

# On the Practical Advantages of Fuzzy K-Nearest Neighbor Classification in Visual Objects Recognition

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## Abstract

*Supervised pattern classification is one of the common strategies to visual objects recognition. Initially introduced as crisp versions, most of the pattern classifiers have fuzzy generalizations, in order to provide also a confidence degree in the assigned label, which is best modeled by a fuzzy membership value. Among these, classifiers like the K-Nearest Neighbor (K-NN) and its fuzzy version, fuzzy K-NN, are popular due to their low computational complexity and good practical performance. Despite the large variety of applications reporting their use, there is a lack for some simple and comparative illustration of the K-NN and fuzzy K-NN performance for practical machine vision applications. The main purpose of this paper is to describe such a simple framework in which the difference between the fuzzy and crisp K-NN classification is emphasized and interpreted to improve the classification results, on a shape recognition application (namely, the playing cards classification).*

## Biography

Popescu Emanuel is a student at Integrated Circuits and Systems master studies from Technical University Cluj-Napoca, The Faculty of Electronics, Telecommunications and Information Technology. He received bachelor's degree in 2011, from Technical University Cluj-Napoca, specialized as Engineer in Applied Electronics. Besides his master studies, is a student participating in the pilot program specialized in e-Activities. His research interests are in Image Processing, Object Recognition, Fuzzy Systems and Digital Electronics.

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