

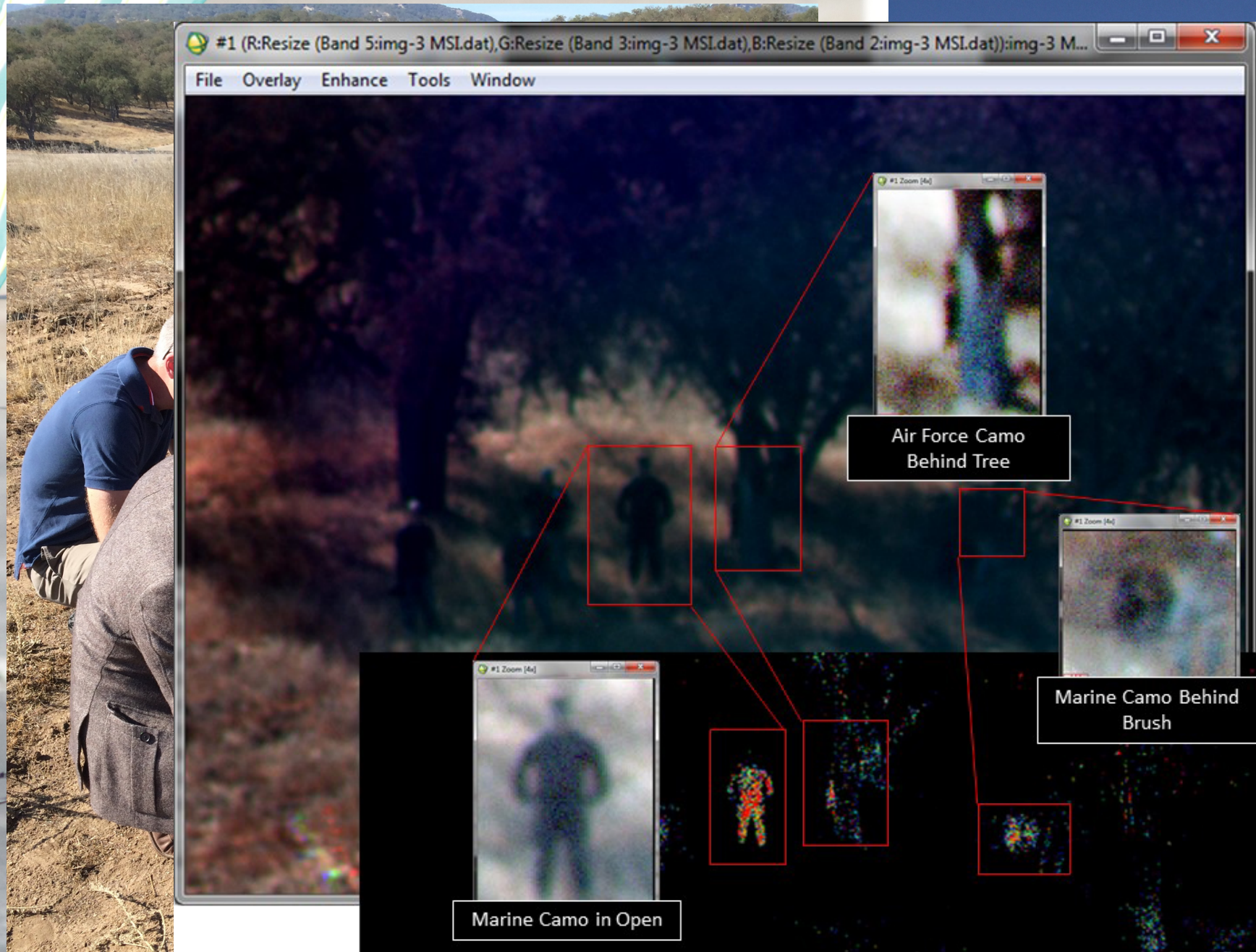
A wireframe model of a fighter jet, possibly an F-35, rendered in a light blue color against a dark blue background. The model shows the aircraft's structure, including the fuselage, wings, and tail, with a network of lines connecting various points on its surface.

Lightweight-Low Cost Hyperspectral Sensor Integration to Support Urban Air Mobility Operations

JIFX 21-2
1 March 2021



spectra**nb**otics



An aerial photograph of a disaster site. In the center, several large oil tankers are lying on their sides, with one of them engulfed in intense orange flames and thick black smoke rising into the air. In the foreground, firefighters are using high-pressure water cannons to spray water onto the burning tankers. The surrounding area is a mix of asphalt, dirt, and some greenery. The overall scene depicts a major industrial disaster.

Humanitarian Assistance

Λ F W E R X

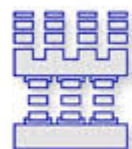


Disaster Response

Drone Support is:

- Slow to Respond
- Expensive to Operate
- Incomplete Analysis
- Training is Key

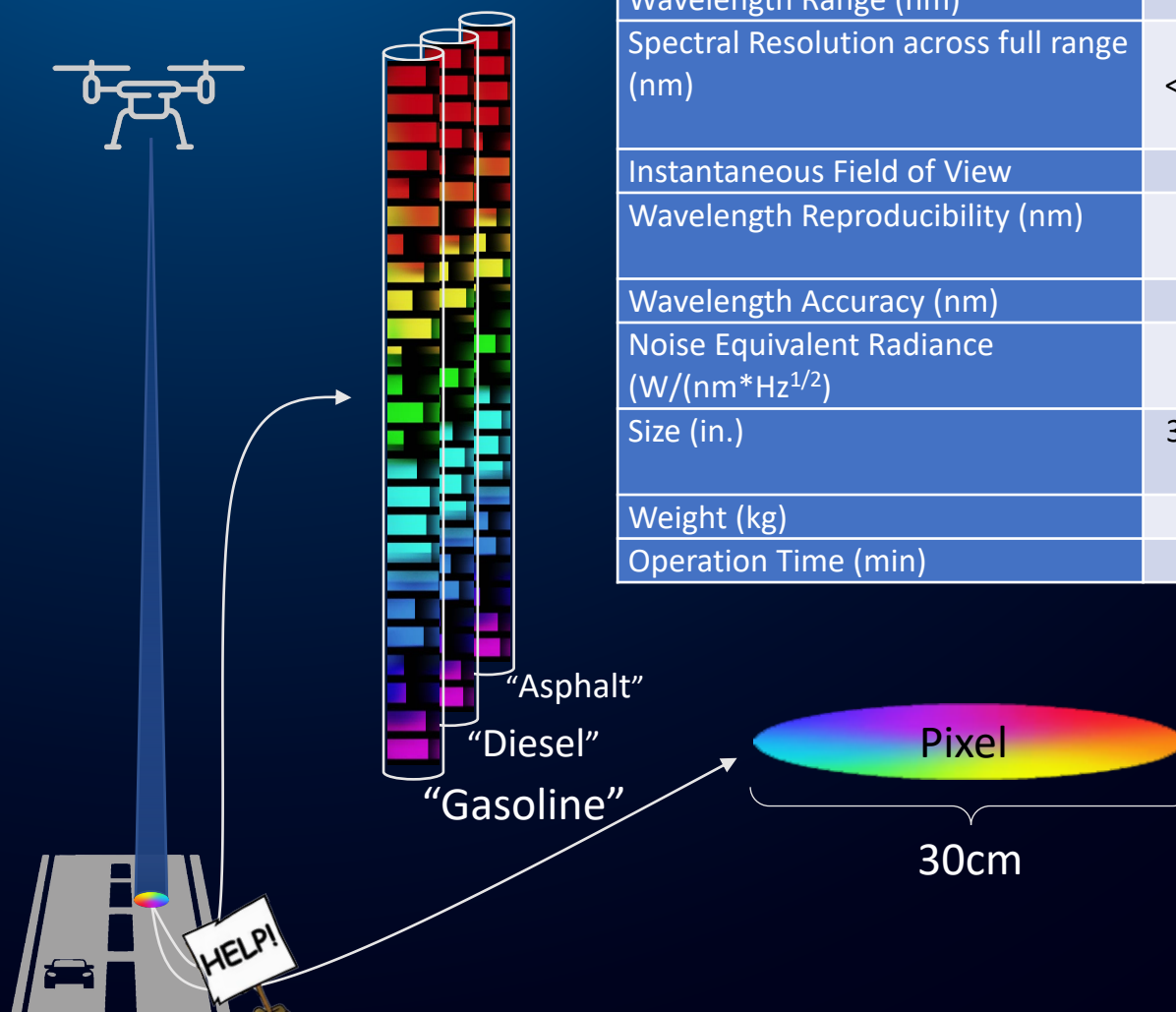
The Sensor



SPORIAN®
MICROSYSTEMS, INC

Hyperspectral Imaging

Specifications	
Wavelength Range (nm)	330-2600
Spectral Resolution across full range (nm)	<5.2 VNIR, <10nm SWIR
Instantaneous Field of View	0.07°
Wavelength Reproducibility (nm)	<0.1
Wavelength Accuracy (nm)	0.2
Noise Equivalent Radiance (W/(nm*Hz ^{1/2}))	1.5x10 ⁻⁹
Size (in.)	3.75x3.23x1.8
Weight (kg)	0.24
Operation Time (min)	>30



Believers!

Pattern of Life

Principle Investigator

Sensor Design

AI and Robotics

STTR
Team

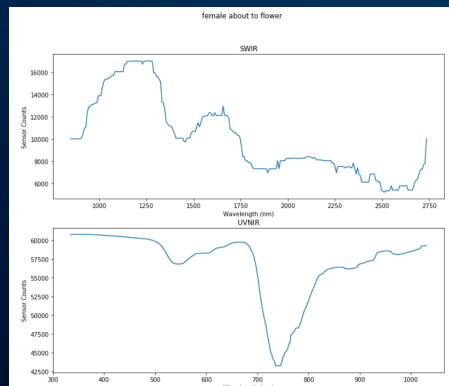


CONOPS

Camera Points to Target



Signal classified as Target of Interest (or not!)



Target of Interest identified and scanned for further intel



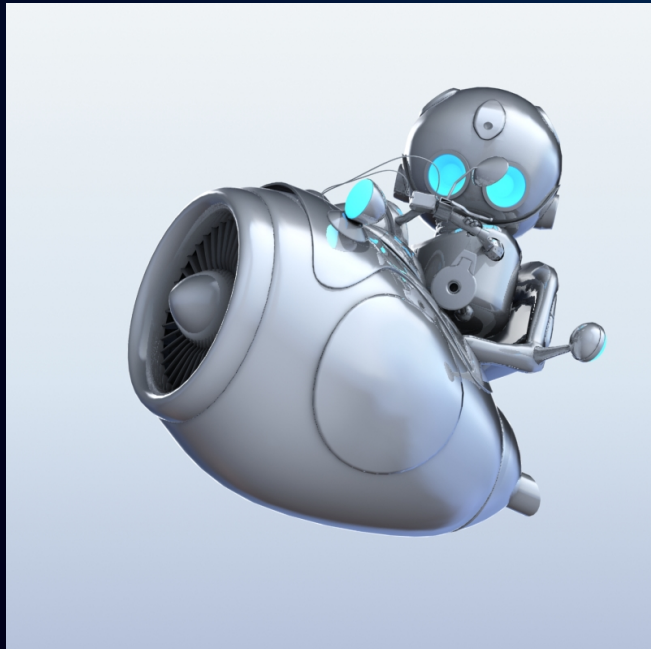
Product to User



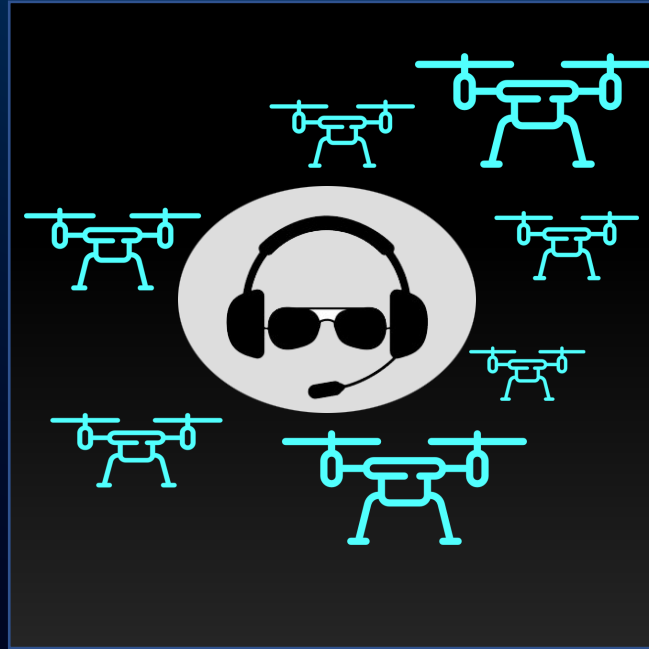
Hyperspectral Tells “What”, But Not “Why”

What To Do With the DATA?

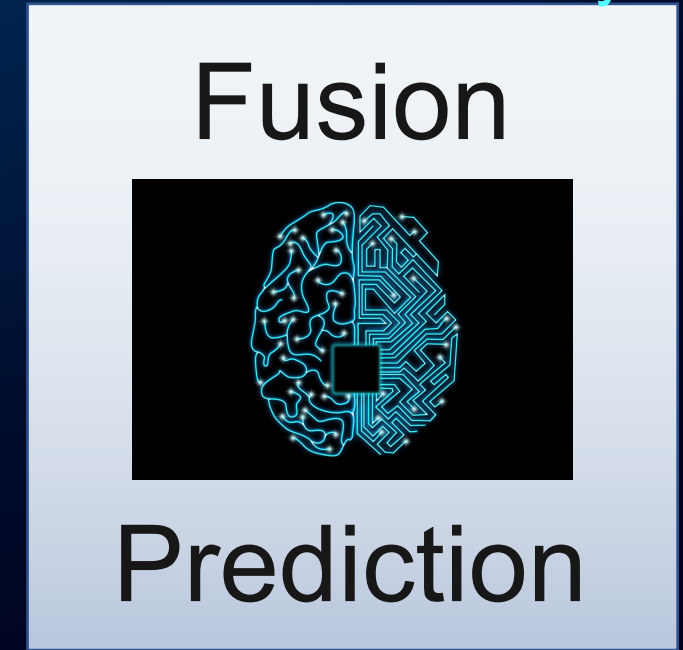
Sensor Drives Platform



Pilot Drives Swarms



Questions Drive Analytics



The Ask

Customer Discovery

- Who Has a Government Mission Need?
- Who Has Critical Technology?
- Use-Case Scenarios Outside Disaster Response



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