openEASE — an open knowledge service for knowledge representation and reasoning research for robotic agents

Michael Beetz

Institute for Artificial Intelligence
University Bremen
Am Fallturm 1,28359 Bremen, Germany

Abstract

In this talk I will present openEASE, a web-based knowledge service providing robot and human activity data. openEASE contains semantically annotated data of manipulation actions, including the environment the agent is acting in, the objects it manipulates, the task it performs, and the behavior it generates. The episode representations can include images captured by the robot, other sensor datastreams as well as full-body poses. A powerful query language and inference tools, allow reasoning about the data and retrieving requested information based on semantic queries. Based on the data and using the inference tools robots can answer queries regarding to what they did, why, how, what happened, and what they saw.

openEASE can be used by KR&R researchers using a browser-based query and visualization interface, but also remotely by robotic via a WebSocket API.

About the Author

Michael Beetz is a professor for Computer Science at the Faculty for Mathematics & Informatics of the University Bremen and head of the Institute for Artificial Intelligence (IAI). He received his diploma degree in Computer Science with distinction from the University of Kaiserslautern. His MSc, MPhil, and PhD degrees were awarded by Yale University in 1993, 1994, and 1996, and his Venia Legendi from the University of Bonn in 2000. He was vice-coordinator of the German cluster of excellence CoTeSys (Cognition for Technical Systems, 2006-2011), coordinator of the European FP7 integrating project RoboHow (web-enabled and experience-based cognitive robots that learn complex everyday manipulation tasks, 2012-2016), and is the coordinator of the German collaborative research centre EASE (Everyday Activity Science and Engineering, since 2017). His research interests include plan-based control of robotic agents, knowledge processing and representation for robots, integrated robot learning, and cognition-enabled perception.

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