Image Processing Diagnostics: Emphysema ALEX MCKENZIE[1], Metropolitan State College of Denver — Currently the computerized tomography (CT) scan can detect emphysema sooner than traditional x-rays, but other tests are required to measure more accurately the amount of affected lung. CT scan images show clearly if a patient has emphysema, but is unable by visual scan alone, to quantify the degree of the disease, as it appears merely as subtle, barely distinct, dark spots on the lung. Our goal is to create a software plug-in to interface with existing open source medical imaging software, to automate the process of accurately diagnosing and determining emphysema severity levels in patients. This will be accomplished by performing a number of statistical calculations using data taken from CT scan images of several patients representing a wide range of severity of the disease. These analyses include an examination of the deviation from a normal distribution curve to determine skewness, a commonly used statistical parameter. Our preliminary results show that this method of assessment appears to be more accurate and robust than currently utilized methods which involve looking at percentages of radiodensities in air passages of the lung.

[1]Student talk sponsored by R. Krantz

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