



Title of Invention

(Below is limited to 1-page only; be careful not to disclose vital technology content. Please delete these words when the document is finished)

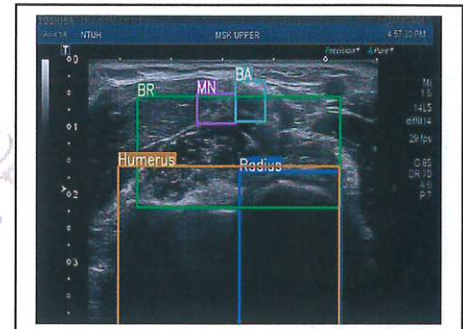
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https://www.ntuh.gov.tw/PMR/Vcard.action?q_type=A01&q_itemCode=246

Experience:

Our team has more than 10 years experiences in clinical ultrasound and development of ultrasound technology.



Market Needs:

Using AI to assist physicians in making clinical decisions is the trend of the current medical technology. Our invention is crucially important in earning, making judgement, guiding interventional procedures for physicians specialized in musculoskeletal ultrasound examination. If imbedded in an ultrasound machine, our invention will enhance its function and make it "smarter", thus increase its value and competitiveness.

Our Technology:

Ultrasound is a valuable instrument to make a medical diagnosis since it can peer inside the body. Moreover, musculoskeletal ultrasound is one of the earliest to enter the point-of-care field and has been widely used. However, since many body parts come with complex anatomical structures and variable relationship, it is hard for beginners to find suitable tutors and to learn from existing textbooks with few pictures. In this invention, we employ YOLOv5 algorithm to achieve accurate and real-time detection for anatomical structures in musculoskeletal ultrasound images, to alleviate the problem as mentioned above. Experimental results have shown that, in mAP50, YOLOv5 achieves over 80% for cross-validation, improving by over 2%, and 89% for testing, improving by 7%. Furthermore, The FPS of YOLOv5 also achieves the real-time benchmark.

Strength:

The automatic labeling function of this invention can assist clinicians in making diagnostic and therapeutic judgments, which is not available in any existing ultrasound products domestically or abroad.

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Competing Products:

Currently, there is no existing ultrasound products having the function of this invention.

Intellectual Properties:

US provisional 63/479,150, Jan. 9, 2023

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