Guest Editors' Introduction

John Riedl and Randy Hill

We are pleased to publish this special selection of papers from the 2003 Innovative Applications of Artificial Intelligence Conference (IAAI-03). IAAI seeks out applications of artificial intelligence that either demonstrate new technology or use previously known technology in innovative ways. IAAI particularly seeks out examples of deployments of AI technology that tackle the problems of demonstrating value and planning for long-term deployment.

The five articles we have selected for this special issue are extended versions of papers that appeared in the conference. Two of the articles are deployed applications that have already demonstrated practical value. The remaining three articles are particularly innovative emerging applications. We will briefly outline each of them.

Deployed Applications

Hironori Hiraishi and Fumio Mizoguchi's "A Cellular Telephone-Based Application for Skin-Grading to Support Cosmetic Sales" describes how a company in Japan has built a sales application that door-to-door salespersons in Japan can use in selling cosmetics. The salesperson uses the camera in his or her cell phone to take a picture of a client. The picture is beamed back to an AI application running on fast computers in headquarters. The AI application grades the skin type and quality on several dimensions, and prepares a report the salesperson can view on her cell phone, and use to sell products to the client.

Jill Burstein, Martin Chodorow, and Claudia Leacock ("Criterion Online Essay Evaluation: An Application for Automated Evaluation of Student Essays") present an application that grades student essays, and gives automatic feedback to the students to improve their performance. One of the motivations for the project is that if teachers did not have to grade each essay individually they would be more likely to assign essay homework. Further, if students receive detailed feedback on every essay they write they are more likely to improve as writers. The authors discuss the types of writing feedback that AI agents are good at. It is interesting to speculate about what kind of writing would emerge from a group of students who learned mostly through machine evaluations!

Emerging Applications

Zachary Byers, Michael Dixon, William Smart, and Cinty Grimm ("Say Cheese! Experiences with a Robot Photographer") describe a simple R2D2-shaped robot that uses a sensor system to navigate a crowded room looking for photographs to take. The robot has an algorithm for framing photographs based on the rules used by professional photographers. The robot includes simple navigation rules and a preference to only take good pictures to guide its actions. Results are described from using the robot photographer at several academic conferences.

"Building Agents to Serve Customers," by Mihai Barbuceanu and colleagues presents a system for automatically handling customer service queries on Web sites. The system uses a planning system to direct natural-language conversations towards the goal of satisfying user requests. The planning system is flexible in being able to deal with users who change goals in the middle of the interaction and then return to their original high-level goal.

Finally, Kenneth Forbus, Jeffrey Usher, and Vernell Chapman ("Qualitative Spatial Reasoning about Sketch Maps") describe how sketch maps can be used to reason about military scenarios. Users use a glyph-based representation to draw military scenarios on a map, and the computer interprets the representation to understand the movement of units. The computer then analyzes the scenario looking for risks, such as potential ambush sites, which it communicates to the user. The potential is for humans to be able to use human-oriented communication modalities such as sketch maps to communicate with computer-based AI agents for domain-specific decision support. We hope you enjoy this selection of papers from IAAI!

John Riedl has been a member of the faculty of the computer science department of the University of Minnesota since March 1990. In 1992 he cofounded the GroupLens Research project on collaborative information filtering, and has been codirecting it ever since. In 1996 he cofounded Net Perceptions to commercialize GroupLens. In 1999, Riedl and other Net Perception' cofounders shared the MIT Sloan School's award for E-Commerce Technology. They also shared the World Technology Award for being judged among the individual leaders worldwide who most contributed to the advance of emerging technologies for the benefit of business and society.

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