RESEARCH ARTICLE

# Fast Recognition of Mechanical Objects Using Neural Networks Under Robust Aspect

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**Abstract:**

Image recognition systems, which are invariant to rotation and scale, can be useful for a variety of automated- tasks, and, therefore, command considerable interest. A fast and highly robust vision system is very important in real-time object recognition. Neural network, which allows large parallel interconnections, presents a promising alternative to traditional real-time object recognition techniques such as template matching. In this paper, a novel neural-network based and scale and rotation invariant object recognition system is presented, that is faster than the template matching technique traditionally used, and thus, has an edge in real-time operation. Results obtained are included in the paper that compare favourably with the template-matching technique in terms of search time.

**Keywords:** Image processing, Template matching, Feed-forward neural network, Back-propagation algorithm,
Levenberg–Marquardt, optimization technique , Search time