

TASK-4

Aim of the Task:-

The objective of this task is to calculate the angle in degrees between two points on inner ring of the provided images respectively.

Conclusion:-

The following functions were used:-

- **cv2.medianBlur()**-> This function takes the median of all the pixel under the kernel area and the central element is replaced with the median value. This is highly effective against salt-pepper noise in an image.
- **cv2.HoughCircles()**-> This function is used to detect circles in images. Unlike detecting squares and rectangles in images, detecting circles is substantially harder since we cannot rely on approximating the number of points in a contour.
- **np.uint16()**-> This function here is used for unsigned integer storing upto 16 bit values.
- **np.around()**-> This function is used for removing the decimal values.
- **np.array()**-> This function is used for creating an array.
- **np.dot()**-> This function is used to carry out the dot product of two arrays.
- **np.linalg.norm()**-> This function is used to calculate one of the eight different matrix norms or one of the vector norms. It can also be said that it calculates the modulus of a array.
- **np.arccos()**-> This function is used for calculating the cosine inverse

of a given value and returning the angle corresponding to the value.

- **np.degrees()**-> This function is used to convert the angles from radians to degrees.

Bibliography:-

1. OpenCV documents containing various functions provided by OpenCV.
2. https://youtu.be/dp1r9oT_h9k