

Discovery of Abstract Concepts by a Robot

Ivan Bratko

University of Ljubljana, Faculty of Computer and Information Science
Tržaška 25, 1000 Ljubljana, Slovenia
`ivan.bratko@fri.uni-lj.si`

Abstract. This paper reviews experiments with an approach to discovery through robot's experimentation in its environment. In addition to discovering laws that enable predictions, we are particularly interested in the mechanisms that enable the discovery of abstract concepts that are not explicitly observable in the measured data, such as the notions of a tool or stability. The approach is based on the use of Inductive Logic Programming. Examples of actually discovered abstract concepts in the experiments include the concepts of a movable object, an obstacle and a tool.

Keywords: Autonomous discovery, robot learning, discovery of abstract concepts, inductive logic programming.