
Algorithm 1 : Algorithm for the Lloyd-Max method used for binarisation of mammograms.

```
//  
// Compute probability density function (pdf) as the  
// normalized image-intensity histogram and determine the  
// Min and Max gray level values of the image  
//  
Pdf = image->computePdf (); Min = image->getMinGrayLevel (); Max =  
image->getMaxGrayLevel ();  
  
//  
// Initialize quantization levels with Min and Max values  
//  
L[0] = Min; L[1] = Max;  
  
//  
// Variables used for the distortion measure (MSE)  
//  
NewDistortion = 0;  
  
do {  
    OldDistortion = NewDistortion;  
  
    //  
    // Compute the threshold value y  
    //  
    y = round ( (L[0] + L[1]) / 2 );  
  
    NewDistortion = 0;  
    for (x=L[0]; x < L[1]; x++) {  
        Newdistortion += sqr(x - y) * Pdf[x - Min];  
    }  
  
    //  
    // Two cycles loop for binarisation  
    //  
    for (i=0; i < 2; i++) {  
        //  
        // Compute new quantization levels  
        //  
        sum1 = sum2 = 0;  
        for (x=L[i]; x < y; x++) {  
            sum1 += x * Pdf[x - Min];  
            sum2 += Pdf[x - Min];  
        }  
        L[i] = round (sum1 / sum2);  
    }  
} while ( (NewDistortion - OldDistortion > EPSILON) );
```
