WHAT IS CLAIMED IS:-

1. A system for authenticating a subject identification document, the system comprising:

a memory comprising a first memory section storing computer-executable instructions and a second memory section storing:

an enrolled document template including at least one enrolled document color profile descriptor;

region of interest (ROI) information; and

a codebook representing partitions of a color space;

a processor in communication with the memory and configured to execute the computer-executable instructions that, when executed, cause the processor to:

receive a first image of the subject identification document, the first image depicting, in a red-green-blue (RGB) color space, the subject identification document;

transform the first image of the subject document to a second image of the subject identification document in a YcbCr color space;

assign pixels within a ROI in the second image corresponding to the ROI information to the partitions of the codebook;

generate a subject document color profile descriptor based on respective counts of the pixels assigned to the partitions of the codebook;

compare the subject document color profile descriptor to the enrolled document color profile descriptor to determine whether the subject identification document is authentic.

2. The system of Claim 1, wherein the computer-executable instructions, when executed, further cause the processor to assign the pixels within the ROI to the partitions of the codebook by:

representing the pixels within the ROI as a plurality of (cb, cr) points in a [Cb, Cr] color plane;

computing respective distances between each of the plurality of (cb, cr) points and each of respective centroids in the [Cb, Cr] color plane corresponding to the partitions of the codebook; and

assigning each of the plurality of (cb, cr) points to a nearest partition based on the respective distances.

3. The system according to any one of Claim 1 to 2, wherein the computer-executable instructions, when executed, further cause the processor to generate a matching score for the subject document color profile descriptor by:

representing a first histogram for the enrolled document color profile descriptor as a first vector;

representing a second histogram for the subject document color profile descriptor as a second vector having elements corresponding to the respective counts of the pixels assigned to the partitions of the codebook; and

computing a cosine distance between the first vector and the second vector, the cosine distance being the matching score.

4. The system according to any one of Claim 1 to 3, wherein the computer-executable instructions, when executed, further cause the processor to assign the pixels within the ROI to a nearest one of N partitions of the codebook, wherein N is between 32 and 48, inclusively.

5. The system according to any one of Claim 1 to 4, wherein the computer-executable instructions, when executed, further cause the processor to generate the codebook by:

computing N random points in the color space, the N random points representing centroids of N partitions of the color space; and

executing a k-means algorithm to:

assign discrete points in the color space to the N partitions based on a distance between the discrete points and the centroids of the N partitions; and

recomputing the centroids of the N partitions as the discrete points are assigned;

wherein codebook comprises the centroids of the N partitions.

6. The system of claim 5, wherein the second memory section stores the codebook representing the partitions of the color space for use in authenticating all documents of a document type corresponding to the enrolled document color profile descriptor.

7. The system according to any one of Claim 5 to 6, wherein the computer-executable instructions, when executed, further cause the processor to generate the enrolled document color profile descriptor by:

receiving a first image of a corresponding enrollment document, the first image depicting, in the RGB color space, the enrollment document;

transforming the first image of the enrollment document to a second image of the enrollment document in the YcbCr color space;

assigning pixels within the ROI in the second image of the enrollment document corresponding to the ROI information to the partitions of the codebook; and

generating the enrolled document color profile descriptor based on respective counts of the pixels within the ROI of the enrollment document assigned to the partitions of the codebook.

8. The system according to any one of Claim 1 to 7, wherein the second memory section stores the ROI information for identifying the ROI in all documents of a document type corresponding to the enrolled document color profile descriptor.

9. The system according to any one of Claim 1 to 8, wherein the ROI information includes a size, a shape, and a location of one or more ROI on the subject identification document.

10. The system according to any one of Claim 1 to 91, wherein the codebook representing partitions of the color space comprises a plurality of centroids representing the partitions.

11. The system according to any one of Claim 1 to 4, wherein the codebook representing partitions of the color space comprises a plurality of angular sectors into which a [Cb, Cr] color plane is divided, and wherein the subject document color profile descriptor comprises the respective counts of the pixels assigned to the partitions of the codebook.

12. A non-transitory, computer readable storage medium having a first memory section storing an enrolled document template including an enrolled document color profile descriptor, region of interest (ROI) information, and a codebook, and a second memory section having instructions stored thereon that, in response to execution by a processor, cause the processor to:

receive a first image of a subject identification document, the first image depicting, in a red-green-blue (RGB) color space, the subject identification document;

transform the first image of the subject document to a second image of the subject identification document in a YCbCr color space;

assign pixels within a ROI in the second image corresponding to the ROI information to partitions of the [Cb, Cr] color plane defined in the codebook;

generate a subject document color profile descriptor based on respective counts of the pixels assigned to the partitions of the codebook;

compare the subject document color profile descriptor to the enrolled document color profile descriptor to determine whether the subject identification document is authentic.

13. A computer-implemented method for authenticating a subject identification document, the method implemented using an authentication system including (i) a memory storing an enrolled document template, region of interest (ROI) information, and a codebook representing partitions of a [Cb, Cr] color plane, and (ii) a processor in communication with the memory, the method comprising:

receiving a first image of the subject identification document, the first image depicting, in a red-green-blue (RGB) color space, the subject identification document;

transforming the first image of the subject document to a second image of the subject identification document in a YCbCr color space;

assigning pixels within a ROI in the second image corresponding to the ROI information to the partitions of the codebook;

generating a subject document template based on respective counts of the pixels assigned to the partitions of the codebook;

comparing the subject document template to the enrolled document template to determine whether the subject identification document is authentic.

14. The computer-implemented method of Claim 13 further comprising generating the codebook, including:

computing N random points in the [Cb, Cr] color plane, the N random points representing centroids of N partitions of the [Cb, Cr] color plane; and

executing a k-means algorithm to:

assign discrete points in the [Cb, Cr] color plane to the N partitions based on a distance between the discrete points and the centroids of the N partitions; and

recomputing the centroids of the N partitions as the discrete points are assigned;

wherein codebook comprises the centroids of the N partitions.

15. The computer-implemented method of Claim 14, wherein assigning the pixels comprises:

representing the pixels within the ROI as a plurality of (cb, cr) points in the [Cb, Cr] color plane;

computing respective distances between each of the plurality of (cb, cr) points and each of respective centroids in the [Cb, Cr] color plane corresponding to the partitions of the codebook; and

assigning each of the plurality of (cb, cr) points to a nearest partition based on the respective distances.