Characterisation Platform for Surface Metrology

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Introduction

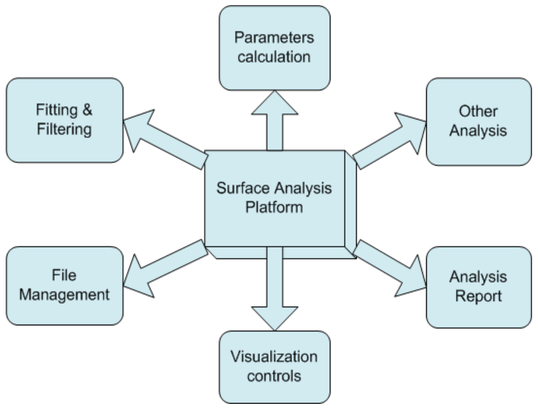
The measurement and characterisation of surface texture are the most critical factors and important functionality indicators. The real surfaces is continuous, but a discrete data set is acquired by any metrology instrumentation. After a series of processes of the finite digital sample, the parameters, which are the link between the surface texture, the functionality excepted and the manufacturing process, will be calculated for the surface characterisation. This platform is designed to realize the analysis and processes for the surface characterisation.

Aim

The aim of this project is to develop and implement a Platform for the surface analysis. It will afford kinds of algorithm for fitting, filtering, statistical analysis, and parameters characterization for the surface analysis.

The Framework of the Platform

The platform is integrated by several parts, each part could be expanded and developed individually, so it is an extendable platform for surface analysis.

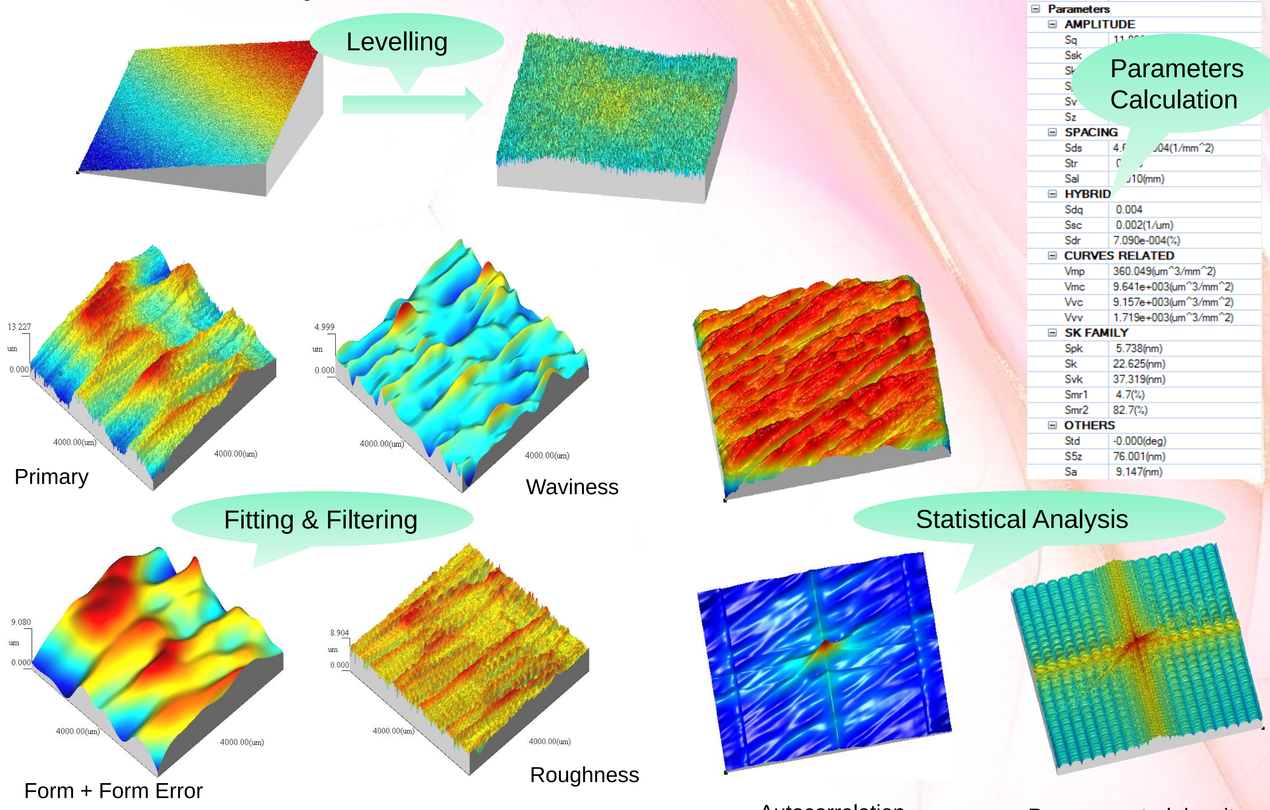


- File management
  .sdf,.map,*.sur,*.opd…
- Fitting & filtering
  Levelling, Polynomial fitting
  Gaussian filtering, Wavelet, Spine...
- Parameters calculation
  Amplitude, Spatial, Hybrid, Curves related, others
- Visualization controls
  3D graphics, projections, Images, profiles
- Other Analysis:
  Autocorrelation, Power spectral density, Bearing ratio...
- Analysis reports:
  Print, Output to excel files

Development Technology and Tools

The platform will be developed by taking advantage of the techniques, such as COM, GDI+, OpenGL, ActiveX Control, and the visual studio 2008 would be the development tools.

General Surface Analysis



Future work

The framework has been designed, so the next step is to append more algorithms for analysing, much more parameters comply with the Standards, and afford the more file format for the measurement data interchange.

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