

Scattered Data Modelling by Using Radial Basis Functions

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Radial basis functions are traditional and powerful tools for multivariate interpolation from scattered data. This self-contained talk surveys both theoretical and practical aspects of scattered data fitting by radial basis functions. To this end, basic features of the radial basis function interpolation scheme are first reviewed, such as well-posedness, numerical stability and approximation orders, before selected computational aspects are addressed. Special attention is placed on multiresolution modelling. The utility of radial basis functions is finally supported by using real-world examples from terrain modelling and hierarchical surface visualization.