

Submission 244

Conference

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## ICORIS-2022 Submission 244


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### Submission 244

Title	U-Net Tuning Hyperparameter for Segmentation in Amniotic Fluid Ultrasonography Image
Paper:	 (Aug 02, 01:40 GMT)
Author keywords	Amniotic Fluid Segmentation U-Net Tuning Hyperparameter
Abstract	<p>Ultrasound Amniotic Fluid (AF) images generally have image quality similar to other 2-D ultrasound images, which have noise, blurry edges, artifacts, and low contrast. Some of the confusing factors in pocket AF segmenting comprise (a) reverberation artifact, (b) AF mimicking region, (c) floating matters, and (d) incomplete or missing boundary. Obtaining the Region of Interest (ROI) area of amniotic fluid requires a segmentation method that can identify each object in more detail. Based on the problems in AF segmentation, the contribution of this research focuses on the development of segmentation methods in AF using the U-Net semantic segmentation model using the architecture of the Roonerberger. This paper analyzes several uses of hyperparameters to determine the performance of the U-NET model architecture, especially for segmenting AF. The hyperparameter tuning is in the optimizer, loss function, learning rate, and the number of epochs. The best performance of U-Net in segmenting amniotic fluid with a combination of RMSprop optimizer parameters, the Loss function is Binary cross entropy, learning rate value is 0.00001 with Epoch of 33 with DSC of 0.88 and IoU of 0.79, the accuracy of 0.87, precision of 0.93, recall of 0.88.</p>
Submitted	Aug 02, 01:40 GMT
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## Reviews

### Review 1

*Overall  
evaluation*

**2:** (accept)

Explain the implications of the research results shown in Figure 4. The conclusion does not explain the objectives achieved in accordance with the problems, as well as the novelty of the research results. The implications of the research results also need to be described in the conclusions

### Review 2

*Overall  
evaluation*

**2:** (accept)

Overall, the manuscript is a good paper. However some corrections are needed to improvement of the paper, such as:

- In introduction, add an explanation of examples of using the U-Net model in similar cases in previous studies.
- Add in the conclusions the limitations of the research and suggestions for further research.

### Review 3

*Overall  
evaluation*

**3:** (strong accept)

Very well written manuscript on how the deep learning (i.e., UNet based segmentation) solve Amniotic Fluid Ultrasonography image. Also the experiment about the hyper parameters is great. However, need to modify a bit about the format of the writing to more fit with its template.