A decorative graphic at the top center of the slide consists of two overlapping diamond shapes. The outer diamond is formed by two intersecting lines, one orange and one teal, creating a larger diamond outline. Inside this, a smaller teal diamond is also formed by the same intersecting lines.

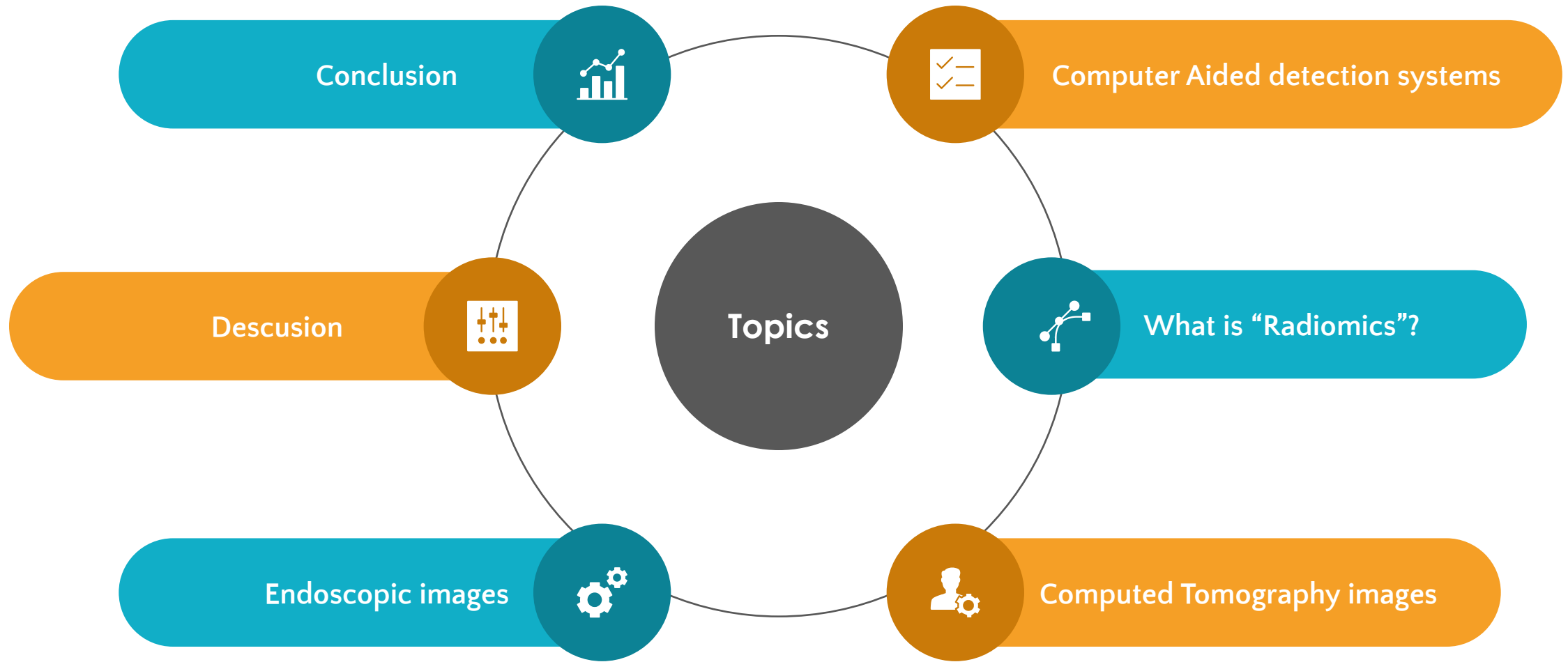
# Radiomics: Extracting more Features using Endoscopic Imaging

Faridoddin Shariaty, Maksim Baranov,

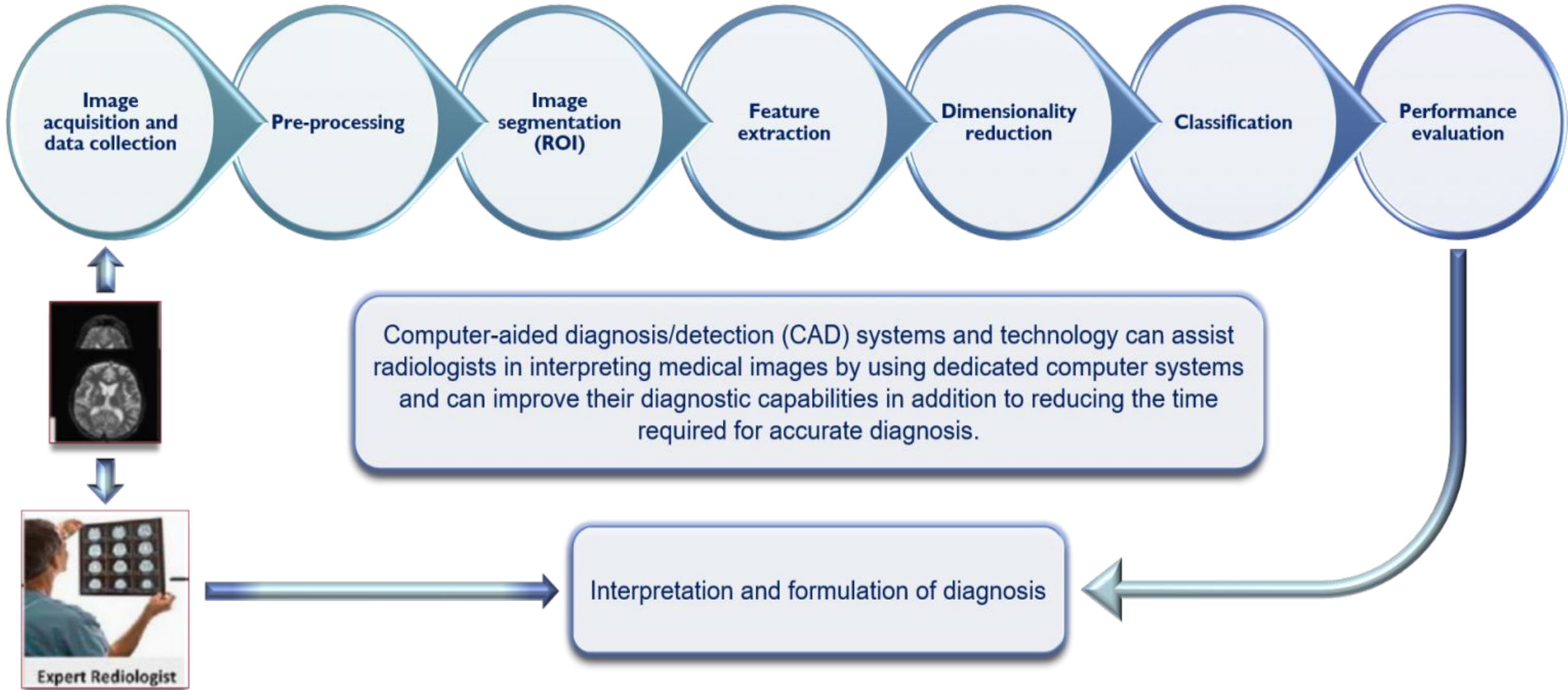
Elena Velichko, Marina Galeeva,

Sergey Zavjalov

# Presentation summary



# Computer Aided detection systems

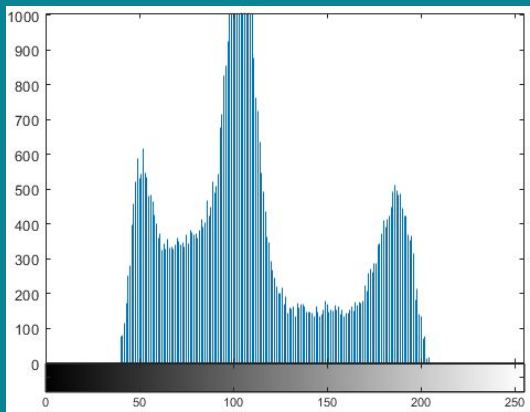


# What is Radiomics?

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

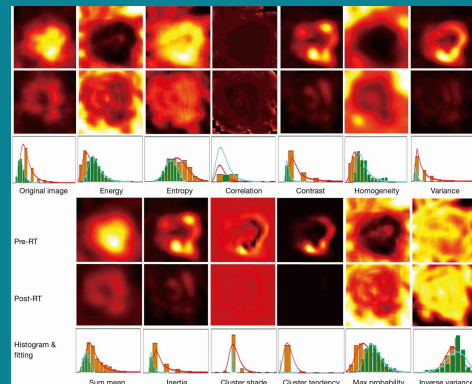
## Histogram analysis

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



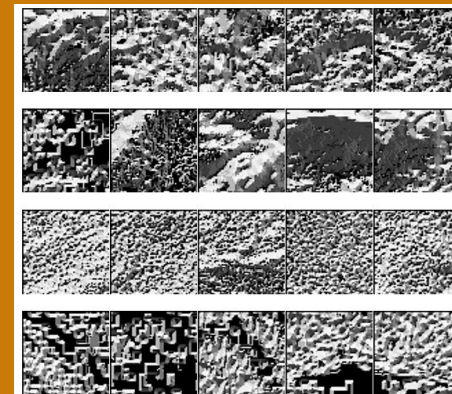
## Texture Feature

- 1- Contrast
- 2- Correlation
- 3- Spectral
- 4- Homogeneity



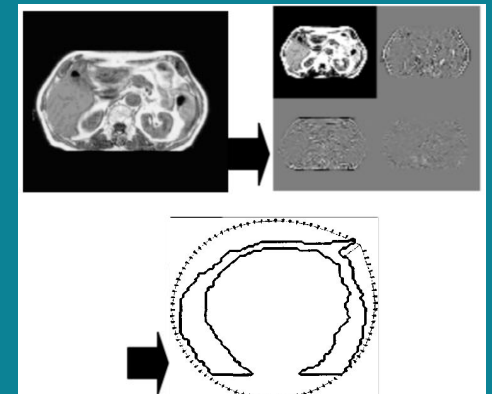
## Color Based feature

- 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.



## Advantages

- › detect mucosal tissues and nodules
- › easier to make difference between the bones of the back and front side

## Limits

- › The applied radiations to the body in CT scans
- › 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.



## Advantages

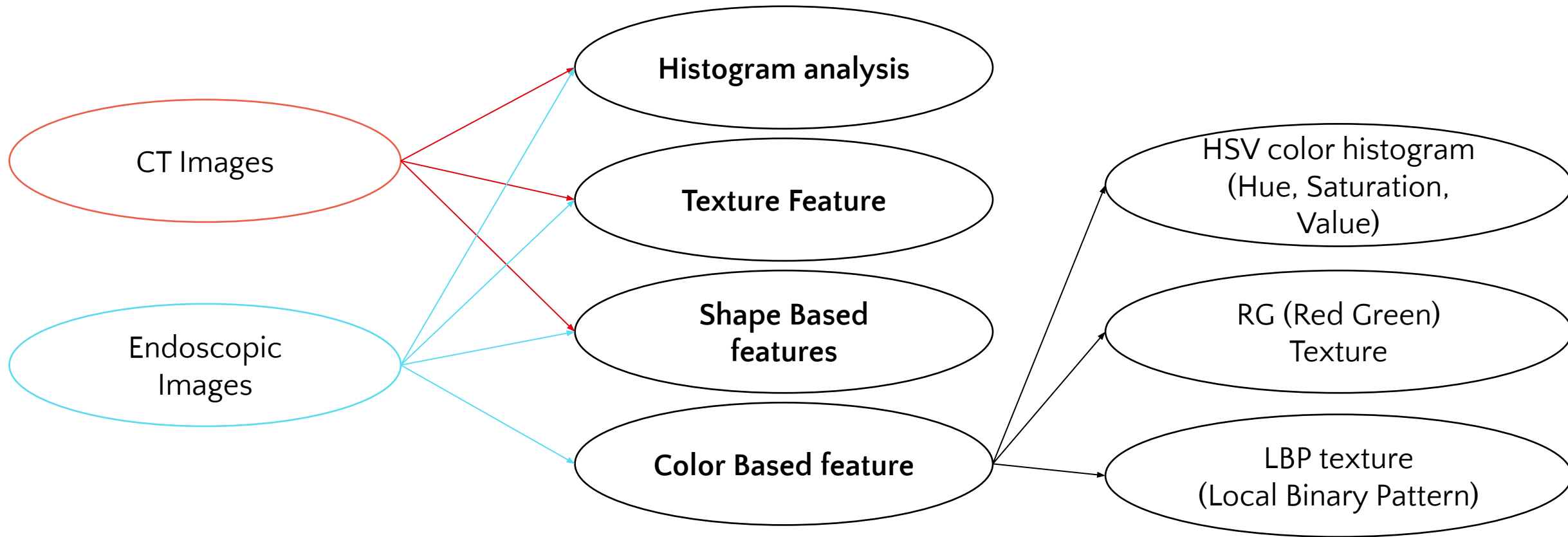
- › provides direct and clear field visualization of the disease.
- › endoscopy is a minimally invasive procedure

## 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

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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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