Proposal: Educational Advances in Artificial Intelligence (EAAI)

General Description and Goals

In line with AAAI's stated goal to "improve the teaching and training of AI practitioners," we propose a new symposium focused on Educational Advances in Artificial Intelligence (EAAI) to be held in conjunction with AAAI starting in 2010. The EAAI symposium would provide a venue for AI researchers involved in education to share their innovative approaches to education and teaching. Moreover, the recent surge in integrating AI-related topics (e.g., robotics, machine learning, etc.) into a variety of courses in the CS curriculum presents an important opportunity for AAAI to engage the broader CS community. While the AAAI conference has done an excellent job in promoting and disseminating foundational AI research, and IAAI provides a venue for highlighting industrial applications of AI, there has not be a commensurate, sustained initiative for the promotion of work in AI education. Following the success of prior efforts such as the AAAI Teaching Forum in 2008, various educationally-oriented AAAI Symposia, and the FLAIRS AI Education Track, we seek to create the Educational Advances in Artificial Intelligence symposium, to be run in conjunction with AAAI (akin to IAAI), but with an educational focus. In contrast to work on using AI as a building block in educational systems (i.e., intelligent tutoring systems), EAAI focuses on pedagogical issues related to teaching AI at a variety of levels (from K-12 through postgraduate training). We believe that a venue focused on educational work has the potential to both provide useful information to the existing AAAI audience, while also casting a broader net for participation in future conferences.

EAAI Program and Focus

The EAAI symposium would be comprised of several components aiming at highlighting educational work in AI at a variety of levels. The symposium (in its initial instantiation) would be comprised of:

- a program of high-quality refereed papers, panels, special sessions (for example, a "Nifty Assignments" session that highlights innovative, ready-to-adopt course assignments, similar to the one held at SIGCSE) and invited talks that would run in parallel with AAAI. (This program would likely be one or two full days in the first year, with the possibility for expansion in future years as the community develops.),
- a pre-symposium workshop for mentoring new faculty/instructors/teaching assistants,
- an Educational/Teaching Video track within the AAAI Video Program,
- a Student/Educator Robotics track within the AAAI Robotics Exhibition and Workshop,
- a poster session, held in conjunction with the AAAI poster session.

The proceedings of EAAI would be published as a distinct section of the AAAI proceedings CD/volume (in the same manner that IAAI papers are published in the same volume, but are separated and cited distinctly). As EAAI becomes more established and grows in size and stature, our long-term intention is for it to migrate from being a symposium to a conference.

The EAAI symposium aims to bring together educators, researchers, and curriculum designers to present and discuss successful means for teaching AI in a variety of contexts. The goal of the symposium is to provide a forum where successful pedagogical strategies and the results of AI-related educational research can be presented, and teaching materials can be shared among educators to improve AI education more broadly (for example, educational materials such as

course assignments/demos could be posted on AAAI's "AI Topics" website). Moreover, the symposium will also provide the opportunity to discuss common challenges that may be encountered in teaching AI and help prepare new faculty. A sampling of the topics covered by the symposium may include, but is not be limited to, the following:

- Educational resources including syllabi, assignments, project ideas and pedagogical strategies related to teaching AI in post-secondary education
- Multi-disciplinary curriculum that highlights the use of AI in other contexts (e.g, computational biology, algorithmic game theory, computational economics, etc.) and/or the theoretical concepts of roots of AI from other fields (philosophy, cognitive science, linguistics, psychology)
- The use of robotics and other tangible media both in AI courses and elsewhere in the curriculum, such as introductory programming courses
- Software that assists the teaching/learning process - everything from software to help visualize search spaces and search algorithms, to software substrates that can be used by students to do projects
- Resources and strategies for teaching specific AI subareas or topics: machine learning, robotics, computer vision, natural language processing, game playing, and many others
- Strategies for appropriately situating AI within a wider CS curriculum
- Ways to incorporate or address popular entertainment and media portrayal of AI (in movies, news, advertisements, new products, etc.)
- Real-world examples of successful educational AI deployments, described in sufficient detail to provide case studies and/or serve as useful springboards for other teachers
- Innovative means for integrating research as part of coursework in AI

Organization and Logistics

By holding EAAI in parallel with AAAI (rather than as a separate workshop), we hope to broaden the appeal of AAAI. First, existing attendees interested in education would be able to participate in the event without having to travel to another venue. This would help to provide a critical mass for EAAI from the outset. Second, there is a growing community of educators using AI as a means of promoting greater participation in computing, and this community would benefit from being more directly included under the AAAI umbrella. To this end, we would advertise EAAI to communities beyond AAAI, such as ACM SIGCSE, which have a direct interest in education and have served as a venue for AI-oriented educational papers in the past.

Similar to IAAI, EAAI would maintain an independent organizational structure for the program (symposium chairs, program committee, etc.), but would share the same venue and local arrangements as AAAI. In cases where collaboration would be appropriate (e.g., AAAI Video Program, Poster Session), we would work to integrate the activities. We would also seek to leverage the same infrastructure used by AAAI/IAAI (e.g., conference management system, paper submission system, inclusion of papers in same CD/paper proceedings volume, etc.) to minimized infrastructural overhead.

Finances (Costs, Revenues, and Fund Raising)

Based on data kindly provided by Carol Hamilton, we expect the following cost structure for EAAI in the first year.

Attendance/Revenue

Expected # attendees:	50	(based on prior AI-related educational meetings)
Percentage of new participants:	35%	(i.e., participants not otherwise attending AAAI)
Expected # new attendees:	17	(Estimated: 10 regular, 7 student attendees)
Estimated incremental revenue:	$6,400	(Est. $500/regular and $200/student registrant)

Costs

All costs computed based on a 2 day meeting

Audio/Visual ($675/day):	$1,350	
Catering ($1200/day):	$2,400	
Registration system ($40/person):	$2,000	(Based on 50 attendees, noted above)
CFP/Web/Advertising:	$450	
Technical report/Proceedings:	$750	
AAAI Administration Free:	$1,500	
Invited speaker:	$1,000	
20 Posters ($25/each):	$500	
Additional/incidental costs:	$500	
TOTAL:	$10,450	

Net Costs and Fund Raising

Net costs for the event based on the figures above are: $4,050 (= $10,450 - $6,400)

To offset these costs, we will seek funding for EAAI from the following sources (with amounts specified):

NSF (general meeting support):	$5,000
Microsoft (research support for education):	$2,500
Google (research support for education):	$2,500
Stanford University (CS Education Group):	$2,500
TOTAL POTENTIAL FUND RAISING:	$12,500

We believe that our fund raising efforts will meet with a reasonable degree of success given that individuals at NSF have expressed support for an event such as EAAI in the past, and educational efforts in computing have been financially supported by both Microsoft and Google in recent years. The support from Stanford University is a given. Since the fund raising effort listed above has the potential to provide more than three times the net costs for EAAI, we are confident that the event would be at least revenue neutral in its first year. And after the initial meeting, we can help lay a foundation for successful future meetings with greater attendance.

Additionally, we will seek support of $5,000 from NSF for student travel/registration costs ($1000/student for 5 students) to help promote broader participation.

Conclusion

We already have a motivated team in place ready to begin organizational work on EAAI. The initial members of the team, Zach Dodds (Harvey Mudd College), Todd Neller (Gettysburg College), Mehran Sahami (Stanford University), and Kiri Wagstaff (JPL/NASA), represent a diverse set of institutions and have a successful track record of organizing numerous educational events in the past, including the AAAI Teaching Forum, AAAI Doctoral Consortium, AAAI Student Abstract and Poster program, educationally-oriented AAAI Symposia, and the FLAIRS AI Education Track. We hope AAAI shares our enthusiasm for this endeavor and we can work together to make it a reality. It would provide an excellent opportunity for AAAI to expand its scope while addressing an important issue for many working in the field.