Kriging and Spline Method

Jeikosd

September 4, 2017

Introduction to Kriging

Basic

- Kriging is an approximation method that can give predictions of unknow values of a random functions, or random process.
- It is a linear regression model with weights into the covariance matrix.
- Kriging assumes that the closer the input data, the more positively correlated the predicton errors.
- Mathematically, this assumption is modelled through a second-order stationary covariance process:
  - The expectation of the observations are constant and do not depend on the location (the input values).
  - The covariances of the observations depend only on the "distances" between the corresponding inputs.
  - These covariances decrease with the distances between the observations.

Variogram

- In Kriging, a crucial role y played by the variogram. That is a diagram of the variance of the difference bwtween the measurements at two input locations.
- The assumption of a second-order satiationary covariance process implies that the variogram is a function of the distance h between two locations.

Types

- There are many several types of krigin
  - Universal
  - **Ordinary**
  - Simple