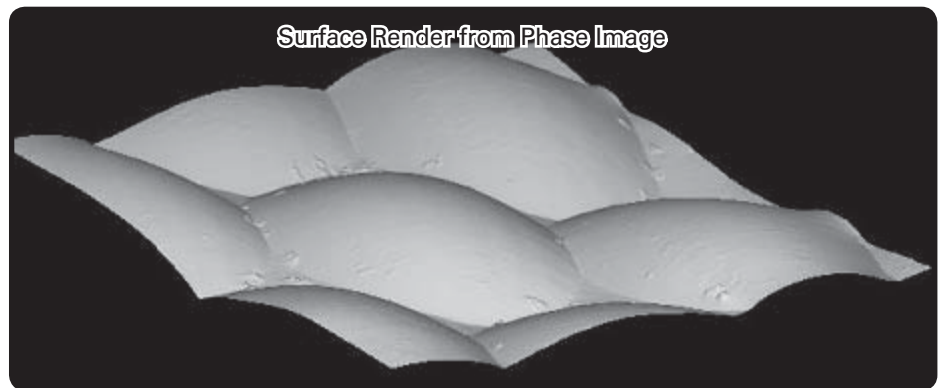
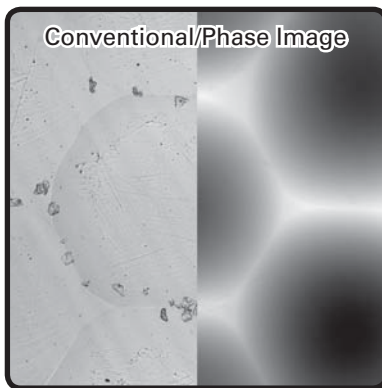


Imaging by Shape

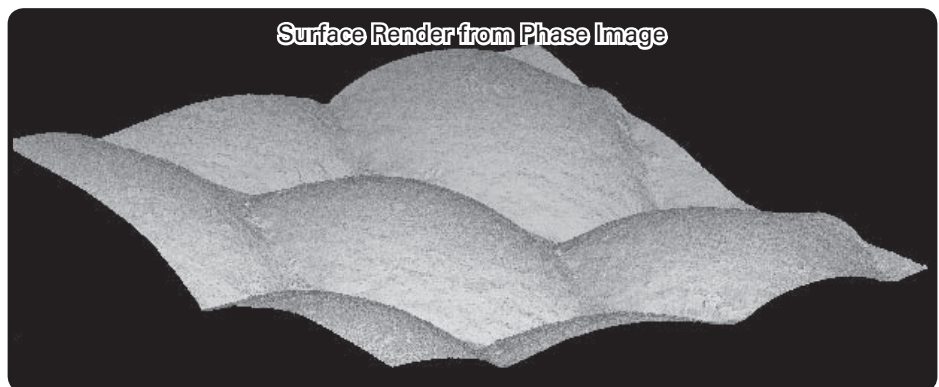
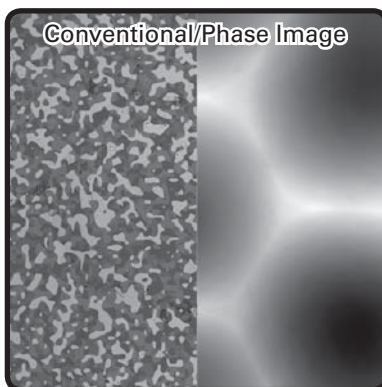
What's so Different about Quantitative Phase Imaging (QPI)?

QPI extracts shape information from objects by analysing changes in transmitted or reflected light.

From images with limited colour or brightness contrast (eg. transparent lenslets shown on the far left), it is possible to extract the three dimensional shape information (center left). A 3D surface render of the phase image is shown on the right.



Even in the presence of heavy colour or brightness contrast (far left) QPI provides independent shape-based visibility.



QPI can provide:

- Visualisation of shape and position for discrimination, monitoring or tracking
- Quantifiable shape and position for identification, recognition and ranging
- Potential to penetrate further through obscurants such as smoke, haze, fog and foliage

QPI advantages:

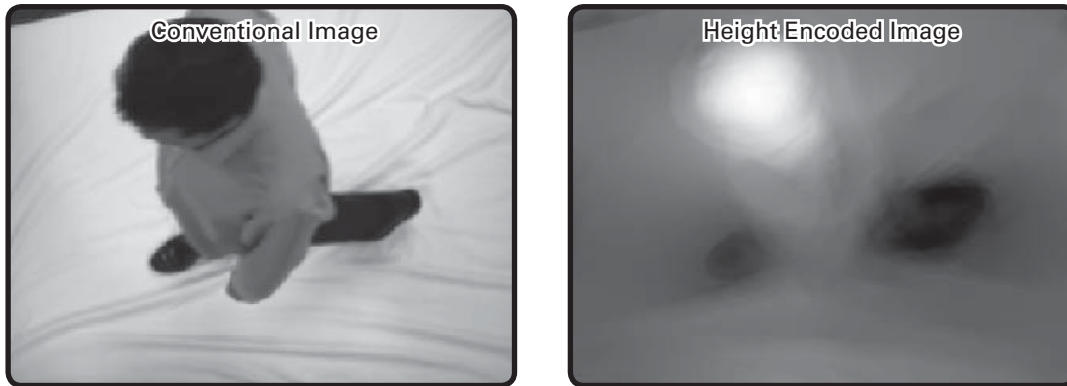
- Uses ambient lighting
 - Can operate covertly since no outgoing signal is required
- Can be applied to conventional fixed or portable imaging systems
- Provides real-time processing and presentation
- All processing is done in the digital domain, making it ideal for integration into a standard digital processing stream.

Example: Target Acquisition and Tracking for Surveillance

Using QPI discrimination can be made based on shape or position, rather than colour or brightness contrast.

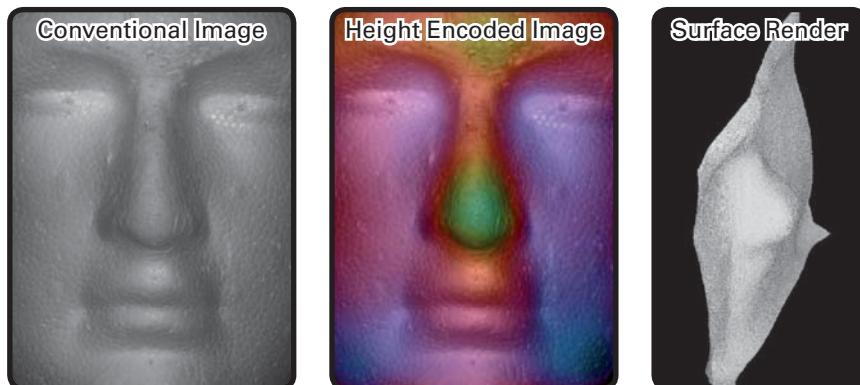
A conventional image of a person as seen by an overhead security camera is shown on the left, on the right is a height encoded image generated using QPI.

Shadows and other brightness artifacts are automatically excluded by QPI.



Example: Additional Information for Face Recognition

QPI's shape-based approach has the capacity to improve the results of image analysis in areas such as face recognition by providing an additional source of information that is not affected by colour or brightness contrast.



QPI Processing

Conventional digital images are captured and processed by QPI. Both the conventional and the new QPI shape-based images are suitable for subsequent digital post-processing, image enhancement, shape recognition, automated identification, etc.

Additional cameras can be used to allow target tracking in real time through areas of interest.

