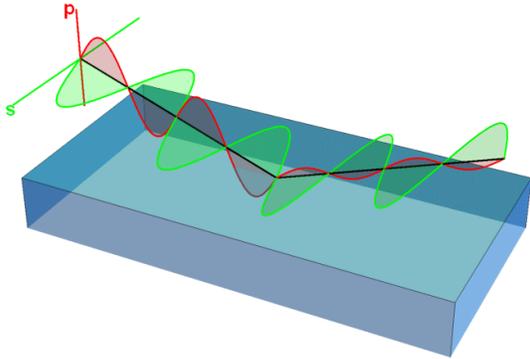


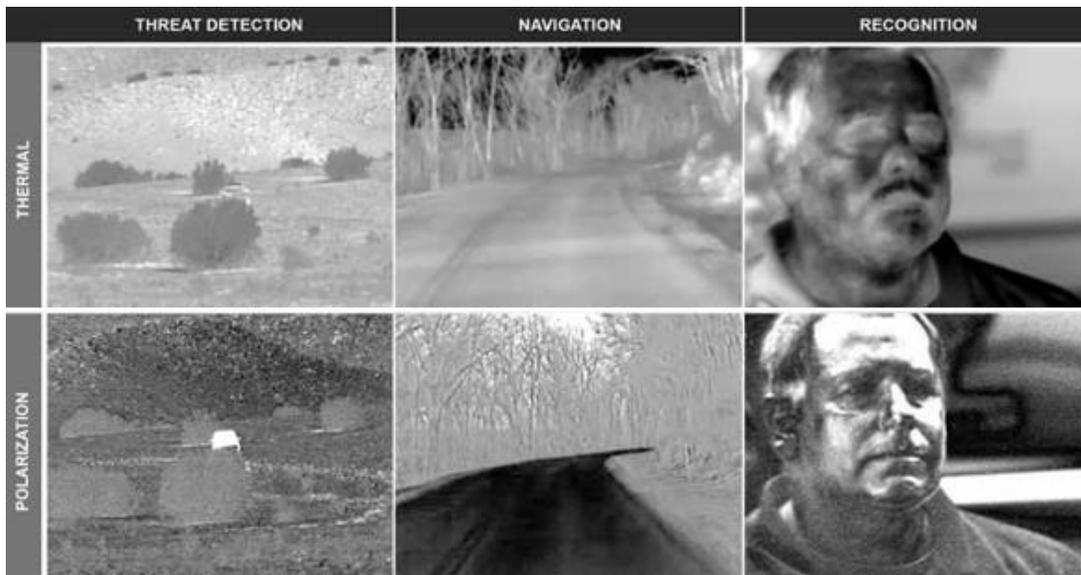
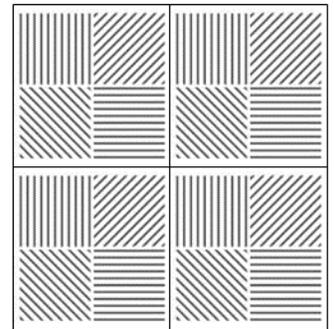
Clutter Suppression & Target Detection



Founded in 2003 and located in Huntsville, Alabama, Polaris Sensor Technologies, Inc. is a leading electro-optic sensor developer exploiting a fundamental phenomenon of light, called polarization, to reveal details undetected by other imaging devices. Polarization results from the vector nature of light and has the following properties:

- Present in all wavebands
- IR polarization signals result from preferential reflection and emission of polarized light
- Depends strongly on the angle of incidence and object properties including material and surface roughness
- The greater the angle of incidence, the greater the signal
- Manmade objects have significantly different polarization signatures from natural backgrounds.

Polaris has a multi-use-case sensor called Pyxis. This sensor has a pixelated micro grid array integrated onto state-of-the-art FPAs including uncooled microbolometers for LWIR, InGaAs FPAs for SWIR, SLS FPAs for multi-spectral IR sensing, and in the visible. The pixelated micro grid array has polarization filters at 4 orientations laid out like a Bayer pattern.



- Pyxis LWIR has been used for
- Clutter Suppression
 - Target detection
 - Counter CCD
 - Oil detection on water
 - Navigation
 - Facial recognition

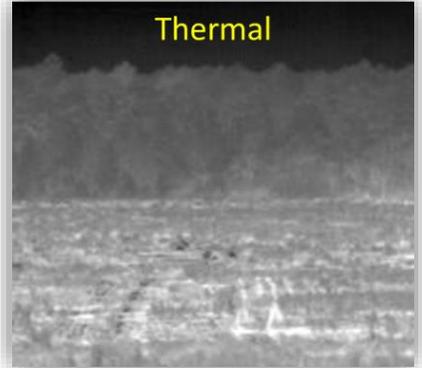
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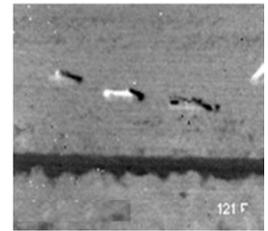
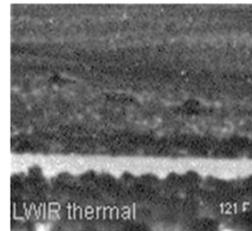
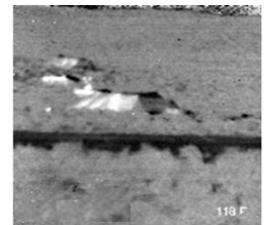
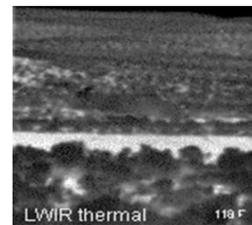


Polaris
Sensor Technologies, Inc.
See More. Know More.®

New tools are needed to detect surface mines and other ground threats at an appropriate operational tempo. Conventional electro-optical and infrared sensors frequently do not perform well due to the lack of contrast between the target and the cluttered background. In the infrared, minimal thermal differences between the target and the background results in negligible thermal contrast which can be further complicated by thermal clutter in the background. Polaris has developed a system to detect man-made objects through optical polarimetric detection using a Sensor for Polarimetric IED Detection and Recognition (SPIDER) System.



Using Polaris's polarimetric cameras, the DoD agencies have demonstrated that thermal polarimetric detection is effective for detection of man-made, surface-laid targets, aerial targets, and mobile targets. Polarimetric detection is specifically beneficial when the target and background are close to thermal equilibrium or when the background is highly cluttered.



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