

Sampling type Operators for Retinal Characterization

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1 Abstract

Sampling Kantorovich operators (SKO) have been introduced in the mathematical literature to extend the results of the classic and generalized sampling theorems to classes of not necessarily continuous functions. Starting from the one dimensional case, their formalization have been extended to multidimensional setting ([5]). Thanks to their low-pass characteristic ([3]), SKO have been successfully applied to image reconstruction for the solution of both medical as engineering specific problems ([1, 4]).

Taking into account these results, Optical Coherence Tomography (OCT) data have been reconstructed by means of the SKO, achieving improved images of the retinal fundus in terms of perceivable visual quality ([2]). A new hybrid segmentation procedure together with a cluster counting measurement has been introduced to quantify the quality of the retinal reconstructions and estimate the grade of connectivity in the retinal tissue.

References

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