

Advanced Method for Data Corrections in Organ Deformation

Summary

A group of Vanderbilt University researchers have developed a solution that will correct for the mis-registration of image data in image-guided surgery. The solution uses software to correct for any mis-registration that is caused by the presence of intraoperative deformations. This invention helps to improve the performance and capabilities of image-guided surgery.

Technology Description

Prior to the operation, a pre-operative image of the organ of surgical/interventional interest is acquired. Prior to surgery a computational model of the organ of interest is generated. During the surgery, the physical organ is presented for surgery/intervention which can often experiences deformation or shape change when compared to its pre-operative state. The shape change can be digitized by the image-guided system. Using the digitized data and the computer model based on pre-operative images, a nonrigid alignment relationship is established among pre-operative model, corresponding image data, and intraoperative organ presentation. This process allows for the physician to better use pre-operative information and to localize tissue for the performance of surgery/intervention.

Unique Properties and Applications

- This technology would be the first commercially available image-guided system that accounts for deformation during surgery.
- This approach can be tailored to individual organs.
- This approach can be used to improve the accuracy of tool use for surgery and intervention.

Technology Development Status

Technology has been fully developed, tested and validated in clinical practice.

Intellectual Property Status

- Issued US patent: [9,767,573](#)
- Issued patents in China, Japan, and Germany

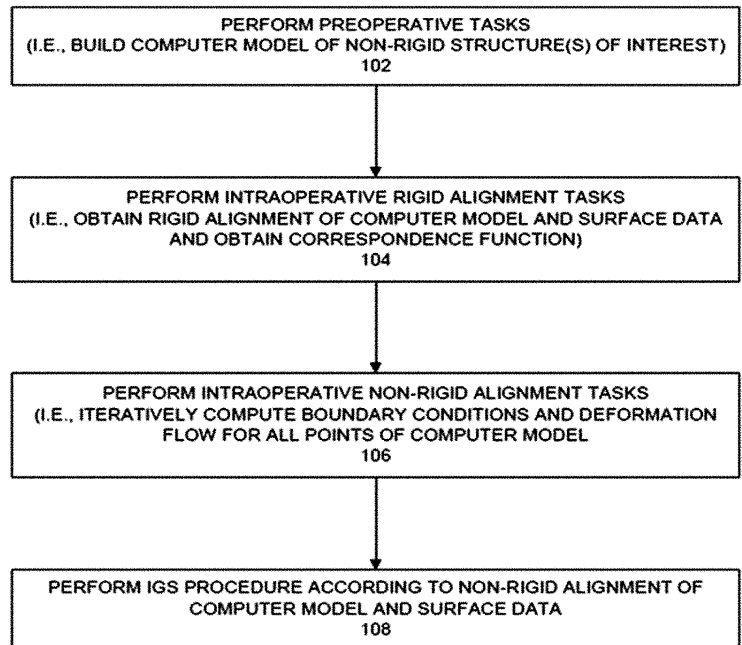


Figure 1: Protocol for deformation correction in IGS

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