

Medical engineering between physician experience and software effectiveness

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Research in the Medical Engineering field is facing many challenges and difficulties. In most cases, it is necessary to provide accurate and rapid results, reduce medical stress, assist in the diagnosis process, and reduce the ratio of human error. Medical Engineering research should not be limited to simulating the task of medical equipment, but the researcher should add new ideas or develop software algorithms that contribute to improving the productivity of the medical device and raise its performance. My current research is interested in automatically detection of the fetus characteristics based on the ultrasound images of the femur, abdomen and head. The author has divided the search into several stages to obtain the final measurement of the Head Circumference HC, Abdomen AC, Femur Length FL, and Bi parietal diameter BPD, to give the doctor information about date of birth and weight of the fetus, according to predefined standard tables. At the last of measurement stage, we had to compare the resulting automated measurement with the manual measuring of the doctor obtained from the computer screen next to the ultrasound device via indicator or mouse. The simple differences between the two measurements are not a problem, because the standard tables are specific to our region (different race), so these tables different from the ones which are inserted in the design of the European origin devices, as well as the doctor's lack of experience or lack of accuracy in using the identification of optimal mathematical model corresponding to the circuit, line, or ellipse may make the same doctor take two different measurements for the same image. In the end, the doctor must look to the substance and content of biomedical engineering research and not only to the output of that research, it may be the researcher has used new algorithms and developed other concepts, as it may be given more accurate results quickly and better.

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