MAMERN'07 INVITED SPEAKER

Oleg Davydov (univ. of Strathclyde, UK)

Efficient Fitting of Large Scattered Data

We present efficient and effective methods of scattered data fitting based on a two-stage approach, where reliable discrete least squares approximations (with polynomials and/or radial basis functions) to the local patches of the data are computed adaptively taking into account the approximation error bounds, and then the local approximations are extended to a global smooth piecewise polynomial surface using quasi-interpolation with multivariate splines, with linear total computational cost. Example applications to large terrain data and multibeam echosounder data, as well as software package TSFIT will also be presented.