

Model-based Compression Correction Framework for Ultrasound

Published date: Aug. 12, 2015

Technology description

Summary

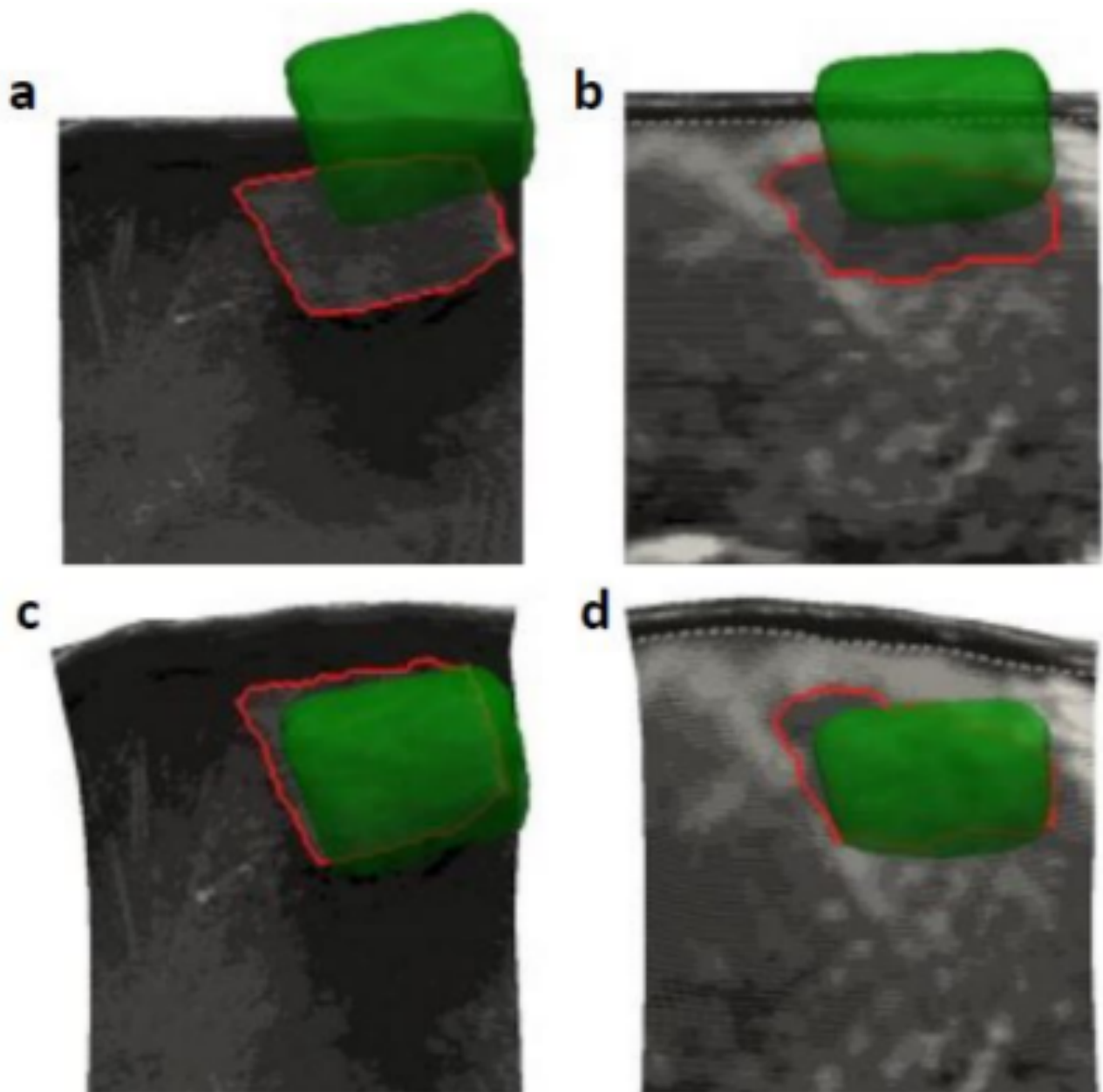
Vanderbilt researchers have developed a system that corrects for compressional effects in ultrasound data during soft tissue imaging. The system uses tracking and digitization information to detect the pose of the ultrasound probe during imaging, and then couples this information with a biomechanical model of the tissue to correct compressional effects during intraoperative imaging.

Addressed Need

Existing ultrasound probes create inaccurate alignment and image distortion when pressed into soft tissue. As a result, intraoperative ultrasound images become incompatible with other intra- or preoperative imaging modalities leading to poor registration accuracy during image-guided therapies. The present technology overcomes these difficulties.

Technology Description

The technology can be integrated with existing surgical navigation systems to improve their imaging accuracy. The technology is also adaptable to all forms of soft tissue image-guided surgery. Using a biomechanical model, the technology predicts how the soft tissue is being manipulated during ultrasound imaging and uses this model prediction to correct the ultrasound data from a compressed to an uncompressed state. The technology can also enable real-time compensation, which is a capability that no other system on the market possesses.



Advantages

Use of a biomechanical model to predict how soft tissue is being manipulated during ultrasound imaging

Integration of the model prediction with imaging data, resulting in uncompressed ultrasound images

Can be performed in real-time

Institution

[Vanderbilt University](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com