On Discovering Functional Relationships When Observations Are Noisy: 2D Case

J. Ćwik[1], J. Koronacki[1,2] and J.M Żytkow[1,3]

[1] Institute of Computer Science, Polish Academy of Sciences,
[2] Polish-Japanese Institute of Computer Techniques
[3] Computer Science Department, UNC Charlotte
jc, korona@ipipan.waw.pl, zytkow@uncc.edu

Abstract. A heuristic method of model selection for a nonlinear regression problem on R^2 is proposed and discussed. The method is based on combining nonparametric statistical techniques for generalized additive models with an implementation of the Equation Finder of Zembowicz and Żytkow (1992). Given the inherent instability of such approaches to model selection when data are noisy, a special procedure for stabilization of the selection is an important target of the method proposed.