Grounding Perception, Knowledge and Cognition in Sensori-Motor Experience

Friday December 8, 2006

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http://rlai.cs.ualberta.ca/RLAI/prw2006.html

Understanding how world knowledge can be grounded in sensori-motor experience has been a long-standing goal of philosophy, psychology, and artificial intelligence. So far this goal has remained distant, but recent progress in machine learning, cognitive science, neuroscience, engineering, and other fields seems to bring nearer the possibility of addressing it productively. The objective of this workshop is to provide cross-fertilization of ideas between diverse research communities interested in this subject. This workshop will serve as a meeting point for researchers from these various disciplines to share their perspectives and insights on the issue of representing knowledge in terms of sensori-motor experience. The workshop will be comprised of invited talks by five of the top people from a variety of disciplines related to experience based knowledge representations. The speakers will share their area-specific knowledge and understanding of these issues with the workshop attendees. Several discussion sessions will give an opportunity for all workshop participants to discuss ideas. The workshop will conclude with a poster session populated with work submitted by the community at large. A central goal is to bring together the perspectives of different communities. We invite participants from any area, including machine learning, cognitive science, computational neuroscience, developmental robotics, and philosophy.

Invited Speakers

Dr. Bernard Balleine	Learning and Behavior	UCLA Dept. of Psychology
Dr. Mark Bickhard	Institute for Interactivist Studies	Lehigh University
Dr. Rajesh Rao	Laboratory of Neural Systems	University of Washington
Dr. Deb Roy	MIT Media Laboratory	MIT
Dr. Richard Sutton	Reinforcement Learning and AI Laboratory	University of Alberta

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Organizers: Michael James & Brian Tanner & David Wingate

Morning session: 7:30am–10:30am

7:30 am **Representation and Motivation: Two Aspects of One Underlying Interactive System**, *Dr. Mark Bickhard*

8:15 am **Graphical Models for Sensori-Motor Learning**, *Dr. Rajesh Rao*

9:00 am *Coffee break* (20 Minutes)

9:20 am **Prediction and choice: The interaction of the Pavlovian and instrumental learning systems**, *Dr. Bernard Balleine*

10:10 am **Discussion: Grounded Representations in Humans and Animals**

10:30 am *Break*

Afternoon session: 3:30pm–6:30pm

3:30 pm **Grounding Artificial Cognition**, *Dr. Richard Sutton*

4:20 pm **Meaning Machines**, *Dr. Deb Roy*

5:10 pm **Discussion: Grounded Representations in Artificial Systems**

5:25 pm **Closing remarks**

5:30 pm **Poster Session** (1 hour)

6:30 pm *Adjourn*