Ongoing Advances in Cognitive Systems

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Advances in Cognitive Systems publishes essays and refereed articles on research in the spirit of the original AI revolution over 60 years ago. This differs from much recent work in AI by focusing on high-level processing, emphasizing structured representations, developing integrated systems, incorporating heuristic methods, and including ideas from psychology. The aim has been to understand the full range of human-like cognition and mental abilities in terms of computational structures and mechanisms. The journal reports progress in a variety of theoretical frameworks, but its articles share a concern with features that distinguish humans intellectually from other organisms.

This volume includes expanded versions of papers from the *Sixth Annual Conference on Advances in Cognitive Systems* (*http://www.cogsys.org/conference/2018/*), which took place at Stanford University during August, 2018. One meeting highlight was announcement of the second Herbert A. Simon Prize for Advances in Cognitive Systems, which recognizes scientists who have made important and sustained contributions to understanding human and machine intelligence through the design, creation, and study of computational artifacts that exhibit high-level cognition. The prize reminds the community of its namesake's innovative ideas about mental processing and recognizes contributions of senior scientists who have built on his foundational work. After considering a number of strong candidates, the Cognitive Systems Foundation's selection committee decided that:

> The 2018 Herbert A. Simon Prize for Advances in Cognitive Systems goes to John E. Laird and Paul S. Rosenbloom for their research on cognitive architectures, especially Soar, including applications to knowledge-based systems and models of human cognition, and for their contributions to theories of representation, reasoning, problem solving, and learning.

The recipients have been energetic contributors to AI and cognitive science for over 30 years. Their interdisciplinary and integrative research, both jointly and individually, has addressed many facets of high-level cognition, and they are outstanding role models for young scientists who endeavor to understand the computational nature of the mind. The Prize, which is co-sponsored by the Herbert Simon Society, comes with a $10,000 cash award to be split between the recipients.

The Sixth Annual Conference received 53 submissions that were evaluated by a 36-person program committee and a six-person organizing committee, with the program chairs – Pat Langley and Dongkyu Choi – using their feedback to select 22 papers for oral presentation and journal publication. The preceding volume included half of these articles, with the remainder appearing here. These describe new results on flexible inference, task-oriented dialogue, adaptive planning, collaborative problem solving, and knowledge-guided learning. Together, they complement the papers from the meeting published previously and report ongoing advances in the field of cognitive systems.