

YUV Face-Skin Detection Technology

Intelligent detection
of faces and skin
patches in video

The purpose of face-skin detection is to isolate regions that probably belong to faces or skin patches. The results can be used in a broad spectrum of applications, from modern video compressors (like H.264) to security surveillance systems. We have designed a technology for fast and efficient face and skin patch detection and tracking.



Primary Applications

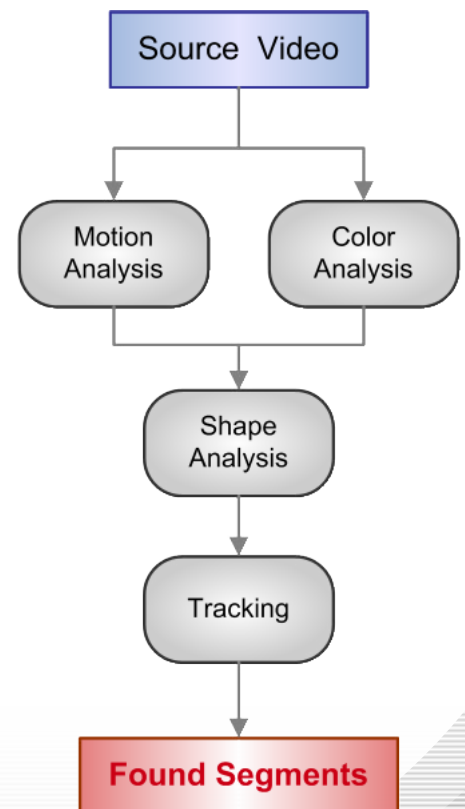
- Digital camcorders
- Preprocessing for regions-of-interest selection algorithms
- Preprocessing in cases of lossy video codecs for better visual quality/compression ratio trade-off
- Security surveillance systems

Key Features

- One-pass real-time processing
- Fully automatic
- Non-frontal tilted face detection
- Skin patch detection
- Suitable for hardware implementation

Basic Deliverables

- Source code for a reference implementation in C
- C and assembly language source code for an implementation optimized for the PC (if required)
- Algorithm description
- Software description
- Verification instructions



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Specification

- Use of color information and motion data
- Two settings for speed/quality trade-off: Motion Adaptive (MA) or Motion Compensative (MC) processing
- Shape filtration in MC mode
- Integer arithmetic
- Fully sequential processing
- Performance of non-optimized C reference model is 5-70 fps on an Intel Pentium 4 2.8 GHz PC
- Memory usage of approximately 80 bytes per pixel

Source frame



Detected areas using
MA Face Detection



Source frame



Detected areas using
MC Face Detection

