TRIEYE

SWIR SENSING FOR BIOMETRICS

While biometrics applications are becoming more pervasive and their expected performance is driven to perfection, the need for cutting-edge image sensors is soaring. The Short-Wave Infrared (SWIR) spectrum allows machine vision systems to enhance biometric systems operability by delivering advanced capabilities, like remote material sensing and producing rich image data, even under the most challenging visibility.

For instance face detection and recognition algorithms can benefit from the unique spectral signature of the skin in SWIR to identify faces quickly and accurately and reduce False Acceptance Rate (FAR) and False Rejection Rate (FRR).

Anti-Spoofing defenses can be strengthened by using SWIR's remote material sensing capabilities to detect even the most realistic 3D masks or sophisticated colored eye lenses, as well as advanced disguise techniques and presentation attacks that use high-definition photos or videos from printed materials or screens.

Biometrics solutions can also benefit from the ability to see better in glare and through shade patterns, fog or smoke conditions, enabling the installation of biometrics solutions outdoors, and improving the security level of access control to buildings, facilities, or cash dispensers.

Implementing SWIR technology in existing solutions is simple, as SWIR images are compatible with regular images. It can be easily integrated with existing deep learning algorithms and fused with visible images to produce rich models.

TRIEYE'S COST-EFFECTIVE SWIR SENSING SOLUTION
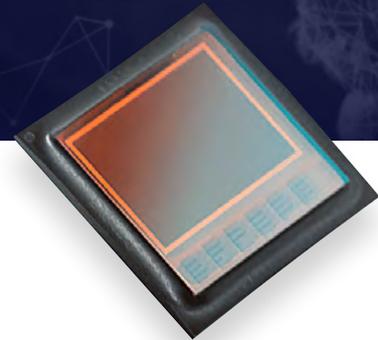
Based on advanced nanophotonics research, the TriEye Raven is a **CMOS-based SWIR** sensor suited for mass-market applications, such as biometrics. The Raven's innovative sensor design enables HD resolution, low power consumption and a **1,000x price reduction** - compared to current InGaAs based technology.

By using TriEye's Raven sensor, biometric systems can unlock the power of SWIR imaging capabilities, such as skin's unique spectral signature, additional spectral data, remote material sensing, anti-spoofing, and seamless integration within an affordable price point and ease of design.

TriEye's Raven senses from 400nm to 1600nm and covers the visible, near infrared (NIR) and SWIR spectrums, enabling the design of biometric **multimodal** solutions, either by using a standalone camera providing both a visible and SWIR image, or by combining it with another visible camera.

SWIR'S UNIQUE CAPABILITIES FOR BIOMETRICS

- ⊘ Improve face detection by leveraging the unique spectral signature of skin
- ⊘ Highlight rich and unique data to perfect face recognition for Access Control Solutions
- ⊘ Detect spoofing attacks that use 3D masks, disguises, or presentation attacks
- ⊘ Improved visibility through sunglasses
- ⊘ Perform under glare, fog, or smoke conditions
- ⊘ Can be easily combined with visible images to create a richer model
- ⊘ Can be easily integrated with existing AI video analytics

APPLICATIONS

FACE DETECTION   FACE RECOGNITION   IRIS RECOGNITION   ACCESS CONTROL