

## Reviewer Comments:

### IBITeC 3rd Period 1

**Detailed comments: Please justify your recommendation and suggest improvements in technical content or presentation.**

The manuscript in LUS analysis is well written. There are several improvements: Eq 1, c is constant, please provide a number used for this study. Please improve Eq 2-Eq 5. Please improve the x-y axis caption of Fig 3 (a)-(d). The Authors may use the three types of lines instead of color to improve readability.

### IBITeC 3rd Period 2

**Detailed comments: Please justify your recommendation and suggest improvements in technical content or presentation.**

#### 1 Please check the following:

- Abstract: The proposed scheme is base on the ... -> based on ??
- I. Introduction: ... the chest X-ray (CXR) needed ... -> ... is needed ??
- II. Method We use the mages in this work .. -> images ???
- B. Image Pre-processing In the image processing stages, as shown in Fig. 1, ... -> do you mean "the image pre-processing stage ..." ??
- C. Features Extraction ... texture features computed using (2), (3), (4), and (5) ... -> should be "Eqs. (2), (3), (4), and (5)"

#### 2 Related Work

I think it is better to cite similar works that also use "Ultrasound Images" to classify or differentiate between COVID19 and Non-COVID19. Then, you need to explain the difference between your approach and other recently published works is.

#### 3 Equations

It is better not to display equations as images. Eqs. 2, 3, 4, and 5 are not clear.

#### 4 Figures

- Fig. 3 is NOT CLEAR. A resolution of at least 300 dpi is normally used by the IEEE. Please check it.
- There is no detailed explanation about Fig. 3.

#### Discussion

In my opinion, the discussion part related to the results obtained is very little.

### **IBITeC 3rd Period 3**

**Detailed comments: Please justify your recommendation and suggest improvements in technical content or presentation.**

Authors have classification of normal, pneumonia or COVID-19 using lung ultrasound images. Texture features like energy, contrast, entropy and homogeneity have been used for classification. Prior to calculating these features, Gamma correction and Contrast Limited Adaptive Histogram Equalization (CLAHE) have been applied for enhancing the images.

Authors are suggested to re-write the equations (2) to (5) for better clarity/ readability.

## Authors Responses to Reviewer's Comments

(Paper ID: 1570754268)

### IBITeC 3rd Period 1 (Reviewer 1)

*The manuscript in LUS analysis is well written. There are several improvements: Eq 1, c is constant, please provide a number used for this study. Please improve Eq 2-Eq 5. Please improve the x-y axis caption of Fig 3 (a)-(d). The Authors may use the three types of lines instead of color to improve readability.*

#### Authors Responses:

Thank you for your advice and correction of our manuscript. We have appreciated all your concern and comments on our manuscript. We have corrected our manuscript based on your suggestion. Here is the improvement and correction in our revised manuscript:

- The c constant we used in our work is  $c=1$ . We wrote it in the last line of the 1<sup>st</sup> paragraph below Eqs. (1).
- We have improved the clarity of the writing of Eqs. 2 – Eqs. 5.
- We've improved the visualization and the caption on each axis in Figure 3(a)-(d), and we've used three different line types for each category of data labels. We used a multiline chart to improve the readability to show the differences between the image label covid-19, pneumonia, and normal that we only present in one line before.

### IBITeC 3rd Period 2 (Reviewer 2)

#### 1 Please check the following:

- *Abstract: The proposed scheme is base on the ... -> based on ??*
- *I. Introduction: ... the chest X-ray (CXR) needed ... -> ... is needed ??*
- *II. Method We use the mages in this work .. -> images ???*
- *B. Image Pre-processing In the image processing stages, as shown in Fig. 1, ... -> do you mean "the image pre-processing stage ..." ??*
- *C. Features Extraction ... texture features computed using (2), (3), (4), and (5) ... -> should be "Eqs. (2), (3), (4), and (5)".*

#### Authors Responses:

Thank you for your advice and correction of our manuscript. We have appreciated all your concern and comments on our manuscript, and we agree with your suggestion. We have corrected our revised manuscript based on your recommendation.

## 2 Related Work

*I think it is better to cite similar works that also use "Ultrasound Images" to classify or differentiate between COVID19 and Non-COVID19. Then, you need to explain the difference between your approach and other recently published works is.*

### **Authors Responses:**

Thank you for your advice and correction of our manuscript. We have corrected our revised manuscript based on your recommendation. We have added two similar works that use ultrasound images.

1. To reduce the inconsistent diagnosis of lung abnormalities, extracting specific features methods on the lung ultrasound image has been extensively investigated. The feature extraction based on pleural lines analysis has been proposed in [13]. Based on its features, normal lung and pneumonia based on ultrasound images can be identified.
2. In the other studies in [12], the features extraction using the GLCM specific on the pleural lines has been proposed. The method tested to differentiate normal lung and acute respiratory distress syndrome (ARDS) or acute cardiogenic pulmonary edema (CPE). In [12], the GLCM feature-based correlation and homogeneity were reported as the potential texture features.

The difference between our approach and other recently published works is:

In our work, extracting features calculation is not specific only on the pleural lines reported in [12]. This work investigated the whole area of images to consider some potential signs of lung abnormalities, such as A-lines, B-lines, thick irregular pleural lines, or subpleural consolidations.

The added similar work on the revised article are written in 6<sup>th</sup> and 7<sup>th</sup> paragraph in the introduction part and the explanation of the difference between our approach and other recently published works we wrote in 8<sup>th</sup> paragraph in the introduction part.

## 3 Equations

*It is better not to display equations as images. Eqs. 2, 3, 4, and 5 are not clear.*

### **Authors Responses:**

Thank you for your advice and correction of our manuscript. We have corrected our revised manuscript based on your recommendation. We have changed the clarity of the writing of Eqs. 2, 3, 4, and 5.

## 4 Figures

- *Fig. 3 is NOT CLEAR. A resolution of at least 300 dpi is normally used by the IEEE. Please check it.*
- *There is no detailed explanation about Fig. 3.*

### **Authors Responses:**

Thank you for your advice and correction of our manuscript. We have corrected our manuscript based on your suggestion. The improvement and revisions in our revised manuscript are:

- We've improved the image resolution in Figure 3(a)-(d). We have used higher resolution and utilized three different line types for each category of the data label. We use a multiline chart in Figure 3 to improve the readability to show the differences between the image labeled covid-19, pneumonia, and normal that we only present in one line before.
- We have added the explanation for Fig. 3 in the 4<sup>th</sup> paragraph in the Result part: Fig.3 shows the visualization of feature extraction characteristics of energy, contrast, entropy, and homogeneity for 0 deg direction. Using 100 sample images for the labeled data as covid-19, pneumonia, and regular/normal, extraction characteristics of energy, contrast, entropy, and homogeneity for 0 deg direction in Fig. 3 generally show that the covid-19 data have the highest value than pneumonia and regular/normal. In contrast, the energy feature has the lowest value. These figures in Fig.3 could differentiate the covid-19, pneumonia, and regular/normal.

## **5 Discussion**

*In my opinion, the discussion part related to the results obtained is very little.*

### **Authors Responses:**

Thank you for your advice and correction of our manuscript. We have appreciated all your concern and comments on our manuscript. We have corrected our manuscript based on your suggestion. The improvement and correction in our revised manuscript were written in the last paragraphs in the Result part.

### **IBITeC 3rd Period 3 (Reviewer 3)**

*Authors have classification of normal, pneumonia or COVID-19 using lung ultrasound images. Texture features like energy, contrast, entropy and homogeneity have been used for classification. Prior to calculating these features, Gamma correction and Contrast Limited Adaptive Histogram Equalization (CLAHE) have been applied for enhancing the images.*

*Authors are suggested to re-write the equations (2) to (5) for better clarity/ readability.*

### **Authors Responses:**

Thank you for your advice and correction of our manuscript. We have appreciated all your concern and comments on our manuscript. We have corrected our revised manuscript based on your recommendation. We have changed the clarity and the readability of the writing of Eqs. (2) to (5).