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Using Image Processing to Determine Emphysema Severity ALEXANDER MCKENZIE, Metropolitan State College of Denver, ALBERTO SADUN, University of Colorado, Denver — Currently X-rays and computerized tomography (CT) scans are used to detect emphysema, but other tests are required to accurately quantify the amount of lung that has been affected by the disease. These images clearly show if a patient has emphysema, but are unable by visual scan alone, to quantify the degree of the disease, as it presents as subtle, dark spots on the lung. Our goal is to use these CT scans to accurately diagnose and determine emphysema severity levels in patients. This will be accomplished by performing several different analyses of CT scan images of several patients representing a wide range of severity of the disease. In addition to analyzing the original CT data, this process will convert the data to one and two bit images and will then examine the deviation from a normal distribution curve to determine skewness. Our preliminary results show that this method of assessment appears to be more accurate and robust than the currently utilized methods, which involve looking at percentages of radiodensities in the air passages of the lung.

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