Radiomics: Extracting more Features using Endoscopic Imaging

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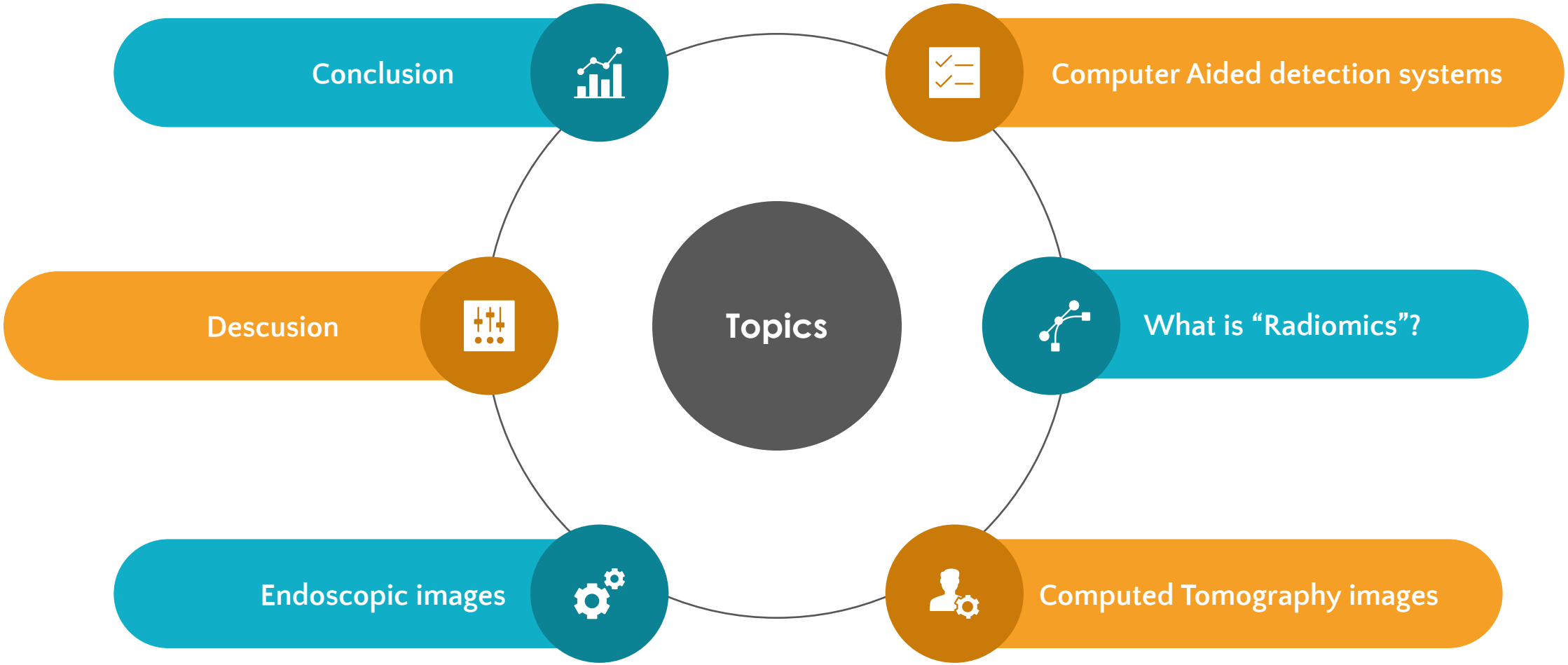
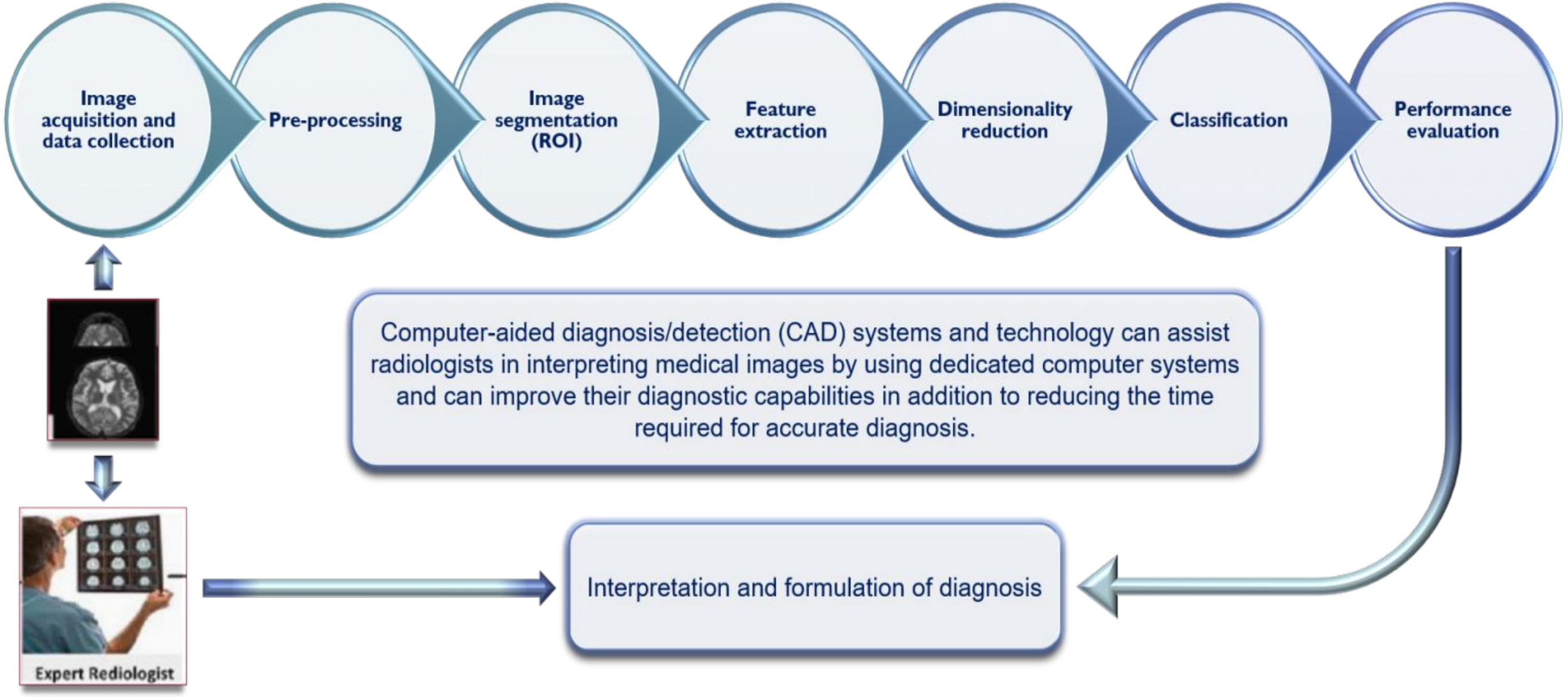
Presentation summary



Computer Aided detection systems

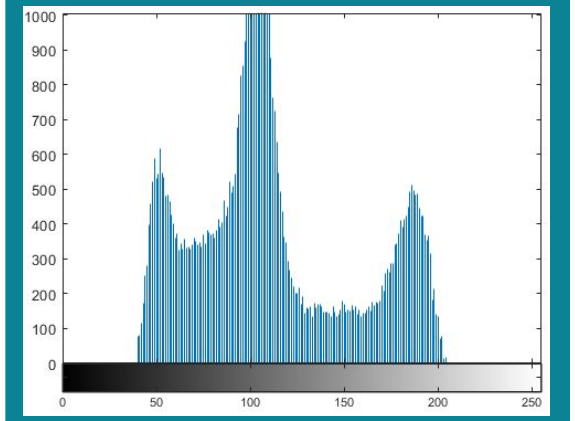


What is Radiomics?

Radiomics refers to the conversion of images into mineable information and also the analyze that information for decision support.

Histogram analysis

1. Mean
2. median
3. maximum intensity
4. minimum intensity



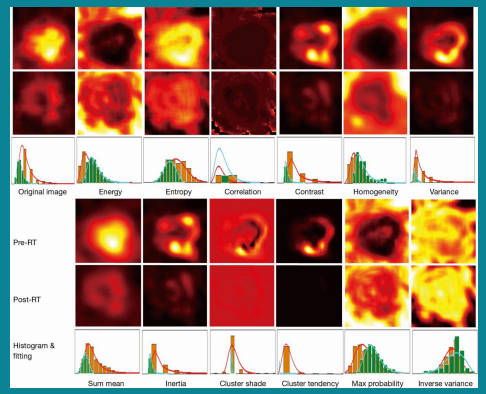
Texture Feature

1- Contrast

2- Correlation

3- Spectral

4- Homogeneity



Color Based feature

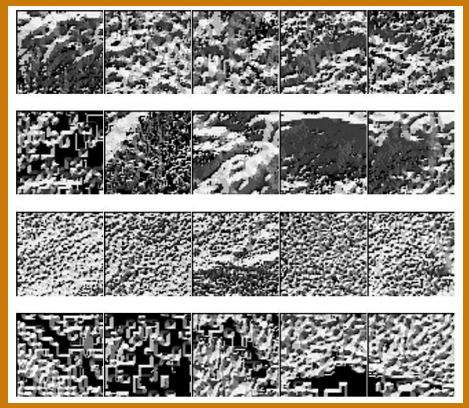
Color Histogram

Histogram Intersection

Color Histogram for K means

Color Correlogram

Chromaticity



Shape Based features

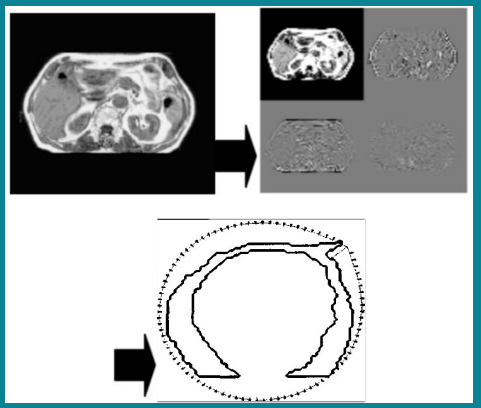
Perimeter of the Boundary

Diameter of Boundary

Eccentricity

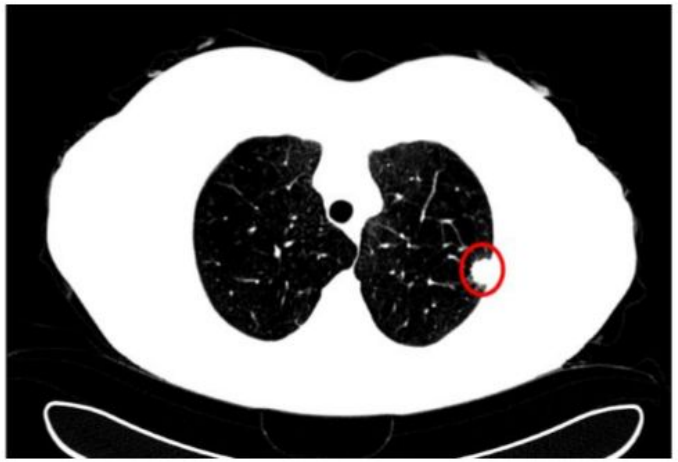
Curvature

Topological Descriptors



Computed Tomography images

CT images are overcome the matter of superimposition of organs, bones, and another parts of body in any depths, by taking many images of the region of interest with variety angles.



CT IMAGING

Advantages	Limits
› detect mucosal tissues and nodules	› The applied radiations to the body in CT scans
› easier to make difference between the bones of the back and front side	› CT Scan represents data at a particular point of time

Endoscopic images

Endoscopy is a technic to make medical image through the endoscope and a camera at the end of the scope connected to a larger monitor.

Endoscopic IMAGING

Advantages

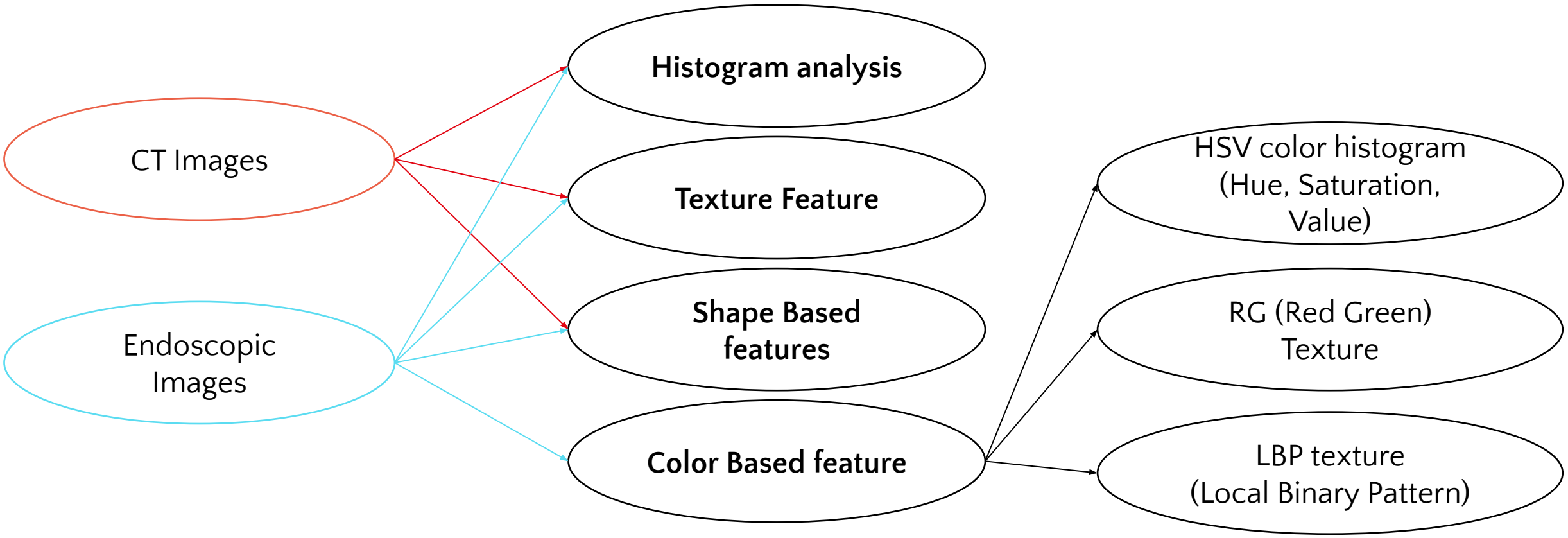
- provides direct and clear field visualization of the disease.
- endoscopy is a minimally invasive procedure

Limits

- endoscopy cannot make images from inside of muscles
- depth perception is not possible with endoscopes

Discussion

In medical specialty, features of cancers detected from radiological data (e.g. CT scans, endoscopy images and MRI) are often use to process detection, prediction, and prognostic cancer in patient.



Conclusion

According to the features extracted from the medical images reviewed in this Presentation, endoscopic images are capable of extracting color features that significantly improve the performance of the cancer detection system.

However, due to the limitations of the use of endoscopic imaging, which cannot detect diseases that are primarily involve the submucosa, muscular, or serosal layers of the intestine also, if suspected that the bowel is punctured, it is not a good procedure, endoscopic images cannot be used to detect all types of cancers. Thus, if endoscopic and CT scan images are available, the processing of endoscopic images will increase the efficiency of cancer detection as compared with CT scan.

Ready to answer your questions

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