High Frame Rate Imaging System

Published date: Sept. 28, 2012

Technology description

High frame rate systems can improve the state of the medical art by allowing fast moving objects to be clearly imaged or allowing highest possible image quality. Present systems build a 3D image from a composite of 2D frames, and therefore require the transmission of many frames to form a single useful 3D image. This process slows the frame rate to a level that is unacceptable for use on objects such as the heart. Present systems may also use a sub-array approach to moderately speed up 3D imaging at the cost of image quality.
Novel technology describes high-speed 3D or enhanced quality 2D ultrasound imaging system. This technology can form a 3D image from a single transmission thereby enabling highest speed imaging; 2D images; or 3D image sequences displayed over time. For uses where high speed is not critical, such as imaging of the liver or kidneys, this technology can be optimized for improved image quality with a loss in frame rate.

Application area

·Efficiently images fast moving objects such as the heart. Conventional ultrasound techniques cannot keep pace with its changes while transmitting the large number of 2D images needed to form a composite 3D image.
·Radiology applications.

Advantages

·Allows high frame rate imaging, especially useful in 3D medical ultrasound applications
·Uses fast Fourier transform, a computationally efficient method that is performed by inexpensive components which reduces the total cost of the imaging system.
·Can be optimized to increase field of view while reducing noise or enhancing image resolution.
·Speckle noise can be reduced and image resolution can be increased while the field of image view is increased.
·Can also be optimized to produce maximum image quality at the expense of frame rate in applications where this is preferable such as radiology.

Institution

University of Toledo

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com