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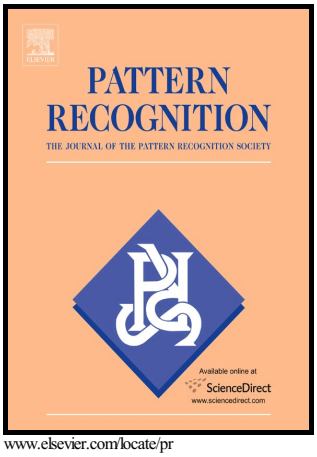

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ACCEPTED MANUSCRIPT

A survey on image-based insects classification

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Abstract

Entomology has had many applications in many biological domains (i.e insect counting as a biodiversity index). To meet a growing biological demand and to compensate a decreasing workforce amount, automated entomology has been around for decades. This challenge has been tackled by computer scientists as well as by biologists themselves. This survey investigates fourty-four studies on this topic and tries to give a global picture on what are the scientific locks and how the problem was addressed. Views are adopted on image capture, feature extraction, classification methods and the tested datasets. A general discussion is finally given on the questions that might still remain unsolved such as: the image capture conditions mandatory to good recognition performance, the definition of the problem and whether computer scientist should consider it as a problem in its own or just as an instance of a wider image recognition problem.

Keywords: image-based insect recognition; classification; automated entomology; arthropods

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