

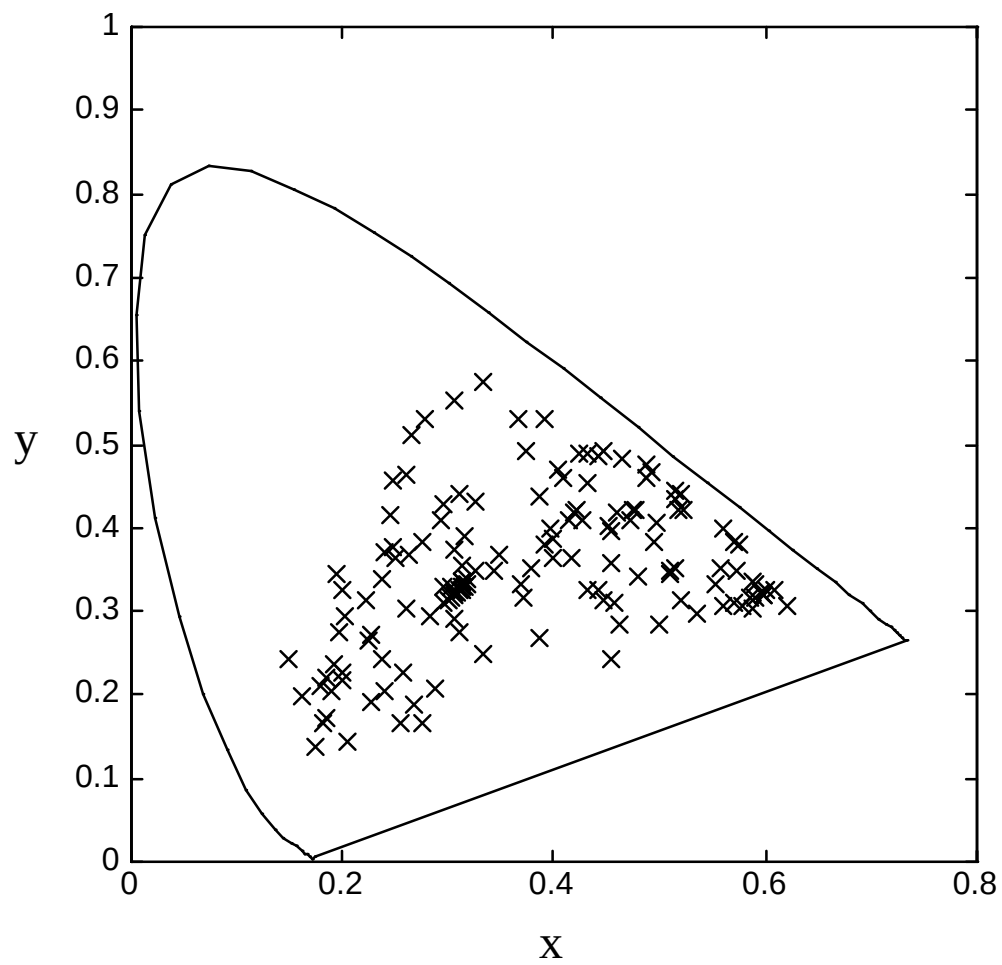


Fig. 1 An x-y chromaticity diagram of the 147 measured color samples of oil painting under D65 illuminant.

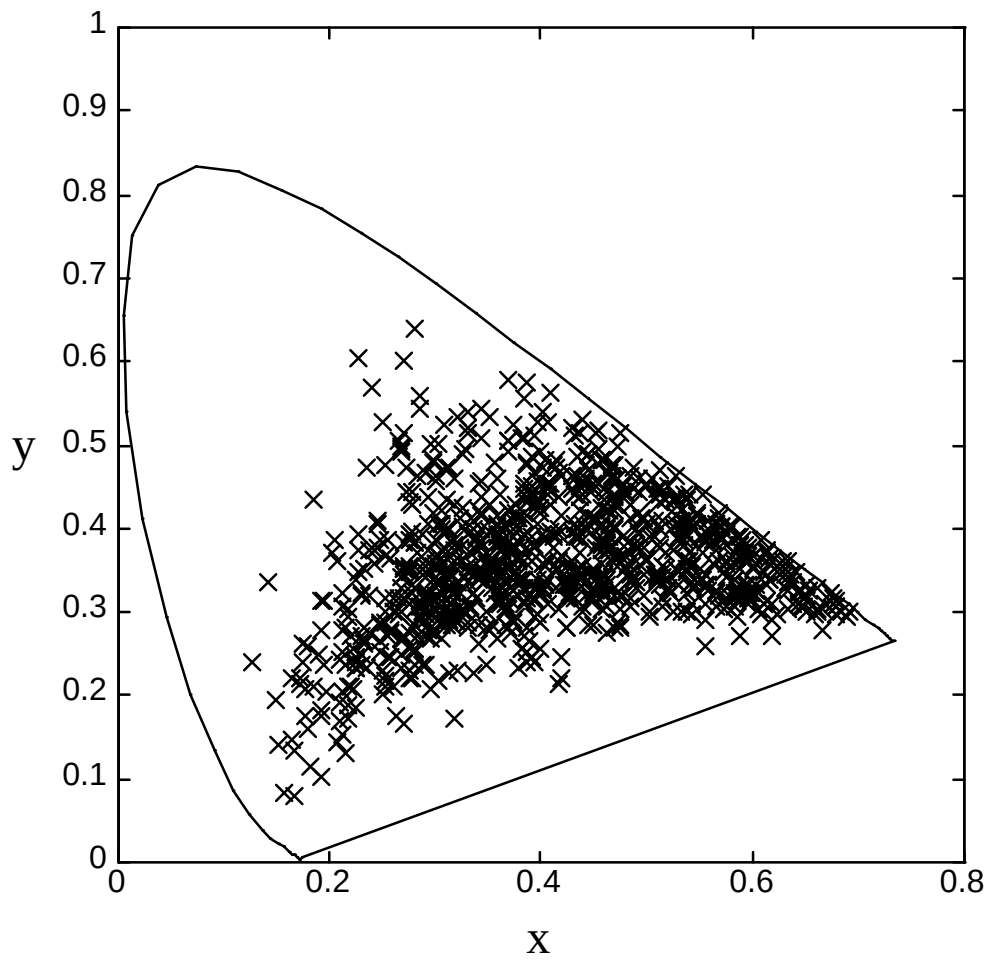


Fig. 2 An x-y chromaticity diagram of 1000 simulated mixed color samples of oil painting under D65 illuminant.

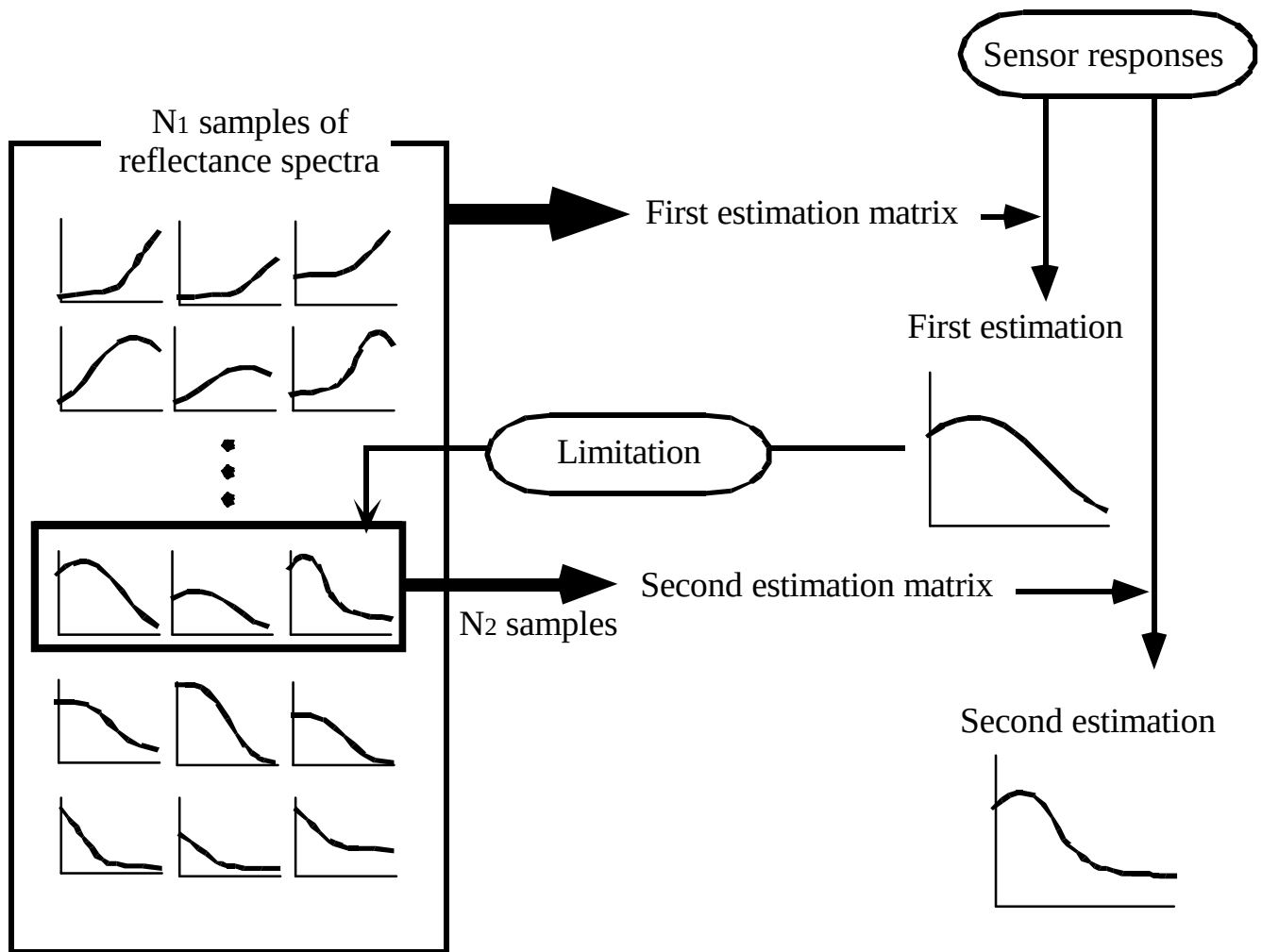
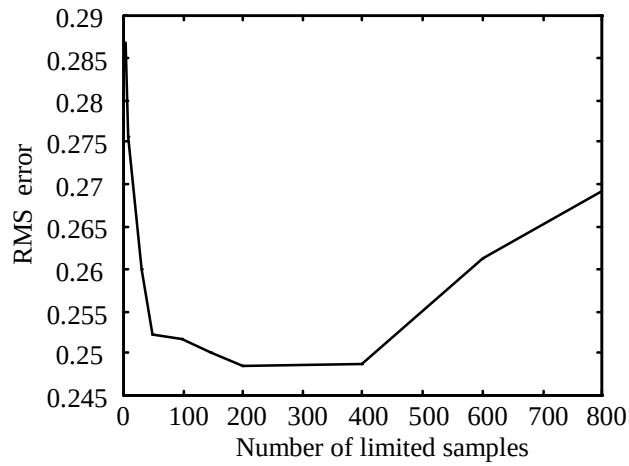
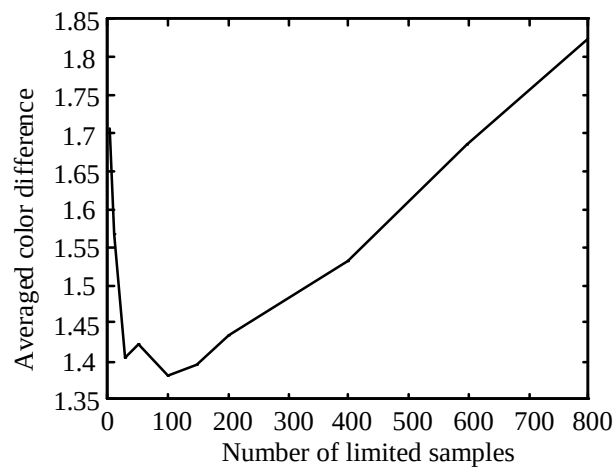


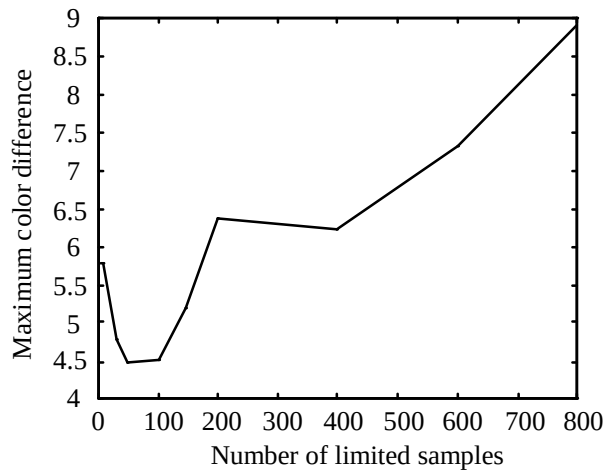
Fig. 3 Schematic diagram of limited sample method to improve the way of selecting color samples of spectral reflectance.



(a)

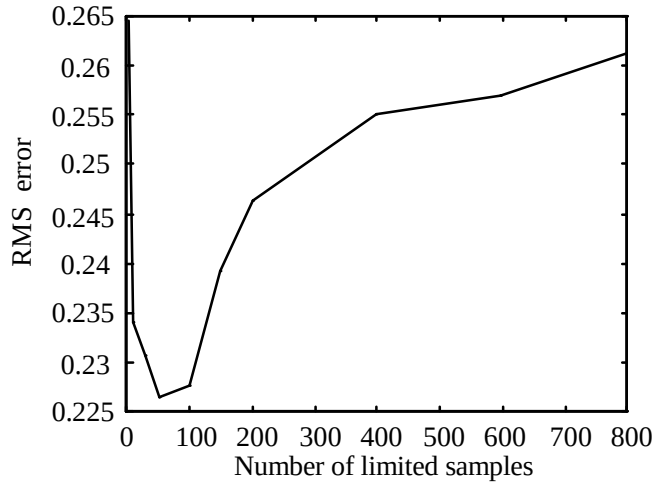


(b)

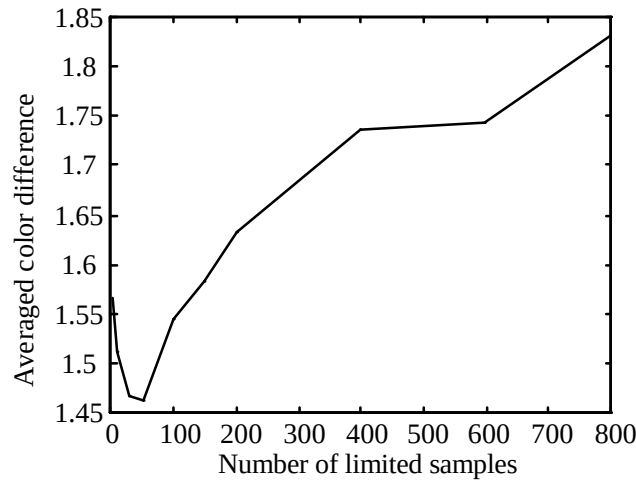


(c)

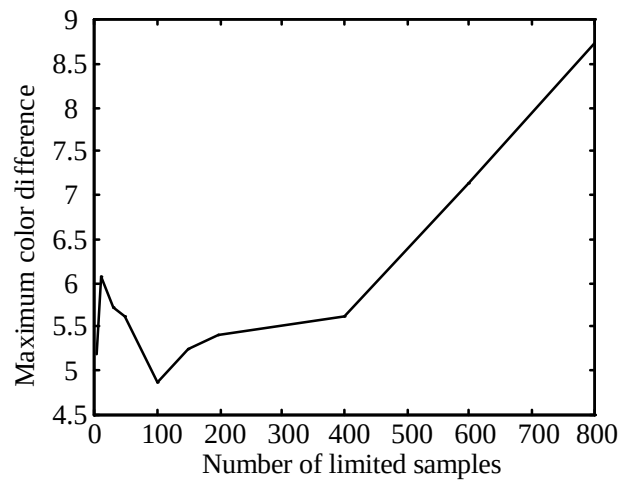
Fig. 4 Resultant relationship between the limitation number N_L and performance of the proposed estimation technique using the vector angle for limitation. (a)RMS error, (b) averaged color difference and (c) maximum color difference in CIE $L^* a^* b^*$ color space.



(a)



(b)



(c)

Fig. 5 Resultant relationship between the limitation number N_2 and performance of the proposed estimation technique using the vector distance for limitation. (a) RMS error, (b) averaged color difference and (c) maximum color difference in CIE $L^* a^* b^*$ color space.

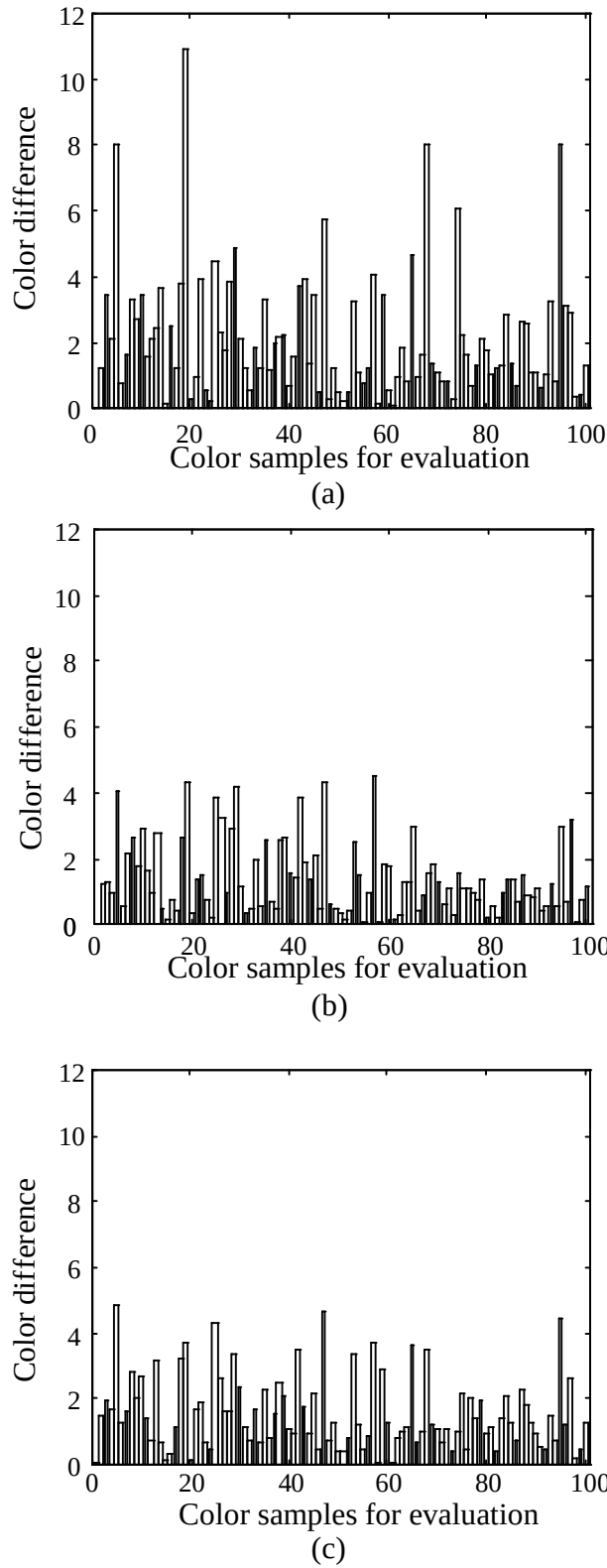
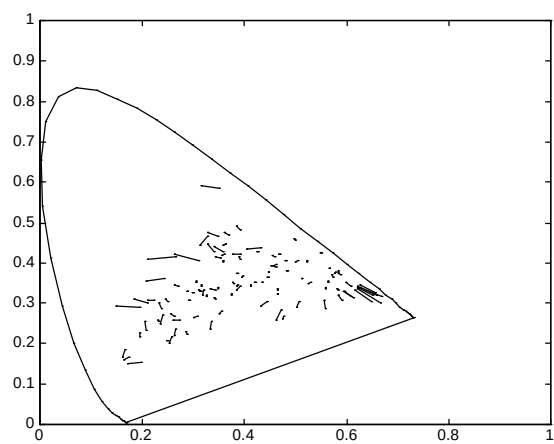
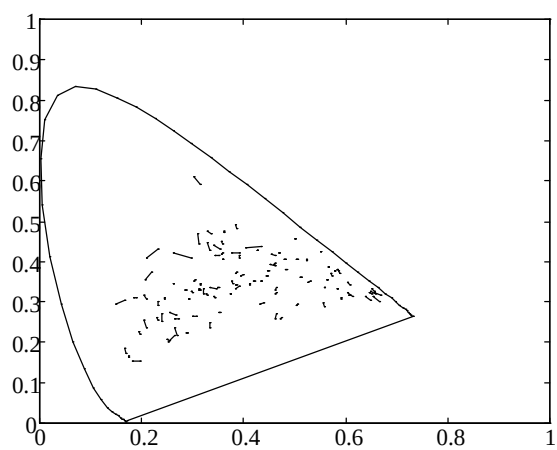


Fig. 6 Color differences between the original spectral reflectance for evaluation and (a) first estimated spectral reflectance, (b) second estimated spectral reflectance using vector angle for limitation, (c) second estimated spectral reflectance using vector distance for limitation.

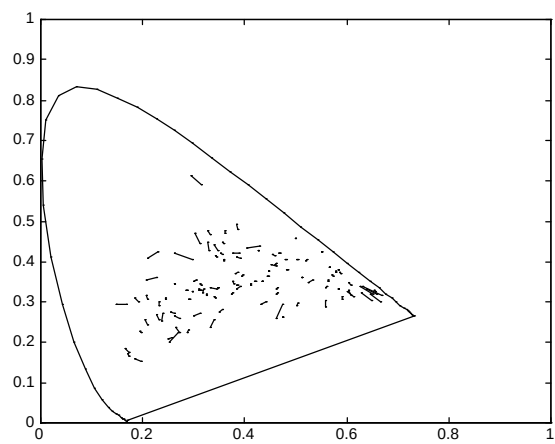
1st



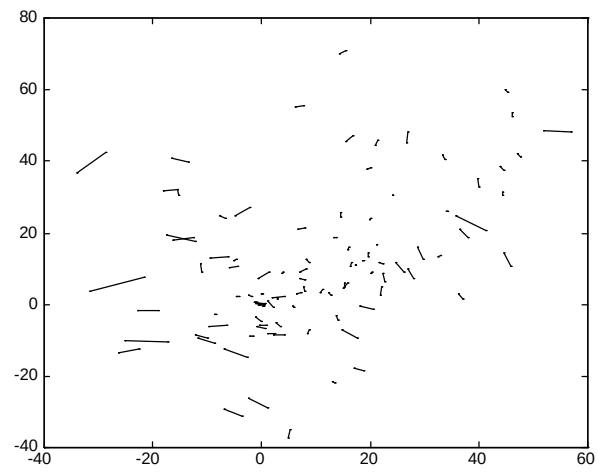
2nd Angle



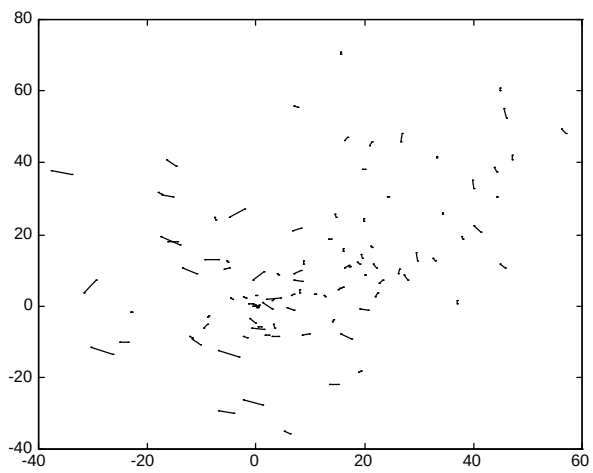
2nd Dis t



1st



2nd
Angle



2nd
Dist

