

Advanced EO-IR Sensor Module for VT-MAK's VR-Vantage™



Extensive Sensor Coverage

The SensorFX module converts VR-Vantage IG from a visual scene generator to a sensor scene generator. Based on the SenSim™ and SigSim™ run-time products from JRM Technologies, SensorFX models the physics of light energy as it is emitted, reflected, and transmitted through the atmosphere and into a sensing device. It also models the collection and processing properties of the sensing device to render an accurate electro-optical (EO), night vision (NVG), or infrared (IR) scene.

SensorFX enables MAK's VR-Vantage to credibly simulate any sensor in the 0.2-25µm band, using physically-correct, context-dependent signature and sensor modeling:

- FLIRs / Thermal Imagers: 3-5 & 8-12µm
- Image Intensifiers / NVGs: 2nd & 3rd Gen
- EO Cameras: Color CCD, LLTV, BW, SWIR

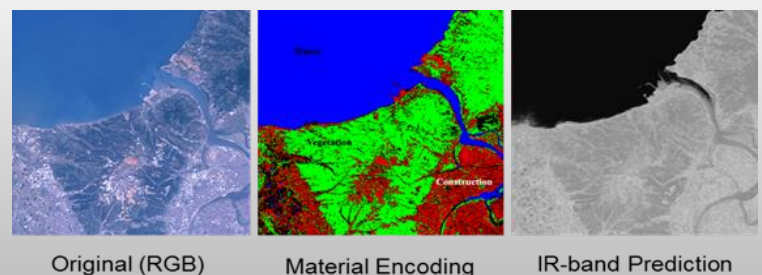
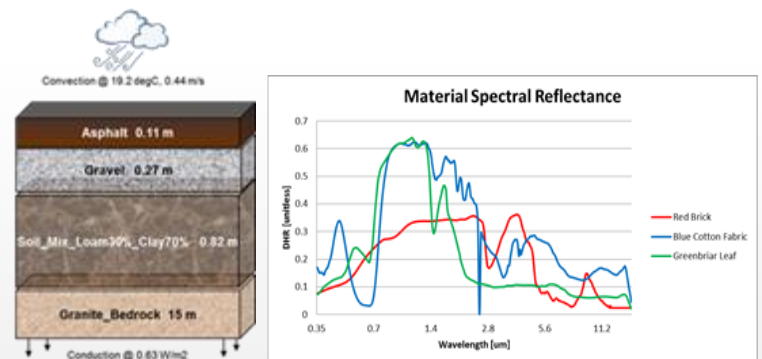
Development Options

Options for the development and customization of sensor enabled VR-Vantage applications are also available, including a Sensor Development Toolkit, as well as a semi-automated material classification tool, *GenesisMC*.

Comprehensive Solution

SensorFX delivers a complete solution for the deployment of sensor-enabled VR-Vantage applications including:

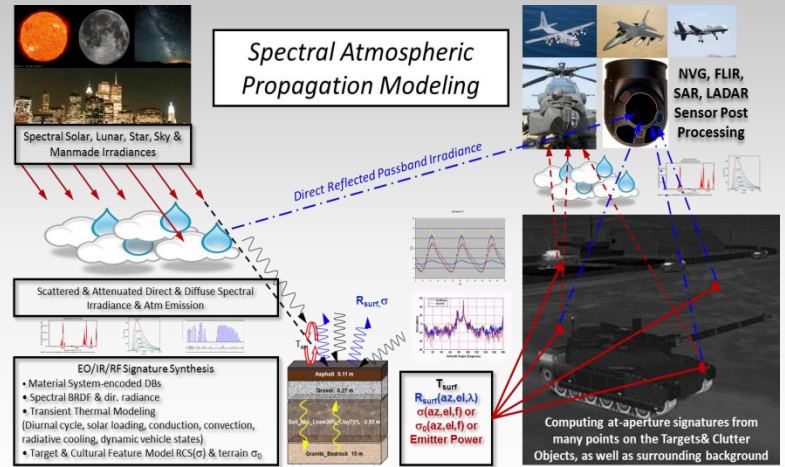
- Signature Prediction library
- Sensor Effects library
- Material Property Data Library
- ~400 materials & properties
- Material classified DI-Guy™ Character Set
- Material classified 3D Vehicle Set
- Material classified VR-Village Terrain DB
- *Pro Option* available for engineering analysis



Credible Sensor Phenomenology

Signature Prediction

- True physical property assignments throughout the 3D environment: vehicles, terrain, cultural features and atmosphere.
- On-the-fly, real-time prediction engine for spectral signatures & atmospherics - not pre-computed tables.
- Fast, fully-transient thermal models running in real-time for accurate, time- and angle-dependent temperatures, reactive to changes in weather and dynamic states.
- Innovative, real-time atmospheric path integrals based on intrinsic MODTRAN-extracted properties. AFRL-licensed.
- High-dynamic-range 2D radiance renderings.



RadarFX™ (new!)

RadarFX provides physics-based SAR Radar image prediction at arbitrary RF wavelengths, *from the same material system-encoded database*. Includes polarization, coherence, gain pattern, and atmospheric controls.

Imports customizable entity and terrain RCS tables, and predicts common SAR features such as leading-edge brightness, shadowing, RF noise, and Doppler blur / spatial shift.



Sensor Effects

SensorFX features a GPU-based real-time image processor that applies engineering-level sensor effects, given your manufacturer specifications. This models the optics, detector FPA, system MTF, white noise (NET), 1/f noise, I2 (NEI), signal processing, display, AGC, gain/level, light-point halving, 3rd-order optical aberrations, etc.

