Verification of Stamps in Documents

Challenge

Classical ink stamps and seals used for authentication of a document content have become relatively easy to forge by the scan & print technique since the technology is available to general public. For environments like insurance companies where a huge volume of documents is processed, an automatic system for optical verification of authenticity of stamps is needed. To verify the authenticity of a stamp, it has to be first detected and segmented from a document image. However, a reliable detection of stamps in images is not a trivial task and no general solution has been given yet.

Approach

A new method based on colour clustering is used to segment the page to obtain candidate solutions to the detection and verification problem. To differentiate original stamps from the falsified ones and from other objects on the page (such as logos), features related to the quality of the print, colour and geometrical properties of the candidate are extracted. Then, a two-stage classification by Support Vector Machines is performed.

Results

Evaluation of the detection algorithm on a collection of 400 documents with stamps and many other colour objects has been done with an accuracy of over 90%. Even difficult cases of overlapped stamps were segmented correctly. Verification was evaluated on the data set mixed with copies made on 5 different copiers and in up to 95% of cases, the authenticity of a stamp was correctly recognized.

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