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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH

Judul Karya Ilmiah (Artikel) : Comparison of central, peripheral, and weighted size-specific dose in CT
 Jumlah Penulis : 8 Orang
 Status Pengusul : Penulis pertama/ ~~Penulis ke~~ / Penulis Korespondensi **
 Identitas Jurnal Ilmiah : a. Nama Jurnal : Journal of X-Ray Science and Technology
 b. Nomor ISSN : 1095-9114
 c. Volume, Nomor, Bulan, Tahun : Vol. 28 No. 4, Agustus 2020
 d. Penerbit : IOS Press
 e. DOI artikel (jika ada) : 10.3233/XST-200667
 f. Alamat web jurnal : <https://content.iospress.com/journals/journal-of-x-ray-science-and-technology>
 g. Terindeks di Scimagojr/Scopus atau ~~di...~~ **
 Kategori Publikasi Jurnal Ilmiah (beri ✓ pada kategori yang tepat) : ☒ ~~Jurnal Ilmiah Internasional~~ / Internasional Bereputasi **
☐ Jurnal Ilmiah Nasional Terakreditasi
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Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi jurnal (10%)	3,8	3,8	3,8
b. Ruang lingkup dan kedalaman pembahasan (30%)	11,8	11,2	11,5
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	11,8	10,6	11,2
d. Kelengkapan unsur dan kualitas penerbit (30%)	11,6	11,4	11,5
Total = (100%)	39	37,0	38
Nilai untuk Pengusul : (60% x 38) = 22,8			

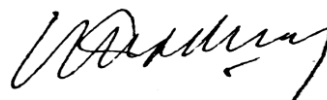
Semarang, 1 Desember 2021

Reviewer 1



Prof. Dr. Drs. Muhammad Nur, DEA
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Reviewer 2



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LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
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	☒	☐	☐	
a. Kelengkapan unsur isi jurnal (10%)	4			3,8
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			11,8
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			11,8
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			11,6
Total = (100%)	40			39
Nilai Pengusul = 60% x 39 = 23,4				

Catatan Penilaian artikel oleh Reviewer :

1. Kelengkapan unsur isi jurnal:

Artikel telah ditulis sesuai dengan Journal of X-Ray Science and Technology yang diterbitkan oleh IOS Press. Pendahuluan sangat baik dan menggambarkan pentingnya penelitian ini. Artikel juga telah menunjukkan secara eksplisit kebaruan dari penelitian ini.

2. Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup bahasan sudah luas, hasil dan pembahasan sudah didiskusikan dengan mengaitkan hasil-hasil dari referensi. Bahasan yang lengkap dan menarik

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Referensi sudah mutakhir. Metoda dapat dipahami oleh mereka yang ahli dibidang ini dan bisa direfleksikan. Diskusi yang dilakukan dalam membahas hasil penelitian ini telah melibatkan referensi yang diasikan acuan.

4. Kelengkapan unsur dan kualitas terbitan:

Penerbitan sudah sangat baik dan jurnal terindeks Scopus, Q2/Q3 SJR: 0.36 (2020). Nilai maksimum untuk journal katagori ini adalah 40. Jurnal ditata dengan sangat baik sesuai standard Journal of X-Ray Science and Technology yang diterbitkan oleh IOS Press

Semarang, 29 Desember 2021
 Reviewer 1



Prof. Dr. Drs. Muhammad Nur, DEA
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 Bidang Ilmu: Fakultas Sains dan Matematika

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	Internasional ☒	Nasional Terakreditasi ☐	Nasional Tidak Terakreditasi ☐	
a. Kelengkapan unsur isi jurnal (10%)	4			3,8
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			11,2
c. Kecukupan dan kemitahiran data/informasi dan metodologi (30%)	12			10,6
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			11,4
Total = (100%)	40			37,0
Nilai Pengusul = 60% x 37,0 = 22,2				

Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Unsur isi jurnal sudah lengkap sesuai dengan tata cara penulisan yang memuat Title, Introduction, Materials and methods, Results and Discussion, Conclusion, Acknowledgement dan References. Substansi artikel sesuai bidang ilmu penulis pertama.

2. Ruang lingkup dan kedalaman pembahasan:

Substansi artikel yaitu tentang perbandingan central, peripheral dan pembobotan pada dosis CT telah sesuai dengan ruang lingkup jurnal, dengan kedalaman pembahasan sangat baik

3. Kecukupan dan kemitahiran data/informasi dan metodologi:

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4. Kelengkapan unsur dan kualitas terbitan:

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Semarang, 23 November 2021

Reviewer 2

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Unit Kerja : Fisika

Bidang Ilmu: Fakultas Sains dan Matematika



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Comparison of central, peripheral, and weighted size-specific dose in CT

Anam C.^a ✉️, Adhianto D.^a, Sutanto H.^a, Adi K.^a, Ali M.H.^b, Rae W.I.D.^b, Fujibuchi T.^c, Dougherty G.^d

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A SIMPLIFIED METHOD for the WATER-EQUIVALENT DIAMETER CALCULATION to ESTIMATE PATIENT DOSE in CT EXAMINATIONS

Anam, C. , Arif, I. , Haryanto, F.

(2019) *Radiation Protection Dosimetry*

A simple method for calibrating pixel values of the CT localizer radiograph for calculating water-equivalent diameter and size-specific dose estimate

Anam, C. , Fujibuchi, T. , Toyoda, T.

(2018) *Radiation Protection Dosimetry*

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Abstract

The objective of this study is to determine X-ray dose distribution and the correlation between central, peripheral and weighted-centre peripheral doses for various phantom sizes and tube voltages in computed tomography (CT). We used phantoms developed in-house, with various water-equivalent diameters (Dw) from 8.5 up to 42.1 cm. The phantoms have one hole in the centre and four holes at the periphery. By using these five holes, it is possible to measure the size-specific central dose (Ds,c), peripheral dose (Ds,p), and weighted dose (Ds,w). The phantoms are scanned using a CT scanner (Siemens Somatom Definition AS), with the tube voltage varied from 80 up to 140 kVps. The doses are measured using a pencil ionization chamber (Ray safe X2 CT Sensor) in every hole for all phantoms. The relationships between Ds,c, Ds,p, and Ds,w, and the water-equivalent diameter are established. The size-conversion factors are calculated. Comparisons between Ds,c, Ds,p, and Ds,w are also established. We observe that the dose is relatively homogeneous over the phantom for water-equivalent diameters of 12-14 cm. For water-equivalent diameters less than 12 cm, the dose in the centre is higher than at the periphery, whereas for water-equivalent diameters greater than 14 cm, the dose at the centre is lower than that at the periphery. We also find that the distribution of the doses is influenced by the tube voltage. These dose distributions may be useful for calculating organ doses for specific patients using their CT images in future clinical practice. © 2020-IOS Press and the authors. All rights reserved.

Author keywords

central dose ; Dose distribution; peripheral dose ; size-specific dose estimate (SSDE); weighted dose

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Journal of X-Ray Science and Technology

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The *Journal of X-Ray Science and Technology* is an international journal designed for the diverse community (biomedical, industrial and academic) of users and developers of novel x-ray imaging techniques. The purpose of the journal is to provide clear and full coverage of new developments and applications in the field. Areas such as x-ray microlithography, x-ray astronomy and medical x-ray imaging as well as new technologies arising from fields traditionally considered unrelated to x rays (semiconductor processing, accelerator technology, ionizing and non-ionizing medical diagnostic and therapeutic modalities, etc.) present opportunities for research that can meet new challenges as they arise. Research areas within the scope of the journal include:

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❑ **Comparison of central, peripheral, and weighted size-specific dose in CT** (<https://content.iospress.com:443/articles/journal-of-x-ray-science-and-technology/xst200667>)

Authors: [Anam, Choirul](https://content.iospress.com:443/search?q=author%3A%28%22Anam%2C+Choirul%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Anam%2C+Choirul%22%29>) | [Adhianto, Dwi](https://content.iospress.com:443/search?q=author%3A%28%22Adhianto%2C+Dwi%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Adhianto%2C+Dwi%22%29>) | [Sutanto, Heri](https://content.iospress.com:443/search?q=author%3A%28%22Sutanto%2C+Heri%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Sutanto%2C+Heri%22%29>) | [Adi, Kusworo](https://content.iospress.com:443/search?q=author%3A%28%22Adi%2C+Kusworo%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Adi%2C+Kusworo%22%29>) | [Ali, Mohd Hanafi](https://content.iospress.com:443/search?q=author%3A%28%22Ali%2C+Mohd+Hanafi%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Ali%2C+Mohd+Hanafi%22%29>) | [Rae, William Ian Duncombe](https://content.iospress.com:443/search?q=author%3A%28%22Rae%2C+William+Ian+Duncombe%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Rae%2C+William+Ian+Duncombe%22%29>) | [Fujibuchi, Toshioh](https://content.iospress.com:443/search?q=author%3A%28%22Fujibuchi%2C+Toshioh%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Fujibuchi%2C+Toshioh%22%29>) | [Dougherty, Geoff](https://content.iospress.com:443/search?q=author%3A%28%22Dougherty%2C+Geoff%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Dougherty%2C+Geoff%22%29>)

Article Type: Research Article

Abstract: The objective of this study is to determine X-ray dose distribution and the correlation between central, peripheral and weighted-centre peripheral doses for various phantom sizes and tube voltages in computed tomography (CT). We used phantoms developed in-house, with various water-equivalent diameters (Dw) from 8.5 up to 42.1cm. The phantoms have one hole in the centre and four holes at the periphery. By using these five holes, it is possible to measure the size-specific central dose (Ds,c), peripheral dose (Ds,p), and weighted dose (Ds,w). The phantoms are scanned using a CT scanner (Siemens Somatom Definition AS), with the tube voltage varied from ... [Show more](#)

Keywords: Dose distribution, size-specific dose estimate (SSDE), central dose, peripheral dose, weighted dose

DOI: 10.3233/XST-200667

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❑ **DCU-Net: Multi-scale U-Net for brain tumor segmentation** (<https://content.iospress.com:443/articles/journal-of-x-ray-science-and-technology/xst200650>)

Authors: [Yang, Tiejun](https://content.iospress.com:443/search?q=author%3A%28%22Yang%2C+Tiejun%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Yang%2C+Tiejun%22%29>) | [Zhou, Yudan](https://content.iospress.com:443/search?q=author%3A%28%22Zhou%2C+Yudan%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Zhou%2C+Yudan%22%29>) | [Li, Lei](https://content.iospress.com:443/search?q=author%3A%28%22Li%2C+Lei%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Li%2C+Lei%22%29>) | [Zhu, Chunhua](https://content.iospress.com:443/search?q=author%3A%28%22Zhu%2C+Chunhua%22%29) (<https://content.iospress.com:443/search?q=author%3A%28%22Zhu%2C+Chunhua%22%29>)

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Abstract: BACKGROUND: Brain tumor segmentation plays an important role in assisting diagnosis of disease, treatment plan planning, and surgical navigation. OBJECTIVE: This study aims to improve the accuracy of tumor boundary segmentation using the multi-scale U-Net network. METHODS: In this study, a novel U-Net with dilated convolution (DCU-Net) structure is proposed for brain tumor segmentation based on the classic U-

Differentiating pneumonia with and without COVID-19 using chest CT images: From qualitative to quantitative

Zicong Li^{a,1}, Bingliang Zeng^{a,1}, Pinggui Lei^{b,1}, Jiaqi Liu^a, Bing Fan^{a,*}, Qinglin Shen^c,
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Abstract.

BACKGROUND: Pneumonia caused by COVID-19 shares overlapping imaging manifestations with other types of pneumonia. How to objectively and quantitatively differentiate pneumonia patients with and without COVID-19 virus remains clinical challenge.

OBJECTIVE: To formulate standardized scoring criteria and an objective quantization standard to guide decision making in detection and diagnosis of COVID-19 virus induced pneumonia in clinical practice.

METHODS: A retrospective dataset includes computed tomography (CT) images acquired from 43 pneumonia patients with COVID-19 virus detected by reverse transcription-polymerase chain reaction (RT-PCR) tests and 49 pneumonia patients without COVID-19 virus. All patients were treated during the same time period in two hospitals. Key indicators of differential diagnosis were identified in relevant literature and the scores were quantified namely, patients with more than 8 points were identified as high risk, those with 6–8 points as moderate risk, and those with fewer than 6 points as low risk for COVID-19 virus. In the study, 3 radiologists determined the scores for all patients. Diagnostic sensitivity and specificity were subsequently calculated.

RESULTS: A total of 61 patients were determined as high risk, among which 42 were COVID-19 positive by RT-PCR tests. Next, 9 were identified as moderate risk, one of whom was COVID-19 positive. Last, 22 were classified into the low-risk group, all of them are COVID-19 negative. Based on these results, the sensitivity of detection COVID-19 positive cases between the high-risk group and the non-high-risk group was 0.98 with 95% confidence interval [0.88, 1.00], and the specificity was 0.61 [0.46, 0.75]. The detection sensitivity between the moderate-/high-risk group and the low-risk group was 1.00 [0.92, 1.00], and the specificity was 0.45 [0.31, 0.60].

CONCLUSION: The proposed quantitative scoring criteria showed high sensitivity and moderate specificity in detecting COVID-19 using CT images, which indicates that these criteria may be beneficial for screening in real-world practice and helpful for long-term disease control.

Keywords: COVID-19, Coronavirus, Pneumonia, X-ray computed tomography

¹Zicong Li, Bingliang Zeng and Pinggui Lei contributed equally to this paper.

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Deep learning-based CAD schemes for the detection and classification of lung nodules from CT images: A survey

Article type: Research Article

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Abstract: BACKGROUND:Lung cancer is the most common cancer in the world. Computed tomography (CT) is the standard medical imaging modality for early lung nodule detection and diagnosis that improves patient's survival rate. Recently, deep learning algorithms, especially convolutional neural networks (CNNs), have become a preferred methodology for developing computer-aided detection and diagnosis (CAD) schemes of lung CT images. OBJECTIVE:Several CNN-based research projects have been initiated to design robust and efficient CAD schemes for the detection and classification of lung nodules. This paper reviews the recent works in this area and gives an insight into technical progress. METHODS:First, a brief overview of CNN models and their basic structures is presented in this investigation. Then, we provide an analytic comparison of the existing approaches to discover recent trend and upcoming challenges. We also introduce an objective description of both handcrafted and deep learning features, as well as the types of nodules, the medical imaging modalities, the widely used databases, and related works in the last three years. The articles presented in this work were selected from various databases. About 57% of reviewed articles published in the last year. RESULTS:Our analysis reveals that several methods achieved promising performance with high sensitivity rates ranging from 66% to 100% under the false-positive rates ranging from 1 to 15 per CT scan. It can be noted that CNN models have contributed to the accurate detection and early diagnosis of lung nodules. CONCLUSIONS:From the critical discussion and an outline for prospective directions, this survey provide researchers valuable information to master the deep learning concepts and to deepen their knowledge of the trend and latest techniques in developing CAD schemes of lung CT images.

Keywords: CAD of CT images, deep learning, lung cancer screening, lung nodule detection, lung nodule classification

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