

Abstract Submitted  
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**Frequency Domain Sampling in Image Processing for Artifact Reduction** RICHARD KYUNG, HEEJAE CHUNG, Choice Research Group — Magnetic Resonance Image (MRI) is one of the most widely used technologies to detect, diagnose, and study various diseases. Coils placed in the MRI machine detect waves that are released from hydrogen atoms in a particular section of the body. The images produced by MRI are accurate and clear. However, there are still some drawbacks to the technologythe MRI does produces clear and rich representations of the area imaged, but it takes a long production time to do so. Such time consumption is mainly caused by MRIs use of data in spatial frequency. The main purpose of this research was to develop a better algorithm that would both enhance the quality of the final image and decrease the amount of time taken to produce it. An ideal and efficient LPF(Low Pass Filter) would be able to increase the resolution of an image as well as decrease the Ringing Artifact. In this research, new experiments were carried out with several modified filters to reduce the ringing effect and improve the resolution of an MRI image to a degree, which resulted in an efficient function as a new filter. Also, it is explained how the Gaussian function captures more frequencies.

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