Abstract Submitted
for the NEF15 Meeting of
The American Physical Society

Analysis of Bio-Images Using the Gaussian Functions and Histograms BOKEUN KWON, WILLIAM XIAO, HAYOUNG KYUNG, CRG(Choice Research Group) — The operation of an imaging process in MRI includes transforming the weak radio signal, known as magnetic resonance obtained from the part of the body that is being scanned, to the frequency domain. The computer program in the MRI then uses this frequency information to create images of the body tissues. To produce an MRI image of the body tissues, this paper presents the data that is reduced in size from a frequency domain in a relatively large k-space that can be collected using two different filters. Rather than using common exponential functions, we are able to create higher quality images by using MRI filters based on proposed exponential equations. The proposed equations allow k-space data to be recorded in more directions, reducing the ringing artifact, unlike a square equations that create spurious signals near sharp transitions. The proposed filter can capture more or less data in k-space, as the exponential power changes. Therefore, determining that the best image is shown when a certain number in the k-space is chosen. In this paper, the histogram of an equalized image of the MRI scan is analyzed to create clear and evenly distributed frequencies. Such different histograms produce different k-spaces generated by Fourier Transformation.

Richard Kyung
CRG(Choice Research Group)

Date submitted: 18 Oct 2015 Electronic form version 1.4