عنوان مقاله:

Ultrasound image based fully-automated nuchal translucency segmentation and thickness measurement

نویسندگان:

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خلاصه مقاله:

The nuchal translucency (NT) detection and thickness measurement is a milestone in the prediction of the abnormalities in addition to chromosomal disorders in a fetus in ultrasound imagery. Nuchal translucency is an accumulation of fluids just at bottom of the foetal neck which is closely associated with chromosome abnormalities with cardiac arrest within the pregnancy period of the first trimester. At the hospital, the sonographers manually estimate the thickness of the mid-sagittal plane of nuchal translucency, which is a significant marker for prenatal screening. Such a conventional process done by a technician is quite time-consuming and requires a skilled technician. Within this methodology, an automatic NT detection method based on SIFT keypoint and GRNN is proposed in the mid-sagittal plane. This Non-invasive approach is crucial not just for the assessment of NT, as well as for the detection of extreme deformities and the identification of high-risk pregnancies. The proposed method is tested on a large image dataset which shows that the proposed technique has better accuracy than well-known state of the art methods. The proposed SIFT and GRNN based method have an error of ۰.۰۲ which is very less compared to the SVM, ANN, NB and KNN.

كلمات كليدى:

GRNN, Nuchal translucency, NT, SIFT

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