven applications used widely today by tour operators and the information-tracking capabilities available on the World Wide Web. Serving as a virtual travel planner and agency, the application simulates the assistance of a human agent with the benefits of handling and tracking large amounts of data.

The ramp activity coordination expert system (RACES) is instrumental in solving high-traffic aircraft parking problems. With the use of a knowledge-based scheduling system, RACES tracks and assigns available gates and remote spots to arriving and departing aircraft. This system greatly reduces the person-hours needed to assign parking schedules and plan for interrelated operations and unexpected occurrences to only a fraction of the time. Currently being deployed at Kimpo International Airport in Korea, this system is used to handle most of the duties of ground controllers and is capable of successfully rescheduling about 70 percent of all real-environment situations.

Using off-the-shelf, standard software components, the stand allocation system (SAS) assigns schedules for tow movements and parking stands for aircraft based on sets of business and operation constraints. It also provides planning, real-time-operation, and problem-solving capabilities. This system balances the objectives of airline, operations, and passenger conditions to give convenient and safe ser-

vice under real-time demands. As a training model, it has raised operator productivity in planning and managing the operations and quality conditions of airport resources.

Using agent-oriented technology, this military simulation model developed by the Australian Department of Defense is useful in emulating the process of human reasoning behind operation decisions. This learning model has been successfully deployed as the operator-agent used by operational analysts at the defense department to handle multi-billion-dollar acquisitions.

A multimedia, interactive damage control simulator system called DC-TRAIN 2.0, based on the MINERVA-DCA (damage control assistant), provides feedback and assists in solving damage-control scenarios at an expert level and in real time. Useful for training, this system simulates highly stressful decision-making scenarios, such as fire, flood, and smoke containment, equipment failures, and personnel casualties and provides feedback for improved performance.

Ford's direct labor-management system (DLMS) utilizes AI to manage the planning and process of automobile assembly. Already an important part of Ford's manufacturing process and business, this system has evolved into a viable tool, demonstrating effective responsiveness to the changing needs of the user environment.

Manual generation of command sequences for spacecraft operations is generally a difficult and expensive process. The data-chaser, automated planner-scheduler (DCAPS) can generate and repair command sequences for shuttle payload, which is critical to reducing the effort and cost of mission operations. As demonstrated by the 1997 STS-85 shuttle flight, this system was successful in reducing 80 percent of mission operation effort, with a 40-percent increase in science return.