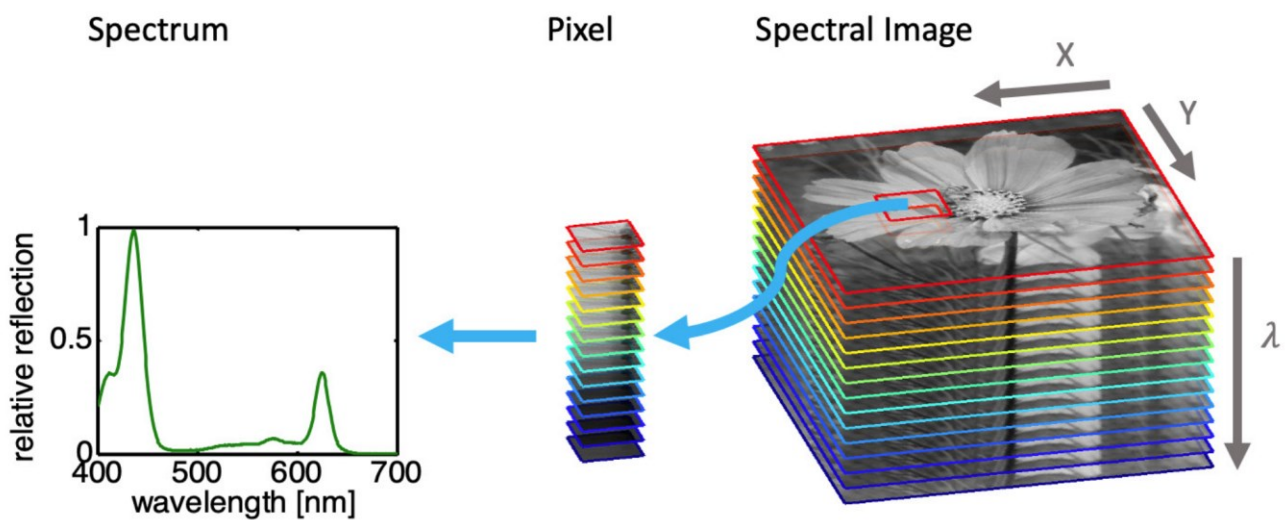# HYPERSPECTRAL IMAGING

Hyperspectral imaging is a technology that combines imaging and spectroscopy to capture a wide range of wavelengths across the electromagnetic spectrum. Unlike traditional imaging, which captures only RGB (red, green and blue) colours, hyperspectral imaging records of narrow spectral bands, enabling detailed analysis of material based on their spectral signatures.

Hyperspectral cameras or sensors collect light reflected, emitted or transmitted by objects across a broad range of wavelengths (UV to LWIR). Each pixel in the image contains a full spectrum of data, creating a "data cube" with spatial (x,y) and spectral dimensions.

Hyperspectral imaging can be used in many different applications like:

- Material analysis
- Process monitoring
- Quality control
- Sorting

Advantages of hyperspectral imaging:

- Provides detailed material and chemical composition analysis.
- Enables remote sensing and real-time monitoring.
- Offers wide applicability across multiple industries.

Hyperspectral imaging is a transformative technology, unlocking new possibilities in industry. By analyzing the spectrum beyond visible light, it provides deeper insights and enhances decision-making in a wide range of applications.