

# RepLearn 2013

## *Workshop on Learning Rich Representations from Low-Level Sensors*



Monday, July 15th, 2013 in Bellevue, Washington, USA. In conjunction with [AAAI 2013](#).

Submit by **March 28th, 2013** through workshop site at <http://marcpickett.com/RepLearn2013/>

### ***Motivation and Relevance***

A human-level artificially intelligent agent must be able to represent and reason about the world, at some level, in terms of high-level concepts such as entities and relations. The problem of acquiring these rich high-level representations, known as the *knowledge acquisition bottleneck*, has long been an obstacle for achieving human-level AI. A popular approach to this problem is to handcraft these high-level representations, but this has had limited success. An alternate approach is for rich representations to be learned autonomously from low-level sensor data. Potentially, the latter approach may yield more robust representations, and should rely less on human knowledge-engineering.

### ***Topics***

We are interested in all parts of the bridge between low-level-sensors and rich high-level representations and their use in reasoning tasks. This includes but is not limited to:

- Learning concept hierarchies from sensor data.
- Representing and learning invariant concepts.
- Postulating objects and theoretical entities.
- Postulating relations from sensor data, when the data is not explicitly relational.
- Learning symbolic representations from numerical sensor data.
- High-level reasoning grounded in robotic sensors and effectors.
- Sensor-grounded research on cognitive architectures.

### ***Format***

This one-day workshop will begin with an explanation of the workshop's focus and research overview. We will decompose the workshop into themes that concern learning rich representations from sensor data: tasks, techniques, evaluations, or demonstrations. We will include invited talks from senior researchers who can summarize their long-term research on this topic. We will also include one or more panels that focus on the themes listed above, and their challenges.

### ***Contact***

Submission information and schedule at <http://marcpickett.com/RepLearn2013/>  
Contact Marc Pickett ([marc.pickett.ctr@nrl.navy.mil](mailto:marc.pickett.ctr@nrl.navy.mil)) for questions.

### ***Important Dates***

- Paper [submission](#): **March 28th, 2013**
- Notification of acceptance: **April 19th, 2013**
- Camera-ready papers: **May 9th, 2013**
- Workshop date: **July 15th, 2013**

### ***Submission***

Submissions are due by March 28th. You are invited to [submit](#) through the EasyChair link on the workshop website. All submissions should be in AAAI's [two-column format](#), and must not have been published elsewhere. Research papers should not exceed 6 pages, and position papers should not exceed 3 pages. All submissions will be refereed based on their relevance, originality, significance and soundness.

### ***Organizing Committee***

- [Marc Pickett](#), Naval Research Laboratory
- [Benjamin Kuipers](#), University of Michigan
- [Yann LeCun](#), New York University
- [Clayton Morrison](#), University of Arizona