BASIA NASIOROWSKA

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

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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.


3. **ISO/ICAO enrollment system**: Comparison of effectiveness of automatically standardized images taken by digital camera.

**Table 2: Image Quality & Background Noise**

<table>
<thead>
<tr>
<th>Year</th>
<th>Colour Consistency</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Colour</td>
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<tr>
<td></td>
<td></td>
<td>Colour</td>
</tr>
<tr>
<td>2004</td>
<td>Inconsistent: Brown lighting &amp; blue lighting</td>
<td>Grey (9/20)</td>
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<tr>
<td></td>
<td></td>
<td>Brown (11/20)</td>
</tr>
<tr>
<td>2005</td>
<td>Consistent</td>
<td>Grey</td>
</tr>
<tr>
<td>2006</td>
<td>Consistent</td>
<td>Grey</td>
</tr>
</tbody>
</table>
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

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