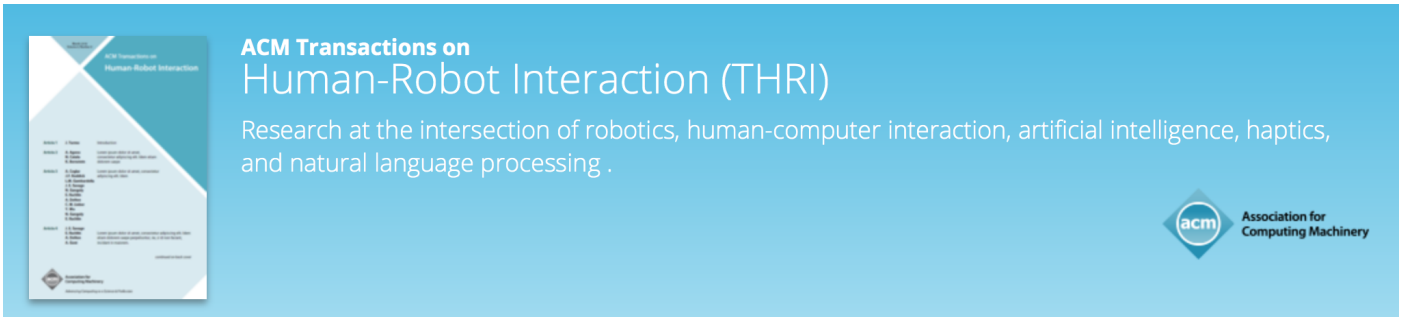

ACM Transactions on Human-Robot Interaction

Call for Papers

Special Issue on

Representation Learning for Human and Robot Cognition

Introduction

Creating intelligent and interactive robots has been subject to extensive research studies. They are rapidly moving to the center of the human environment so that they collaborate with human users in different applications, which require high-level cognitive functions so as to allow them to understand and learn from human behavior within different Human-Robot Interaction (HRI) contexts. To this end, a stubborn challenge that attracts much attention in artificial intelligence is *representation learning,* which refers to learning representations of data so as to efficiently extract relevant features for - probabilistic, nonprobabilistic, or connectionist - classifiers. This active area of research spans different fields and applications, such as: speech recognition, object recognition, emotion recognition, natural language processing, language emergence and development, in addition to mirroring different human cognitive processes through appropriate computational modeling.

Learning constitutes a basic operation in the human cognitive system and developmental process, where perceptual information enhances the ability of the sensory system to respond to external stimuli through interaction with the environment. This learning process depends on the optimality of features (representations of data), which allows humans to make sense of everything they feel, hear, and see in the environment. Using intelligent robots could open the door to shed light on the underlying mechanisms of representation learning and its associated cognitive processes so as to take a closer step towards making robots able to better collaborate with human users in space.

This special issue aims to shed light on cutting-edge lines of interdisciplinary research in artificial intelligence, cognitive science, neuroscience, cognitive robotics, and human-robot interaction, focusing on representation learning with the objective of creating a natural and intelligent interaction between humans and robots. Recent advances and future research lines in representation learning would be discussed in detail in this journal special issue.

Topics of interest include (but are not limited to):

- Language learning, embodiment, and social intelligence
- Human symbol system and symbol emergence in robotics
- Computational modeling for high-level human cognitive functions
- Predictive learning from sensorimotor information
- Multimodal interaction and concept formulation
- Language and action development
- Learning, reasoning, and adaptation in collaborative human-robot tasks
- Affordance learning
- Cross-situational learning
- Learning by demonstration and imitation
- Language and grammar induction in robots

Important Dates

May 1, 2018: Deadline for submission of full length papers
August 1, 2018: Notification of initial reviews
October 1, 2018: Deadline for submission of revised manuscripts
December 1, 2018: Notification of final reviews
January 15, 2019: Deadline for submission of camera-ready manuscripts
March 2019: Expected publication date

Submission Process

ACM Transactions on Human-Robot Interaction is a peer-reviewed, interdisciplinary, open-access journal using an online submission and manuscript tracking system. To submit your paper, please:

- Go to https://mc.manuscriptcentral.com/thri and login or follow the "Create an account" link to register.
- After logging in, click the "Author" tab.
- Follow the instructions to "Start New Submission".
- Choose the submission category "**SI: Representation Learning for Human and Robot Cognition**".

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