

Meeting: 1006, Lubbock, Texas, SS 14A, Special Session on Undergraduate and Graduate Student Research (and Related Poster Session organized by Ali Khoujmane and Mara D. Neusal, Texas Tech)

1006-62-12 **Ali Khoujmane*** (akhoujma@math.ttu.edu), Mathematics and statistics department, Texas Tech University, Box 41042, Lubbock, TX 79409-1042. *Improving Regression Function Estimators.*

The estimation problems regarding nonparametric regression functions that are not necessarily directly observed. Practical examples are abundant; for instance one may want to infer about the weight distribution of a cable of which only the shape is known. In general one may think of an input-output system, where one wants to recover an unknown parameter of the input. At least two measurement designs can be employed: random design, where the points at which the output function is observed are chosen according to a random mechanism; or deterministic design where these points are chosen essentially error free by the observer. The random design model leads statistically to independent and identically distributed observations. This is no longer true for the deterministic design where the data are independent but not identically distributed. Therefore the latter situation is mathematically somewhat harder to deal with than the former, and most of the results in the literature, whenever available at all in this rather complicated model, are usually formulated and proved for the independent and identically distributed case. The parameter of particular interest to us is a linear functional of the input, like for instance a Fourier coefficient in an expansion of this function. (Received December 10, 2004)