



BASIA NASIOROWSKA



Facial Recognition Identification Testing Utilizing Still & Live Twin Children Face Images



IBPC 2010, Washington

2nd – 4th March 2010



www.interoptic.co.za

basia@interoptic.co.za

Tel: +27 82 733 0030

Topic Area: Test Methods & Product Components; Identification Systems



1. **Aim**
- To develop methods to test Facial Recognition products.
 - Unique facial database of twin children created and live testing conducted since 2004.
 - Analysis of recognition of Twin siblings, ageing, Varying ethnicity.



Research & Analysis

Image quality & background noise



1. **Photo Searching Application:** Photographs taken in Frankfurt plane, uncontrolled illumination.
2. **Surveillance Application:** Live recognition performance test using Facial Recognition Systems indoors, partial artificial lighting.
3. **ISO/ICAO enrollment system:** Comparison of effectiveness of automatically standardized images taken by digital camera.

Table 2: Image Quality & Background Noise

| Year | Colour Consistency | Background | |
|------|--|------------------------------|-----------------|
| | | Colour | Texture |
| 2004 | Inconsistent: Brown lighting & blue lighting | Grey (9/20) Brown (11/20) | Plain, wrinkled |
| 2005 | Consistent | Grey | Plain |
| 2006 | Consistent | Grey | Plain, wrinkled |

Testing



Various tests conducted from 2004 – 2008 (extension to 2015)

- **General ageing:** I.e. images from **2005 used to probe** a twin children database from **2004 as reference**.
- **Inverse ageing:** I.e. images from **2005 used to probe** a database with images from **2006 as reference**.
- **Duplicate Analysis:** Determining whether or not the system can differentiate between the twin siblings.

General Observations

- Using the inferior resolution images reduced the success rate and ability to differentiate between siblings.
- Images with inconsistent light throughout and “wrinkled” are less suitable for testing