

OptiML™ Portrait Enhancement Technology



OptiML Portrait Enhancement technology from DigitalOptics Corporation™ (DOC) brings professional looking photo capabilities to image capture devices. It allows camera or video-enabled products to enhance portraits without requiring separate, post-editing software. This embedded technology automatically reduces the appearance of wrinkles and other skin imperfections. Skin is smoothed while the sharpness of features create near perfect, lifelike portraits. It works in real time, with either still images or video.

OptiML Portrait Enhancement technology is an automatic real-time solution which enhances portraits in both still images and video. This technology, which combines face detection with precise facial feature identification, includes skin appearance, eye enhancement and teeth whitening capabilities.

Skin Smoothing

OptiML Skin Smoothing technology retains the natural look of skin while reducing the appearance of lines and wrinkles.

Types available:

- Subtle – removes fine lines and skin imperfections
- Softening – reduces deeper lines and blemishes

Skin Toning

OptiML Skin Toning technology allows the user to select the desired amount of tone (color) to be applied to the portrait.

Can be used with OptiML Skin Smoothing technology.

Types available:

- Whitening – makes darker skin tones lighter
- Paling – reduces excessive skin tone redness
- Warming – increases skin color in pale skin tones
- Tanning – gives the impression of a natural bronze

Eye Enhancement

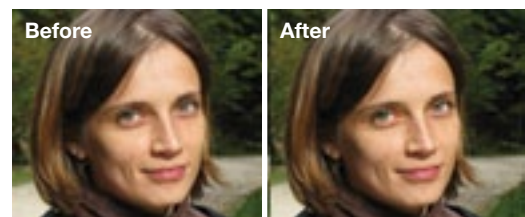
OptiML Eye Enhancement technology improves the appearance of the eyes, making them stand out and look more captivating. This technology whitens the sclera, sharpens the iris and lightens the entire eye region.



Skin Smoothing



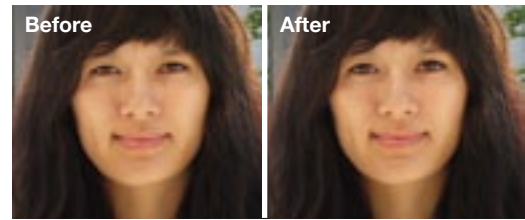
Skin Toning



Eye Enhancement

Eye Enlargement

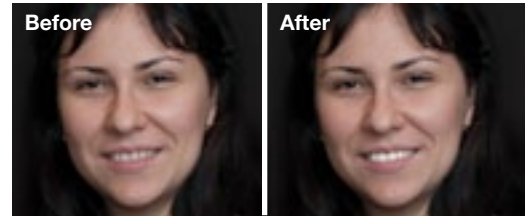
The OptiML Eye Enlargement technology increases the size of the eyes for dramatic portrait looks, without creating an artificial “manga” look. It maintains the natural geometry of the eyes and face so the overall look remains realistic. The technology relies on fine isolation of the iris and sclera and employs a precise deformation model, with an accuracy rate greater than 80%.*



Eye Enlargement

Teeth Whitening

OptiML Teeth Whitening technology relies on an intelligent correction method that isolates and whitens the teeth but does not affect surrounding areas, for the perfect smile.



Teeth Whitening

OptiML Face Beautifications Specifications

	Heap Memory (MB)	Library Footprint (KB)	Typical Max Execution Time (seconds)	
			DSC	Phone
Skin Smoothing	2.5	93	3	0.5
Skin Toning	1.0	Base + 10	3	0.5
Eye Enhancement	0.75	Base + 5	1.3	0.2
Eye Enlargement	0.5	Base + 12	0.6	0.1
Teeth Whitening	.75	Base + 12	0.8	0.12

Video Skin Beautification

High definition brings new challenges to the beauty of faces in video imagery. DOC’s embedded library of images automatically enhances the appearance of subjects as each frame is acquired, either in live broadcast or in video acquisition.

Benefits

- Real-time beautification
- Removes wrinkles, blemishes and smoothes the skin
- Enhances an unlimited number of faces at the same time
- Four skin tone prototypes can be supported simultaneously

Requirements

- Hybrid hardware/software solution designed to handle full HD 60fps with virtually no processing power or extra memory or bandwidth requirements
- IP core: 132kGates, 13KB RAM + 64 KB shared with system

**When used with OptiML Face Tracking technology*

Contact a DigitalOptics sales representative for more information.

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