ARTICLES

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MOTIVATIONS

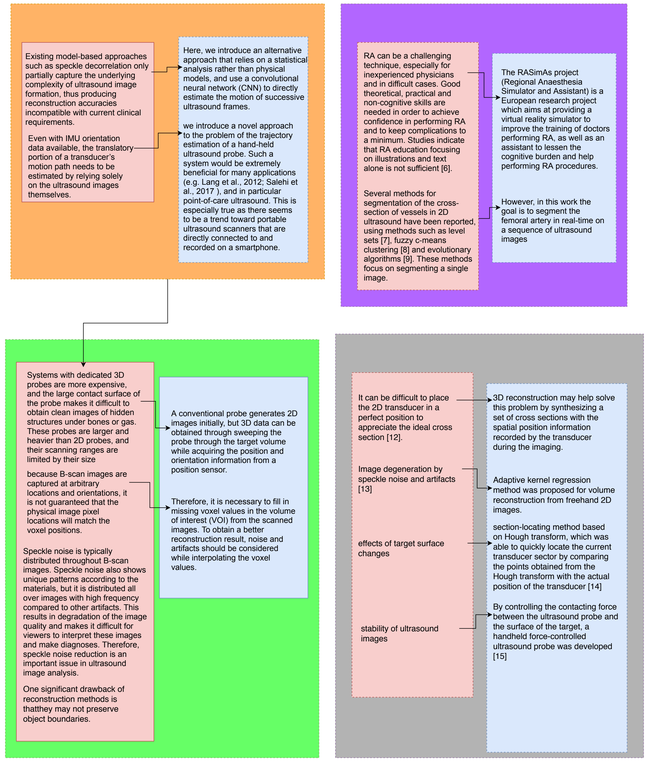
Ultrasound imaging plays an important role in clinical diagnosis, in which the locations ofthe abnormalities need to be detected accurately [10,11]. Compared with other diagnostic methods, ultrasound imaging has several advantages, including its promptness, non-invasiveness and low cost. In addition, the ultrasound imaging probe works with low power consumption and causes no harm to patients and operators. Therefore, ultrasound-based diagnostic methods are used widely for screening and preventive health care, such as the regular prenatal care checkups for pregnant women and their fetuses.

Ultrasound imaging (US) combines a number of advantages as amedical modality: it is affordable, safe for both the patient and the clinician, and is convenient to set up and use. This unique com- bination of properties makes it one of the most popular imaging modalities for both diagnostic and interventional applications.

Ultrasound 3D imaging has received significant attention inmany diagnostic areas, particularly obstetrics [1] and cardiology [2] . Not only 3D visualizations, such as in volume and surface ren- dering, but also 2D sectional images at various orientations, may provide helpful clues for diagnoses. In addition, many studies have demonstrated the applicability of 3D ultrasound imaging to image- guided surgery and interventions, e.g., neurosurgery [3] , biopsy [4] , and radiation therapy [5].

The use of regional anaesthesia (RA) is increasing due tothe benefits over general anaesthesia (GA) such as reduced morbidity and mortality, reduced postoperative pain, earlier mobility, shorter hospital stay, and lower costs [9]. Despite these clinical benefits, RA remains less popular than GA. One reason for this is that GA is far more successful and reliable than RA.

ISSUES AND SOLUTIONS



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