

4Ddynamics - Mephisto 3D Scanning Engine

Highly flexible and intuitive structured light 3D scanning system. Achieve fast, accurate, high quality scanning results with a minimum of processing time and user interaction. Suitable for small and large area scanning of animated as well as static objects. Applications include:

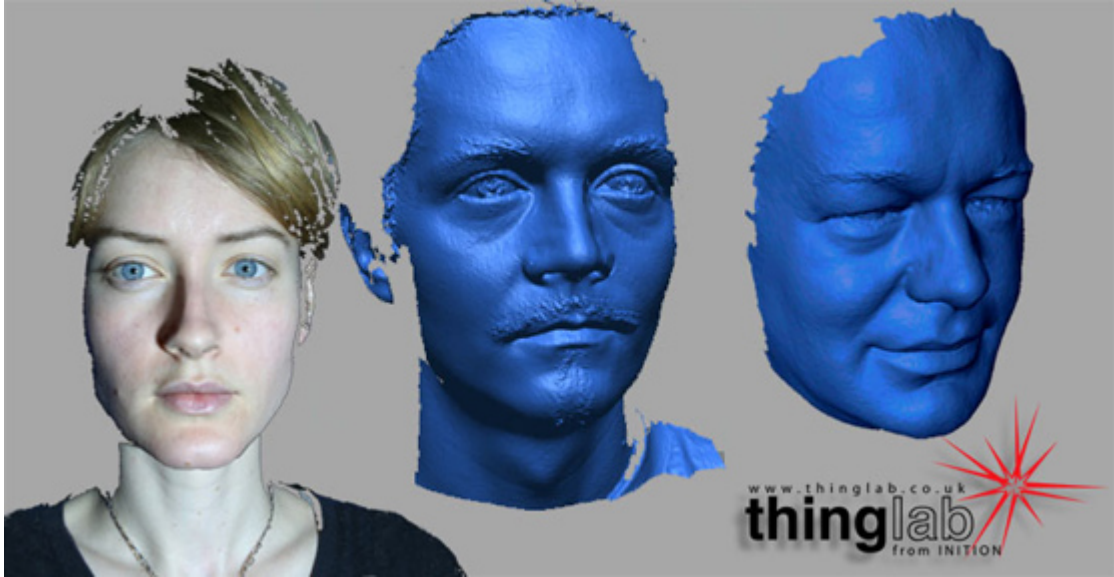
- 3D face capture for films and computer games
- 3D scanning for reverse engineering
- 3D scanning for architecture and heritage
- 3D capture of small objects for model making and jewellery



Mephisto 3D Scanning Engine

The Mephisto scanning engine has a wide choice of options and capabilities which enable it to cope with the most complex scanning object and situations. It is possible to use high quality robust machine vision cameras for fast high resolution scanning, or expand the scanning range with a Canon DSLR for higher resolution and higher dynamic range.

The optical nature of the scanning system means that typical photographic procedures and tools are readily applicable to enhance results and workflow (like neutral density, polarizing etc filter, lens converters and other photographic gear).



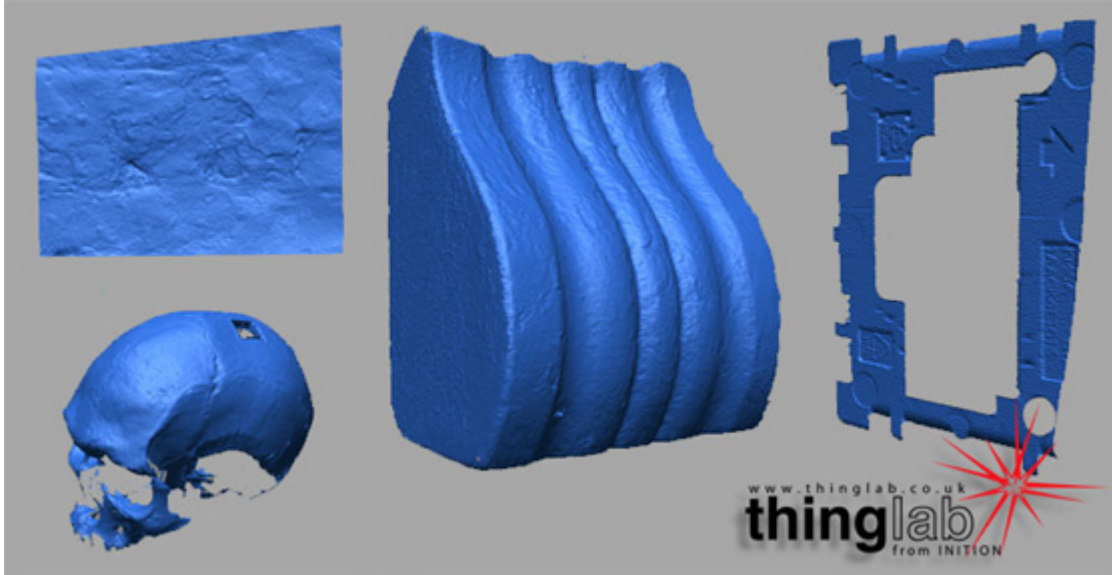
Unprocessed Mephisto Scans



Unprocessed Mephisto Scan - detail

The unique ultra fast algorithm computes a range image and triangulates the mesh at near real time speed. Simple and user friendly interface with project based software workflow means a shallow learning curve.

The Mephisto 3D scanner is based on high quality consumer and reliable machine vision components. This gives the advantage in maintaining low costs, easy maintenance and interchange ability, resulting in low offline time.

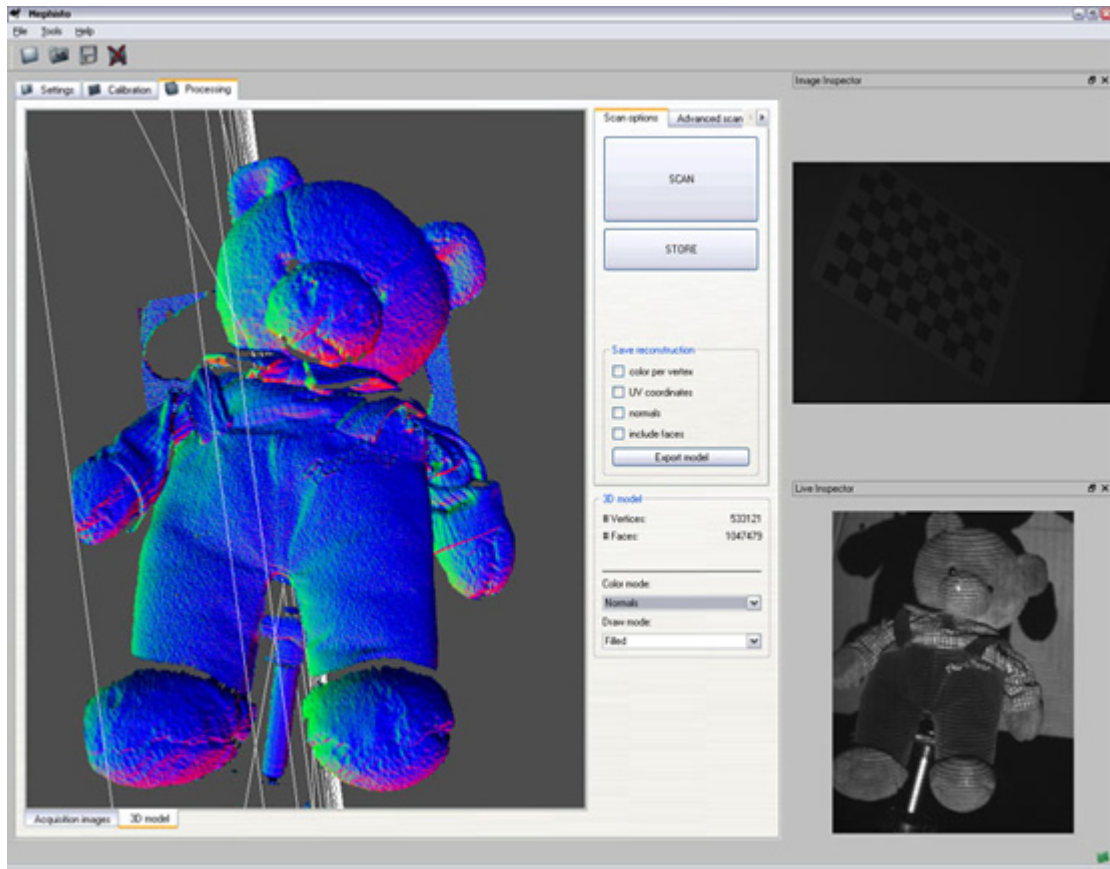


Unprocessed Mephisto scans - painted wall, skull, marble scroll, polystyrene packaging

System error and precision depend on many factors, at the optimal working distance of 2m using 7 bit Gray code and 6 step fringe pattern it is possible to achieve 0.1 mm. Noise levels are reduced to 0.06 mm using image binning on AVT camera. Error remains consistent, as long as illumination level and contrast ratio is sustained.

- Working Range 0.8m - 10m
- Capture Area 0.5 x 0.7m - 6 x 8m

Due to square root falloff rule and ambient illumination influence, please bear in mind error will increase at large working volumes.



Mephisto Software

Mephisto add-ons

Optional software upgrades available to increase the base system's inherent functions.

Deep Scan Mode:

'Deep Scan Mode' opens up a new horizon in 3D Scanning allowing you to **3D scan black objects**, contrasting surfaces and extreme detail.

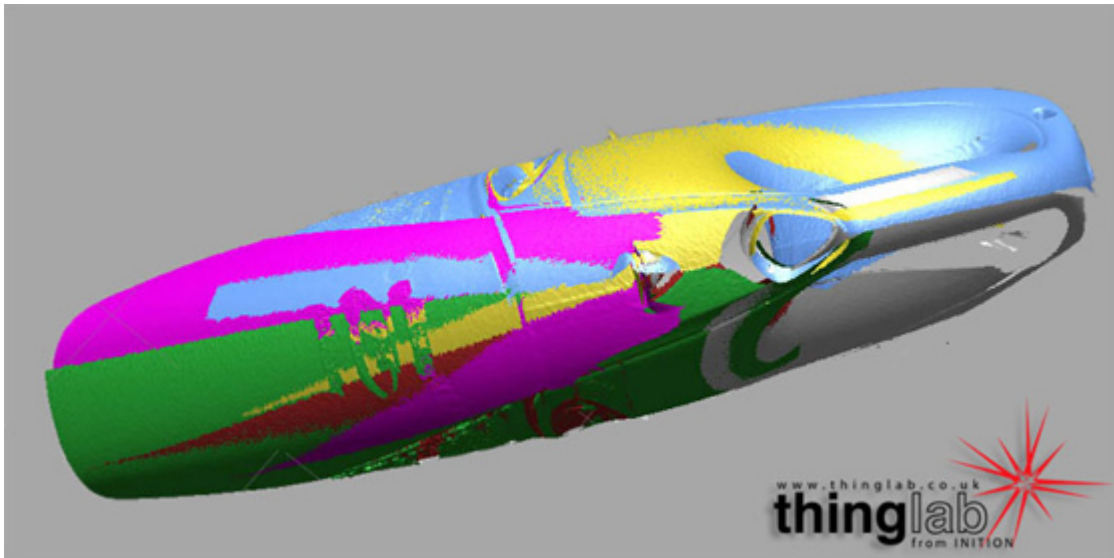
Deep Scan Mode is based on combination of histogram stabilization, variance minimization and other image processing techniques and algorithms and is designed to minimize inherited system noise without compromising and distorting actual information stored in images. This mode allows to vastly expand optical operating range of the system and boost reconstruction quality even in the most complex and unfavorable conditions. Unlike smoothing or noise reduction techniques, Deep Scan gives very smooth and crisp results without compromising actual measurement precision.



Unprocessed Mephisto scans using 'Deep Scan Mode' - black, flocked head

Turn table Mode:

An automated function to pre-align incremental scans. Perfect for scanning objects in 360 degrees, whether for reverse engineering, human portraiture or heritage applications. Deceptively simple, extremely powerful.



Pre-aligned turn table scans

Mephisto system configurations

The Mephisto Scanning Engine can be purchased in the following configurations:

Mephisto Complete:

Consists of DLP projector, fire wire camera, Canon SLR camera and Mephisto software. Suitable for high resolution scanning of static objects utilising the SLR camera, and fast high resolution scanning of animate objects utilising fire wire camera (both modes can include high resolution texture images). No limits placed on accuracy or scanning speed. Accuracy as low as 0.06mm.

Mephisto Pro:

Similar to the 'Complete' version with additional tools and options, including - HDR image capture and processing for highest quality texture, binning mode for scanning images for increased accuracy and reduction of noise, double fire wire camera capability for ear to ear capture of the Human face and geometry relaxation algorithm.

Mephisto Extreme:

Similar to Mephisto Complete, with added Deep Scan, turntable and albedo image functionality and HDTV (1920 x1080) resolution machine vision camera with large, high quality Kodak CCD sensor and high contrast ratio HDTV projector. Mephisto Extreme produces unparalleled quality results, competing with highest range competition scanners, while remaining an affordable and extremely flexible solution.