

Relating Textural Concepts to Tactile Sensors

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Abstract

The aim of this work is to generate a mapping between low-level features extracted from tactile sensors and high-level concepts, as represented by natural language labels. In [Edwards 2008] we have investigated feature extraction from data generated by an artificial finger applied to a number of discs, based on Fast Fourier Transforms and Principal Components Analysis. Here we report on an experiment to elicit labels for the same discs from human subjects. It is shown that the labels are allocated in a consistent, intuitive manner by the subjects. The potential of a mapping between the low-level feature space obtained in (Edwards, 2008) and the texture labels is then investigated. K Nearest Neighbours is applied as a classification method linking feature values to labels, and a high-level of accuracy is obtained.