

# KIDNEY STONE AREA CLASSIFICATION USING REGION OF INTEREST (ROI) ALGORITHM

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**Abstract** – Kidney stone disease is a serious problem that requires early detection. Chronic kidney disease can occur due to acute kidney disease that lasts for a long time and no lifestyle changes or early treatment are made. CT image classification in kidney disease emphasizes the importance of selecting an activation function. By focusing on CT images, this approach promises an accurate diagnosis with a high level of accuracy, thus supporting daily clinical practice. In this study, the process of detecting kidney stones using naive bayes was carried out using a dataset in the form of kidney image data that had been scanned using computed tomography scanning. The developed naive bayes model has shown very good performance in recognizing kidney conditions from these medical images. The classification process is carried out using five features, one of which is a class/category marker. Testing was carried out by dividing 1453 data into 1017 training data (70%) and 436 test data (30%). After testing, classification using naive bayes Particle Swarm Optimization obtained an accuracy value of 93.90%, precision 100% and recall 93.90%. so that the results are used as a reference for classifying the classification group, namely Excellent Classification.

**Keywords:** naive bayes Particle Swarm Optimization, computed tomography, Kidney stone diseases