Introduction to the IAAI Articles in This Issue

Deployed Innovative Applications of Artificial Intelligence 2012

Markus Fromherz and Héctor Muñoz-Avila

■ *This issue of* AI Magazine *features expanded versions of articles that discuss deployed applications from the 2012 AAAI Conference on Innovative Applications of Artificial Intelligence (IAAI-12).*

The Innovative Applications of Artificial Intelligence conference (IAAI) is the premier venue for documenting the transition of AI technology into applications. In this issue of *AI Magazine,* we continue our presentation of extended versions of papers presented at IAAI-12 (held in Toronto, Ontario, Canada) that were selected for their description of AI technologies that are in practical use.

Our selections for this issue describe *deployed* applications. They explain the context, requirements, and constraints of the application, how the technology was adapted to satisfy those factors, and the impact that this innovation brought to the operation in terms of cost and performance. The articles also supply useful insights into use cases that we hope can also be translated to other work that the AI community is engaged in.

In the first of these deployed application articles, eBird: A Human/Computer Learning Network to Improve Biodiversity Conservation and Research by Steve Kelling, Carl Lagoze, Weng-Keen Wong, Jun Yu, Theodoros Damoulas, Jeff Gerbracht, Daniel Fink, and Carla Gomes, the authors describe an intriguing application that successfully combines the best in human and artificial computing capabilities with an active feedback loop between people and machines.
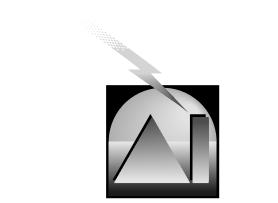
The next two papers articles describe high-value industrial applications where diagnostic capabilities avoid considerable cost and accidents on a daily basis. A Real-Time Decision Sup-

port System for High Cost Oil Well Drilling Operations by Odd Erik Gundersen, Frode Sormo, Agnar Aamodt, and Pal Skalle applies case-based reasoning to the continuous analysis of drilling data to predict potential problems. Statistical Anomaly Detection for Train Fleets by Anders Holst, Markus Bohlin, Jan Ekman, Ola Sellin, Björn Lindström, and Stefan Larsen presents a novel statistical approach to detect anomalies in train operations and again anticipate problems.

A challenging category of applications are those that interact with users that are not aware of the capabilities and limitations of the underlying AI technology. In Applying Automated Language Translation at a Global Enterprise Level, Nestor Rychtyckyj and Craig Plesco describe their experience with adapting language translation technology to the very diverse needs of the employees in a large corporation. Likewise, although on a smaller scale, Stephanie Valentine, Francisco Vides, George Lucchese, David Turner, Hong-hoe Kim, Wenzhe Li, Julie Linsey, and Tracy Hammond present Mechanix: A Sketch-Based Tutoring and Grading System for Free-Body Diagrams, a tool that has been used in several engineering courses to support both teachers and students in explaining and learning the principles of statics.

We hope you enjoy and learn from the articles in this and the previous issue of *AI Magazine*. To learn more about innovative applications of artificial intelligence, we invited you to attend the upcoming conference in Bellingham, Washington, USA (www.aaai.org/iaai13). We also encourage you to submit a description of your AI application to future iterations of the Innovative Applications of Artificial Intelligence Conference, sponsored by AAAI.

Markus Fromherz was chair of the 2012 Innovative Applications of Artificial Intelligence conference. He is the chief innovation officer for healthcare at Xerox and a scientist and former director at the Palo Alto Research Center.

Héctor Muñoz-Avila was the cochair of the 2012 Innovative Applications of Artificial Intelligence conference. He is an associate professor at the Department of Computer Science and Engineering at Lehigh University.

Please Join Us for the Twenty-Fifth Annual Conference on Innovative Applications of Artificial Intelligence!

July 14–18 2013
Bellevue, Washington USA

The Twenty-Fifth Annual Conference on Innovative Applications of Artificial Intelligence (IAAI-13) will be held July 14–18, 2013 in Bellevue, Washington, USA. The conference will focus on successful applications of AI technology. The conference will use technical papers, challenge papers, invited talks, and panel discussions to explore issues, methods, and lessons learned in the development and deployment of AI applications; and to promote an interchange of ideas between basic and applied AI.

IAAI-13 will feature papers in three tracks: (1) deployed application case studies, (2) challenge problem papers, and (3) emerging applications or methodologies. Deployed application case study papers at IAAI-13 will describe deployed applications with measurable benefits that include some aspect of AI technology. Challenge problem papers will identify challenges to apploying AI to real world problems. Emerging application case study papers at IAAI-13 will bridge the gap between basic AI research and deployed AI applications by discussing efforts to apply AI tools, techniques, or methods to real-world problems.

Hector Munoz-Avila, Conference Chair
Lehigh University, USA

David Stracuzzi, Conference Cochair
Sandia National Laboratories, USA

For more information about IAAI-13,
please see the conference website

www.aaai.org/iaai13