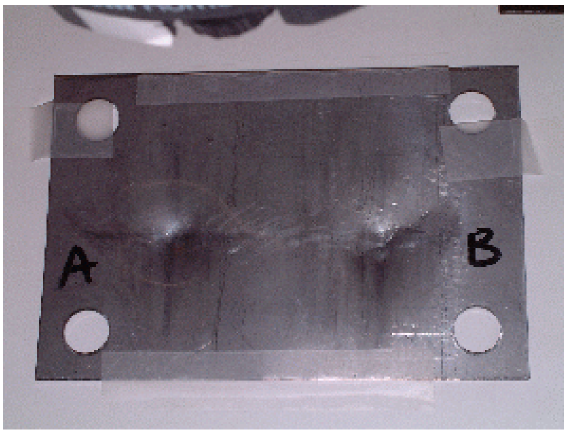
OPTICAL EXTENSOMETER (3-D)

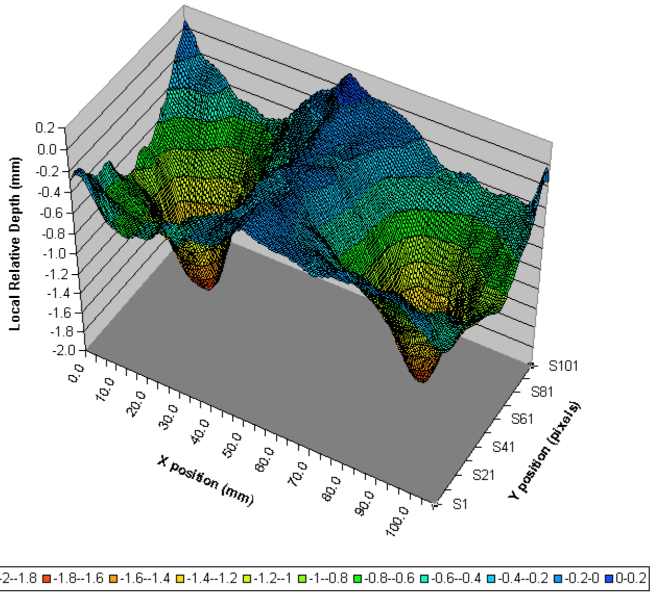
- **OEA - Optical Extensometer Analyser**
- **Low user costs in terms of purchase, use, and maintenance**
- **Our extensometer is easy to setup and easy to use**
- **Rapid, reproducible and accurate results given in both numeric & graphical formats**
- **Data produced can be exported for statistical interpretation and printed to hard copy**
- **Usable with a wide variety of materials**
- **Tolerant of testing environment**
- **Semi portable**
- **All components are replaceable and upgradable**
- **1-D core provides yarn load-strain and much, much more ..., with no steep learning curve for the user**
- **2-D extension available as a service for planar applications**
- **3-D extension available as a service for non-planar applications**

From this ...



Depressions in a nominally flat steel plate

To this ...



Enumerated sub-pixel depths across entire plate surface

Want to know more?

Why not contact us for further details ?

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or
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General Introduction to OEA v1.304 (3-D)

OEA in its ***currently supplied*** form is designed to sense & analyse form & structure in a ***2D*** image or to sense ***changes*** in a 2D image with time. If, however, it is possible to provide ***stereo pairs*** of images of a scene then, provided that the stereo viewing platform is adequately controlled, it is possible to derive the ***basic*** edge & region mapping as in 2D image handling from the ***mean*** of the stereo pair of images, whilst at the same time deriving a map of local stereo ***disparity*** at all edge points which have a local edge orientation which subtends a substantial angle to the stereo baseline (edges roughly ***aligned*** with a stereo baseline can ***never*** provide reliable data from ***any*** stereo sensing system!).

Stereo edge disparities can be derived ***either*** from natural edges in the viewed scene, if these are adequately available, ***o***r, under some circumstances, from contrasty edges ***projected*** onto the viewed scene. In either case, should there be a significant lack of overall stereo fusion between the images, preliminary ***low resolution*** stereo processing can yield directly the necessary whole pixel shift which should be applied in order to provide optimum fusion. Then subsequent ***high*** resolution processing should yield a map of ***local*** stereo edge disparity.

With projected patterns, or with suitably rich ***natural*** edges, it is subsequently possible to generate complete 2D surface maps of stereo depth distribution.

Possible applications of ***fusion*** capability include:

C Fusion of pairs of along track images in a time sequence (as in satellite image capture), either for subsequent pseudo-stereo depth analysis or optimal overlay of multispectral samples.
C General optimal fusion of stereo pairs captured with minimal recording equipment.

Applications for general stereo ***mapping*** include:

C Surface mapping of distorted surfaces structures (including simplified body scanning for the clothing industry).
C Non-contact determination of 3D dimensional structures in engineering applications.

Technical Specifications for OEA v1.304 (3-D)

All OEA 3-D applications to date have involved construction of dedicated test rigs and systematic upgrading of the software, so it is too early to provide a detailed technical specification.

All the observed limitations of low cost cameras on the 3-D capabilities of OEA have been successfully overcome by subtle modifications to the computer vision codes.