

# Course

## Spectral Imaging and its Applications

### Course Provider

Photonics Finland and Computational Spectral  
Imaging Lab,  
Joensuu, Finland

# Course Schedule

<b>Time</b>	<b>Demo Activity</b>
09:00 – 10:30	<b>Spectral Imaging, Course Introduction &amp; Tutorial</b>
11:00 – 12:30	<b>Demo 1: Acquiring images with spectral camera (hands-on)</b>
14:00 – 15:30	<b>Demo 2: Spectral image data structure (hands-on)</b>
15:30 – 17:00	<b>Demo 3: Basic operation on spectral data (hands-on)</b>
17:00 – 17:30	<b>Follow-Up Questions &amp; Close</b>

# Course Trainers



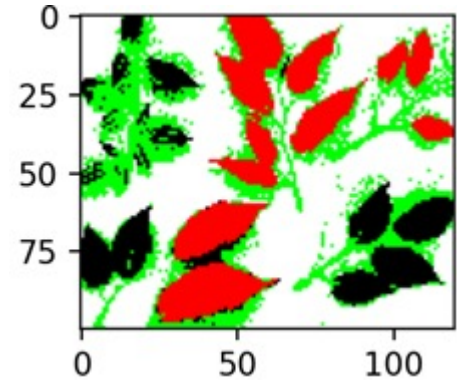
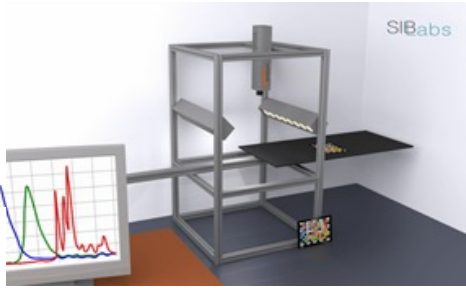
**Course Director: Prof. Markku Hauta-Kasari**

**Course Manager: Dr. Dmitry Semenov**

**Demo1: Dr. Dmitry Semenov**

**Demo2: Dr. Dmitry Semenov / MSc. Joni Hyttinen**

**Demo3: Dr. Dmitry Semenov / MSc. Joni Hyttinen**



```

Hana open ENVI.py - C:\SPECTRAL IMAGES\From Hana\Hana open ENVI.py (3.7.2)
File Edit Format Run Options Window Help
import matplotlib.pyplot as plt
import numpy # numerical python

samples = 1024
lines = 1024
bands = 18

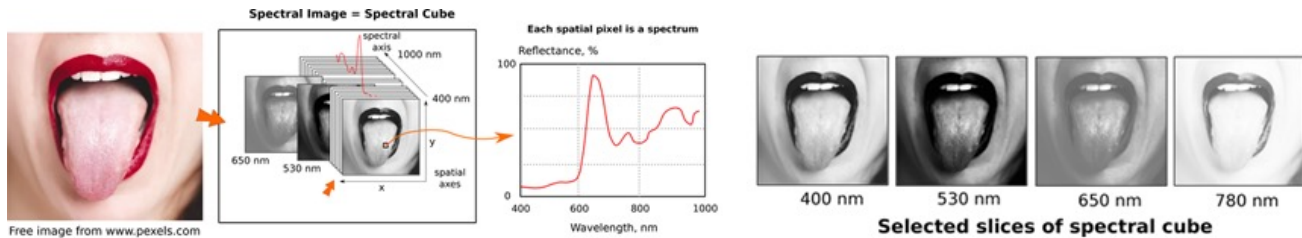
path = r"C:\SPECTRAL IMAGES\From Hana\1\HSI_snapshot_2021210

FILE_READ = open(path, "rb")
raw_image = numpy.fromfile(FILE_READ, dtype='>u2', count = 10
FILE_READ.close()
print("Shape", raw_image.shape)

spectral_image = numpy.reshape(raw_image, (samples, lines))
print(spectral_image.shape)

plt.imshow(spectral_image[:,:], cmap='gray') # cmap='gray',
plt.show()

```



# Course Location



**Joensuu  
Finland**



## Further Information

- <https://uefconnect.uef.fi/en/group/computational-spectral-imaging/>
- <https://www.photonics.fi/>