

2000 ACM Conference on Intelligent User Interfaces

Henry Lieberman

The 2000 Association of Computing Machinery Conference (ACM) on Intelligent User Interfaces (IUI-2000) was held in New Orleans, Louisiana, from 9–12 January. This conference occupies the currently “hot” area that lies midway between the traditional fields of AI—represented by conferences such as the National Conference on Artificial Intelligence and the International Joint Conference on Artificial Intelligence—and human-computer interface—represented by conferences such as the ACM Computers and Human Interaction (CHI) Conference and the Interact Conference in Europe.

As AI technologies become more widely used, user interface technologies for AI will become increasingly more important, and as traditional interactive graphic user interfaces become more complex, people will look to AI technologies as a way of making them smarter and more sensitive to their users. A growing band of researchers is focusing on these issues, which demand an interdisciplinary outlook, and the intelligent user interface conference series is the premiere venue.

This year’s conference took place in the fascinating city of New Orleans and was attended by about 150 people, slightly more than last year. Despite the small size of the conference, it achieved a high degree of international participation, with papers from Japan, Germany, the United Kingdom, France, Spain, Sweden, and Brazil. As a single-track conference, it was large enough to be lively but small enough so that it was easy enough for participants to meet and talk with each other.

Starting off the conference were tutorials, including “Introduction to Intelligent User Interfaces” by Mark Maybury of MITRE. Mike Pazzani of the University of California at Irvine presented a tutorial on information filtering that brought people up to speed on technologies especially important for web applications.

Chuck Rich and Candy Sidner of the Mitsubishi Electric Research Labs led a very well-run workshop entitled “Plans in Intelligent User Interfaces.” This topic is a good example of how well-studied AI technologies will

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become an important component of future user interfaces and how they will force rethinking of user interface-design issues. Rich and Sidner were good at adhering to the 10-minute presentation, 20-minute discussion schedule and keeping discus-

sions moving and lively.

Strong showings among the papers were made by a few labs, notably Infolab at Northwestern University. I even named one session filled with Northwestern papers “1890 Maple Avenue” after Infolab’s address. Infolab is pursuing intelligent agents for the web and agents for assisting classroom teaching, one even using speech recognition to flip a speaker’s slides.

Germany also made a strong showing, represented by the DFKI (German Research Center for AI), Saarbrücken, and GMD (German National Research Center for Information Technology) research centers. Elisabeth Andrè and Thomas Rist of DFKI captured the Best Paper Award, which was sponsored by HumanIT. Their paper discussed how multiple-agent teams of lifelike characters could be used in online presentations.

Runners-up for best papers were Justine Cassell et. al. from the Massachusetts Institute of Technology (MIT), who showed how human conversation protocols can make animated characters more lifelike, and Stephen Kerpedjiev from Carnegie Mellon University, who analyzed how communication goals influence the generation of graphic data.

My own lab, the MIT Media Lab, was well represented, with the Cassell et. al. paper and Hao Yan and Ted Selker’s assistant for an office threshold. Also from the lab were MARGIN NOTES, Brad Rhodes’s web page annotation agent, and Warren Sack’s CONVERSATION MAPS, a visualization and linguistic analysis tool for large-scale news groups.

Remarkable was the range of papers presented. Some were relatively theoretical analyses, such as that of Tony Jameson from the University of Saarbrücken on deciding empirically about how to adapt a system to user interaction. Jacob Eisenstein and Angel Puerta of RedWhale Software spoke about automating user interface design. Other papers detailed specific and useful applications, such as Dale Reed’s (University of Illinois) assistant for audio equalization and Akira Takano’s (Mitsubishi) automated help desk. User studies were also presented, such as Pazzani’s report on e-mail and

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Jihie Kim's (University of Southern California Information Sciences Institute) on knowledge acquisition.

We tried an unusual experiment with poster papers and demonstrations, which were all presented at evening sessions (with food!) each of two nights. Each presenter gave a short, 2- to 3-minute, 1- to 2-slide introduction to his/her work and then the group could mingle and munch for more detailed discussions. This approach worked well because presenters got some face time with the audience, and attendees got to quickly hear what was available to better structure their time. Among notable papers presented at these sessions were David Price's (University of Utah) speech interface to JAVA, Jean-David Ruvini's (University of Montpellier) programming-by-example agent to assist SMALLTALK programming, and Pazzani's learning agent for wireless news access.

Chris Miller of Honeywell ran a panel entitled "Off the Desktop—Intelligent User Interfaces." As personal digital assistants, telephones, computer-enabled gadgets, and embedded computing in everyday objects become increasingly important, the intelligent user interface is no longer just a keyboard-and-screen question.

Invited speaker Marvin Minsky of the Massachusetts Institute of Technology gave a talk entitled "The Emotion Machine," presenting some topics from his forthcoming book of the same name. I especially like the ambiguity of the title. Who's the emotion machine? Does it mean that the computer will have emotions in the future, or are we ourselves machines who have emotions? As we toil away on the details of programming and interface issues, Minsky is always great for yank-

ing our thoughts back to the big questions.

The final paper session was entitled "New Directions/More Speculative Topics." I set aside this one session to encourage the acceptance of papers that were unusual and thought provoking, even if they weren't as well developed as some of the others. I wanted to guard against the tendency of some conferences to stick to safe and proven work. Jeff Bradshaw detailed the National Aeronautics and Space Administration's audacious proposal for a floating robot ball to be used in zero-gravity space missions. Thad Starner from the Georgia Institute of Technology described his new collaborative augmented-reality game environment. Warren Moseley of St. Andrews College reminded us of the unusual needs and capabilities of physically challenged users, and Erik Muller of Signiform described his calendar with common sense (boy, do I need one of those).

The conference was closed by Ernest Edmonds of Loughborough University speaking on artists augmented by agents. He related some unique interdisciplinary collaboration in his lab, where artists, computer scientists, and social scientists work together under a mutual-benefit contract. Edmonds also related his own experience as a computer-assisted artist, showing some of his work. An unusual highlight was the tape of a circa-1968 BBC documentary on one of the first computer art shows. Computer-generated art brings into sharp focus the issues of human-machine collaboration.

I also tried to introduce some innovation into the reviewing process. IUI-2000 was, to my knowledge, the first major ACM conference for which all submission and reviewing was done

electronically. Reviewers chose papers to review from a web site, and all reviews were posted online for the program committee. As it happened, this approach was fortunate because a hurricane hit Boston the day of the program committee meeting, and we had to conduct the meeting in part by telephone, videoconference, and the web. The online papers and reviews were invaluable. No numeric rankings of papers or averaging of scores (which, because scales are uncalibrated, I regard as useless) was done. All reviews were read by program committee members when making decisions.

Conference cochairs for IUI-2000 were Doug Riecken of IBM and David Benyon of Napier University. I'd especially like to warmly thank Riecken for working with me closely and for a stellar job in making sure the conference was both scientifically productive and an enjoyable time for all.

My apologies to those whom I neglected to mention. Far more interesting things happened at the conference than I have space to detail. For more information on the papers mentioned here and the rest of the conference, please see the online proceedings of IUI-2000, available at www.media.mit.edu/~lieber/IUI/. General information about the IUI conferences is available at www.iuiconf.org/.

IUI-2001 will take place in Santa Fe, New Mexico, on 14–18 January. Sidner and Johanna Moore (University of Edinburgh) are the general conference cochairs, and James Lester of North Carolina State University is the program chair.



Henry Lieberman is a research scientist at the Media Laboratory of the Massachusetts Institute of Technology. He is a member of the Software Agents Group. Among his

interests are programming by example and intelligent agents for the web. Recently, he served as program chair of the 2000 Association of Computing Machinery Intelligent User Interfaces Conference. His e-mail address is lieber@media.mit.edu.