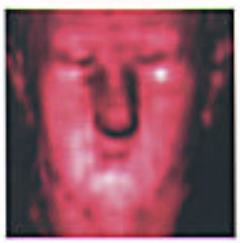
Tridentity – Adding a new dimension to facial recognition

Tridentity is the latest product in the Neurodynamics biometric identification portfolio. It is unique in the UK as it focuses on three-dimensional facial recognition, as opposed to the traditional two-dimensional facial matching technique.

Facial recognition is the ultimate biometric – humans instinctively recognise each other by their faces. It is this unobtrusive non-contact means of recognition that Tridentity is automating.

Historically, two-dimensional systems have been unable to extract the subtleties of the facial structure. They are therefore reliant on identification using measurements of angles and distances between broad facial features such as the eyes, nose and mouth. However, these measurements change significantly as the subject moves their head around, making the system sensitive to the subject's pose. Tridentity offers major advantages over the two-dimensional approach. Using patterned light to create a full three-dimensional image of the face, Tridentity is able to analyse more subtle features of the face, such as the bone structure around the eyes and nose. In addition, since the information is a true three-dimensional representation of the face, it can be rotated so that it is facing the camera, even if the subject wasn't at the time the image was captured.

Once an image is captured, a three-dimensional representation of the subject's face can be built up from a single frame of video footage using Neurodynamics' image processing expertise. The advanced neural network techniques within the Tridentity system are then able to differentiate between the changes in the subject's face as they alter their expression or make accidental or purposeful changes to their facial appearance, i.e. wearing glasses or growing a beard. By recognising the parts of the facial structure that remain constant, Tridentity is able to generate an accurate facial match.



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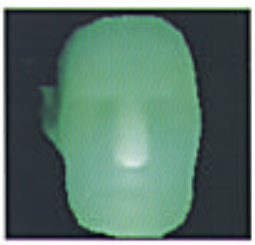

Technical Data

- Tridentity encompasses both verification and recognition
- Tridentity can operate on single or multiple scans
- Each scan can be processed in under one second when performed on a 400MHz Pentium system
- Verification can be achieved in under one second when performed on a 400MHz Pentium system
- Tridentity can search its database of faces at speeds of hundreds per second
- The search database size is only limited only by disk space and processor speed
- The Tridentity system is expandable. An entry-level system is a single camera connected to a single machine. This can be scaled up to multiple cameras and multiple workstations as required
- Tridentity is reliable and flexible, it uses COTS components and is based upon an open system architecture
- Tridentity can be easily integrated as a component of a larger system
- Neurodynamics is happy to provide consultancy services relating to the provision of Tridentity

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