estimation of density function

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The aim of this thesis is to discuss most of the important types of nonparametric density estimation of unknown probability density function.The thesis consists of two chapters.In first chapter, we will study some types of nonpara-metric density estimation. The types discussed are kernel-type, orthogonal series estimators, penalized maximum likelihood estimators, delta sequence estimators and recursive estimators.In second chapter , we will consider the problem of estimating the probability density function in the presence of noise. We obtain the mean integrated square error using the kernel-type estimator, and the optimal scaling parameter x . We discuss the estimation for some densities (Normal, Cauchy and Exponential) in the absence of noise and in the presence of noise (when the noise isdistributed according to the Normal, Cauchy and Exponential distribution) by using the Fourier integral estimator and smoothing parameter A , we using the cross validation method. Then, we compare the value of the mean integratedsquare error for smooth and optimal X . The main results of this chapter has been accepted for publication in the Proceedings of the first Islamic countries conference on statistical sciences and will publiched in MansouraBulletin.