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Judul Jurnal Ilmiah (Artikel) : Lightweight encoder-decoder model for automatic skin lesion segmentation
Jumlah Penulis : Empat (**Adi Wibowo**, SR Purnama, Panji Wisnu Wirawan, H Rasyidi)
Status Pengusul : penulis ke 1 (Satu) / Korespondensi
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- Ruang lingkup dan kedalaman pembahasan:**
Ruang lingkup paper ini membahas tentang pengolahan data gambar kanker kulit untuk segmentasi secara otomatis menggunakan arsitektur deep learning ringan, yaitu MobileNetV3-UNet, yang dapat mencapai akurasi yang tinggi dengan sumber daya yang rendah. Paper ini juga membahas analisis komprehensif untuk meningkatkan akurasi metode SLS. Metode segmentasi semantik terdiri dari arsitektur encoder-decoder, augmentasi data, skema pembelajaran, dan metode pascaproses
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Paper ini diterbitkan dalam jurnal berkualitas Q2 oleh Elsevier dengan unsur-unsur yang lengkap serta kualitas yang baik.

Semarang, 2 April 2023
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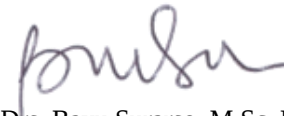
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Konten jurnal sudah lengkap sesuai dengan ketentuan yang berlaku. Artikel meliputi abstract, introduction, materials and method, theory, results and discussion, conclusions, acknowledgment, dan references.
- Ruang lingkup dan kedalaman pembahasan:**
Ruang lingkup paper ini membicarakan tentang metode Skin Lesions Segmentation (SLS) otomatis menggunakan arsitektur encoder-decoder ringan , untuk meningkatkan SLS, dilakukan dengan mengubah decoder dengan lapisan ConvLSTM berarah ganda dari BCDU-Net dan blok terpisah dari arsitektur separable-UNet. Kedalaman pembahasan baik dengan pembahasan augmentasi acak digunakan untuk meningkatkan keberagaman gambar dalam set data pelatihan untuk menghindari overfitting
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Dalam studi tersebut, telah diperoleh sekumpulan informasi yang didukung oleh metodologi yang tepat dan didukung oleh referensi yang terbaru, yaitu kurang dari 5 tahun yang lalu, dengan total sebanyak 33.
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Paper ini dipublikasikan di sebuah jurnal berkualitas Q2 Health Informatics dengan sjr 0,79 dan H-Index 32 yang diterbitkan oleh Elsevier. Paper tersebut memiliki semua unsur yang diperlukan dengan sangat baik.

Semarang, 3 April 2023
Reviewer 2


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Lightweight encoder-decoder model for automatic skin lesion segmentation

Wibowo, Adi^a ; [Purnama, Satriawan Rasyid^a](#) ; [Wirawan, Panji Wisnu^a](#) ; [Rasyidi, Hanif^b](#)
[Save all to author list](#)^a Department of Computer Science, Diponegoro University, Informatics, Semarang, Indonesia^b College of Engineering & Computer Science, Australian National University, Canberra, Australia
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Abstract[Author keywords](#)[Indexed keywords](#)[Sustainable Development Goals 2022](#)[SciVal Topics](#)[Metrics](#)[Funding details](#)**Abstract**

Accurate skin lesion segmentation (SLS) is an important step in computer-aided diagnosis of melanoma. Automatic detection of skin lesions in dermoscopy images is challenging because of the presence of artifacts and as lesions can have heterogeneous texture, color, and shape with fuzzy or indistinct boundaries. In this study, automatic SLS was performed using a lightweight encoder-decoder, MobileNetV3-UNet, which can achieve high accuracy with low resources. A comprehensive analysis was performed to improve the accuracy of the method in SLS. The semantic segmentation method consists of an encoder-decoder architecture, data augmentation, learning schemes, and post-processing methods. To enhance the SLS, we modified the decoder with the bidirectional ConvLSTM layer from the BCDU-Net and separable blocks from the separable-UNet architecture. Random augmentation was used to improve image diversity in the training dataset to avoid overfitting.

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Efficient skin lesion segmentation using separable-Unet with stochastic weight averaging

Tang, P. , Liang, Q. , Yan, X.
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Furthermore, a learning scheme based on stochastic weight averaging (SWA) was used to obtain better generalization by averaging multiple local optima. Our method was evaluated using three publicly available datasets, such as ISIC-2017, ISIC-2018, and PH2. We obtained dice coefficient and Jaccard index of 87.74%, 80.25%; 91.01%, 83.44%; and 95.18%, 91.08% for ISIC-2017, ISIC-2018, and PH2, respectively. The experimental results proved that the modified MobileNetV3-UNet method can outperform several state-of-the-art methods. © 2021 The Authors

Author keywords

Encoder-decoder; MobileNet; Random augmentation; Skin lesion segmentation; Stochastic weight averaging; U-net

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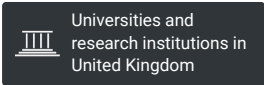
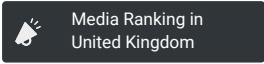
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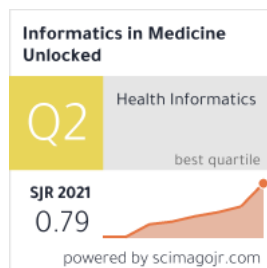
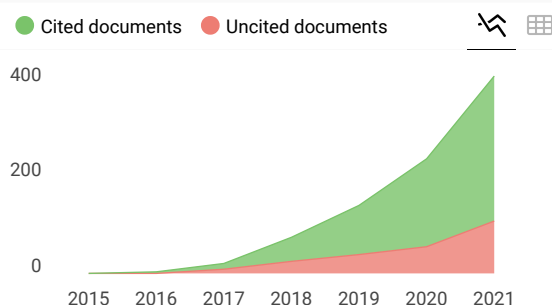
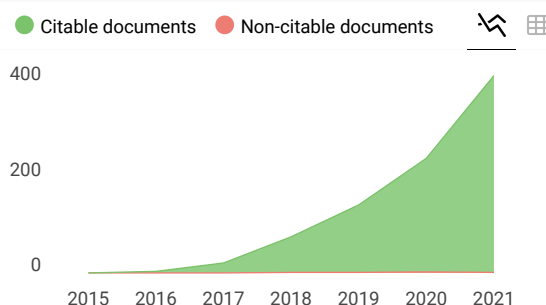
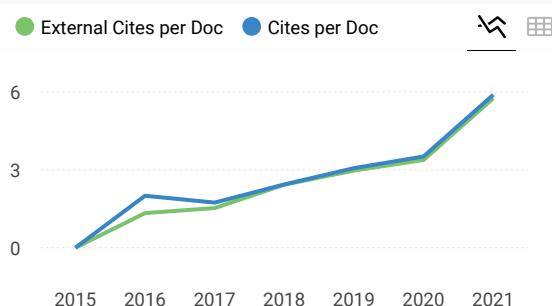
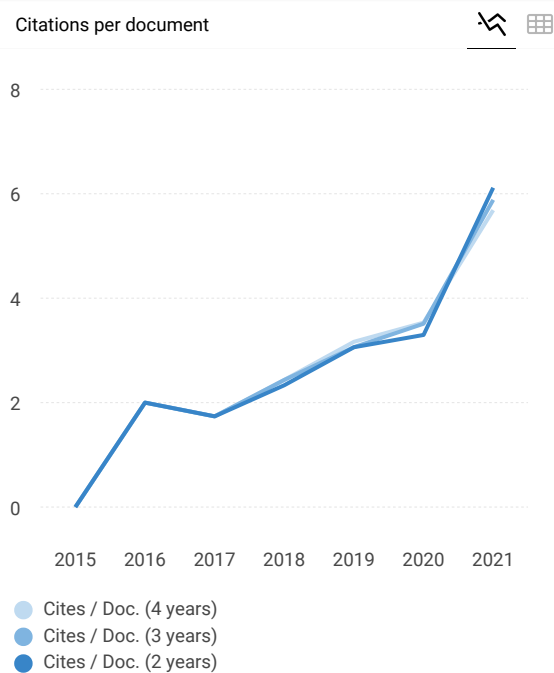
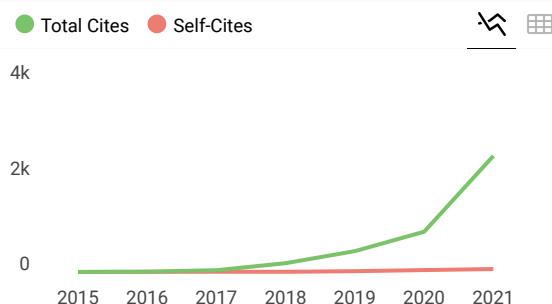
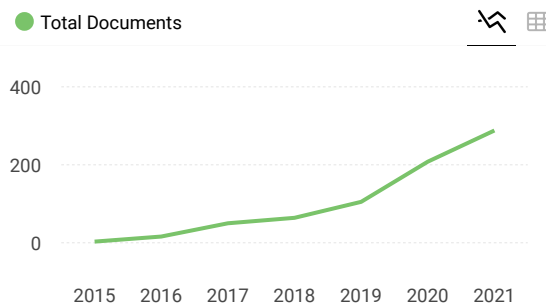
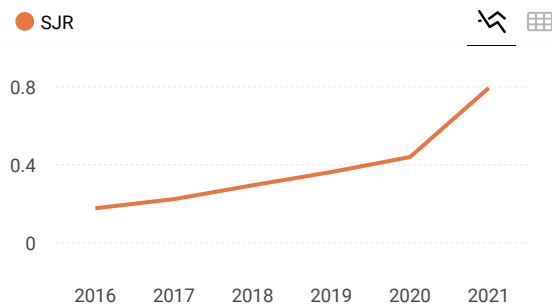
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