

COVER LETTER

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October, 4 2024]

Dear,

I/We wish to submit an original research article entitled “**Real-time Dental Caries Segmentation with an Efficient Deformable U-Net (DU-Net) for Teledentistry System**” for consideration by SINERGI.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We promise not to withdraw this article after it has been processed by the Editorial Team. If there is a withdrawal, we are willing to pay a penalty of USD 150 (IDR 2000K) to the SINERGI Editorial Team.

In this paper, I/we report on / show that:

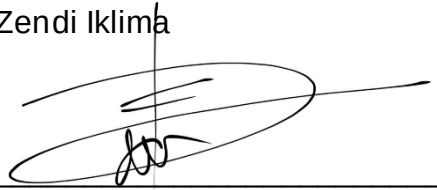
Field	:	Biomedical, Electrical, Computer Science
Topic	:	Biomedical, Electrical, Computer Science
Brief Background	:	
Research Problem	:	Implementation of Image Segmentation (using U-Net architecture) in Real-time Environment using ARM Cortex A57 and Web Server.
Overview of Method	:	• Architecture: The DU-Net architecture enhances the traditional U-Net by incorporating deformable convolutions and skip-connections between encoder-decoder blocks. • Evaluation: The model's performance is evaluated using Floating-Point Operations (FLOPs) to assess computational efficiency alongside segmentation accuracy. • Testing: DU-Net was tested on a Dual Core Cortex A72 system and a web server for real-time segmentation of dental caries, comparing its performance with conventional U-Net models.
Significant finding	:	• Performance Improvement: DU-Net achieved significant enhancements in segmentation accuracy

	(measured by Dice scores) while demonstrating reduced CPU and memory usage compared to conventional U-Net models. • Computational Efficiency: The architecture showed a superior balance of performance and efficiency, evidenced by lower FLOPs without sacrificing segmentation quality. • Real-World Applicability: DU-Net and its variants are positioned as viable solutions for web servers and embedded systems in teledentistry, optimizing both speed and resource management, crucial for practical medical imaging applications.
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We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,
Zendy Iklima



AUTHORSHIP STATEMENT

I/We wish to submit an original research article entitled “**Real-time Dental Caries Segmentation with an Efficient Deformable U-Net (DU-Net) for Teledentistry System**” for consideration by SINERGI.

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript.

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POTENTIAL REVIEWERS

Please submit 3 (three) potential reviewers (*that have not listed in SINERGI*) to speed up the review process that competent for the topic and has a good reputation in that area.

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