

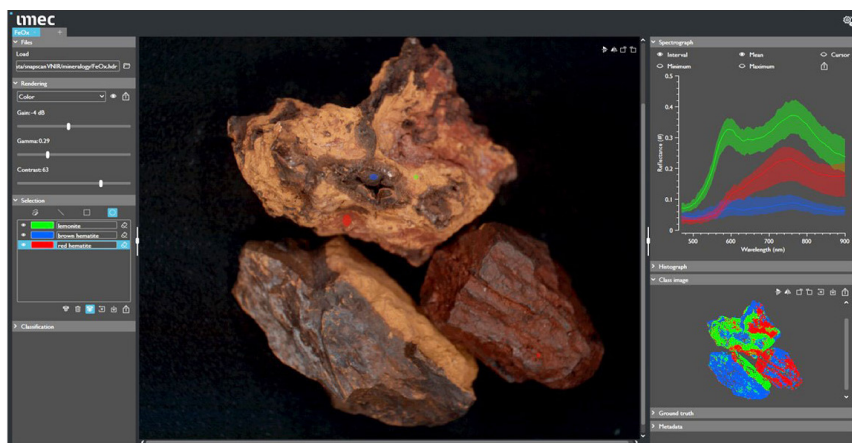


# Snapscan VNIR hyperspectral imaging camera

imec's snapscan VNIR high resolution hyperspectral camera is a major breakthrough for hyperspectral imaging application research. Within a few seconds, high quality hypercube data is created with high signal-to-noise ratio and unmatched spatial and spectral resolution. The snapscan kit enables application research of the highest quality, while still being user friendly by not requiring any external scanning system. It integrates all key components required: the spectral image sensor, optics, illumination and imec's hyperspectral imaging software: HSI Snapscan.

## High resolution hyperspectral imaging in the visible to near infrared spectrum

User-friendliness is the key benefit of the snapscan VNIR camera. With only a few clicks users quickly generate high-resolution hyperspectral images for application research.



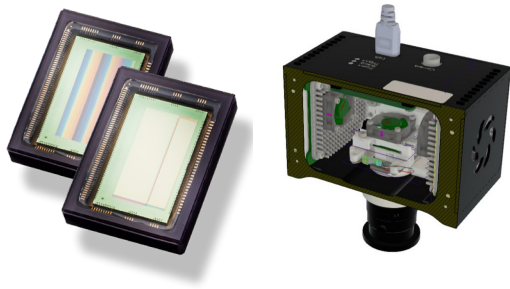
imec's snapscan hyperspectral imaging VNIR with 150 bands in 470-900nm range enables robust classification of various different ore oxides minerals with various colors and different chemical composition

## Key benefits

- **No translating stage/belt required** thanks to the integrated scanning mechanism inside the camera to generate hyperspectral data in a matter of seconds
- **Highest spatial** (up to 7Mpx) & **spectral** (150 bands) **resolutions**
- **High SNR** over the full spectral range thanks to innovation in LED technology used in the full lab setup

## Customized solutions: From the technology to the final application

**Custom linescan sensors** can be made by modifying the design of the filter over the sensor pixel array. The filters can be tuned and designed for different number of bands. Customized solutions can serve the most demanding application requirements, such as in space operational environments, optimized for size, cost and performance.



Imec's VNIR linescan hyperspectral sensor integrated into the snapscan camera system

## Snapscan camera evaluation kit

- Snapscan hyperspectral imaging camera
- Lens
- Full lab setup including illumination
- HSI Snapscan software with permanent user license
- C & Python API for acquisition and data pre-processing in custom software
- Support on installation, software and application

## Research applications

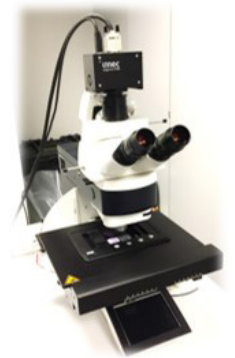
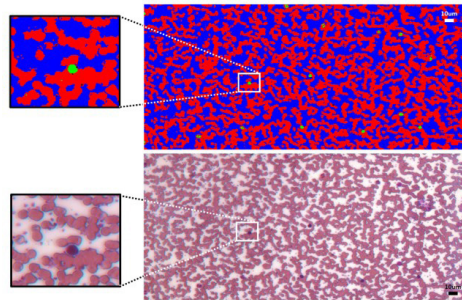
- **Medical diagnosis**
  - Cytogenetics & histology
  - Wound healing & diagnostics
  - Skin blood volume & oxygen saturation
  - Digital microscopy for pathology
- **Sample Analysis**
  - Precision agriculture
  - Mineral & material characterization
  - Skin imaging & cosmetic research
- **In-field measurement**
  - Material discrimination
  - Food inspection
- **General purpose research for lab environment**
- **Application research for determining the technical requirements needed for custom design**

## Snapscan VNIR system product specification

<b>Spatial resolution</b>	up to 3600 x 2048px (7Mpx per band)
<b>Spectral resolution</b>	150 bands
<b>Spectral range</b>	470 – 900 nm (VNIR)
<b>FWHM</b>	- 10 – 15 nm (collimated)
<b>Acquisition speed</b>	- 2 – 20 seconds, depending on acquisition parameters, lighting and object
<b>SNR</b>	up to 200:1
<b>SW scanning modes</b>	Digital TDI (x5 stages max) Digital binning (1x1 up to 20x20) Spectral ROI - Region of Interest Spatial ROI - Region of Interest
<b>Dynamic range</b>	10 bit
<b>Optics</b>	C-mount
<b>Smile &amp; keystone</b>	Software corrected
<b>Software</b>	HSI Snapscan software for raw image acquisition, data pre-processing, hypercube visualization and classification; & API for data acquisition and pre-processing in custom software
<b>Interface</b>	USB3.0 + GPIO for triggering
<b>Cooling</b>	Passive & active cooling (fan based + TEC)
<b>Temperature</b>	15°C to 45°C (operation), 5°C to 50°C (transport)
<b>Mechanical</b>	Integrated mechanical shutter for automatic dark-counts, Tripod mount+ side mounting M5 holes
<b>Dimensions (LxWxH)</b>	10 x 7 x 7 cm
<b>Weight</b>	645 g (without optics)
<b>Hyperspectral software compatibility</b>	Output in standard ENVI hyperspectral data format

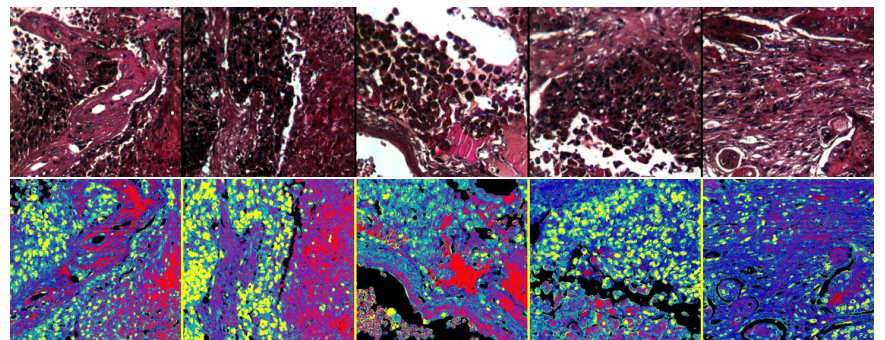
## Research high resolution hyperspectral imaging

### Digital pathology microscopy



RGB rendering and classified image from a single image of 150 spectral bands snapscan VNIR. Red blood cells versus white blood cells are classified. Snapscan camera was mounted into on LEICA microscope for spectral imaging of one blood smear test sample

### Lung cancer research



Predictive compositional maps (color RGB & classified images) created from hyperspectral data acquired with the VNIR snapscan camera. Lung cancer tissues are in yellow. Courtesy of university of Innsbruck & Hyperspectral Imaging Intelligence Inc

### HSI SALES

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