

Vague Concept Learning with Robotic Systems

J. Edwards, D. Froud, J. Lawry and C. Melhuish

Abstract

The potential for autonomous robots to use linguistic based communication as a method for information transfer remains mostly untapped. Loose boundaries associated with linguistic terms allow communication of salient information across a population without a rigid inflexible structure, encompassing possibilities for changing definition boundaries and evolving robot platform, while still maintaining functional meaning. Vague concepts are defined as concepts that do not have accepted quantifiable values; tactile examples are softness, size and roughness. The following research represents work in progress towards this goal, using pupil and teacher experiments. Label semantics are used to produce preliminary results from an initial model of acquisition of vague concepts from a teacher, maintaining a level of uncertainty of concept boundaries for flexibility.