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

Judul Karya Ilmiah (Artikel)	:	Automated MTF measurement in CT images with a simple wire phantom		
Jumlah Penulis	:	8 Orang		
Status Pengusul	:	Penulis pertama/ ~~Penulis ke~~ / Penulis Korespondesi **		
Identitas Jurnal Ilmiah	:	a. Nama Jurnal	:	Polish Journal of Medical Physics and Engineering
		b. Nomor ISSN	:	1898-0309
		c. Volume, Nomor, Bulan, Tahun	:	Vol. 25 No. 3, September 2019
		d. Penerbit	:	Polish Society of Medical Physics
		e. DOI artikel (jika ada)	:	10.2478/pjmpe-2019-0024
		f. Alamat web jurnal	:	https://sciendo.com/journal/PJMPE
		g. Terindeks di Scimagojr/Scopus ~~atau di….**~~		

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- [√] ~~Jurnal Ilmiah Internasional~~ / Internasional Bereputasi **
- [ ] Jurnal Ilmiah Nasional Terakreditasi
- [ ] Jurnal Ilmiah Nasional/Nasional Terindeks di DOAJ, CABI, COPERNICUS**

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b. Ruang lingkup dan kedalaman pembahasan (30%)	11,8	10	10,9
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	11,8	10,4	11,1
d. Kelengkapan unsur dan kualitas penerbit (30%)	11,6	11,6	11,6
Total = (100%)	**39**	**35,7**	**37,35**
Nilai untuk Pengusul : (60% x 37,35) = 22,41			

Semarang, 1 Desember 2021

Reviewer 1	Reviewer 2
Prof. Dr. Drs. Muhammad Nur, DEA	Dr. Drs. Catur Edi Widodo, M.T.
NIP. 195711261990011001	NIP. 196405181992031002
Bidang ilmu/Unit kerja : Fisika/Fakultas Sains dan Matematika	Bidang ilmu/Unit kerja : Fisika/Fakultas Sains dan Matematika

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

Judul Jurnal Ilmiah (Artikel)	:	Automated MTF measurement in CT images with a simple wire phantom			
Nama/ Jumlah Penulis	:	8 Orang			
Status Pengusul	:	Penulis pertama/ ~~Penulis ke~~ / Penulis Korespondesi **			
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		f.	Alamat web jurnal	:	https://sciendo.com/journal/PJMPE
			Alamat Artikel	:	https://sciendo.com/article/10.2478/pjmpe-2019-0024
		g.	Terindex	:	Scopus

Kategori Publikasi Jurnal Ilmiah	:	√	~~Jurnal Ilmiah Internasional~~/Internasional Bereputasi
(beri ✓pada kategori yang tepat)			Jurnal Ilmiah Nasional Terakreditasi
			Jurnal Ilmiah Nasional Tidak Terakreditasi

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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 kemutahiran 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 = 23,40				

Catatan Penilaian artikel oleh Reviewer :

1. **Kelengkapan unsur isi jurnal:**
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Semarang, 29 Desember 2021
Reviewer 1

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Bidang Ilmu: Fakultas Sains dan Matematika

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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		f.	Alamat web jurnal	:	https://sciendo.com/journal/PJMPE
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		g.	Terindex	:	Scopus

Kategori Publikasi Jurnal Ilmiah	:	√	~~Jurnal Ilmiah Internasional~~/Internasional Bereputasi
(beri ✓pada kategori yang tepat)			Jurnal Ilmiah Nasional Terakreditasi
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	**Nilai Maksimal Jurnal Ilmiah**			**Nilai Akhir Yang Diperoleh**
	Internasional √	**Nasional Terakreditasi**	**Nasional Tidak Terakreditasi**	
a. Kelengkapan unsur isi jurnal (10%)	4			3,7
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			10
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	12			10,4
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			11,6
Total = (100%)	**40**			**35,7**
Nilai Pengusul = 60% x 35,7 = 21.42				

Catatan Penilaian artikel oleh Reviewer :

1. **<u>Kesesuaian dan kelengkapan unsur isi jurnal:</u>**

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2. **<u>Ruang lingkup dan kedalaman pembahasan:</u>**

Substansi artikel yaitu tentang pengukuran resolusi spasial memggunakan metode MTF menggunakan fhantom dengan obyek benang tipis telah sesuai dengan ruang lingkup jurnal, dengan kedalaman pembahasan sangat baik

3. **<u>Kecukupan dan kemutakhiran data/informasi dan metodologi:</u>**

Data-data hasil penelitian sudah menunjukkan ada kebaruan informasi. Pustaka -pustaka yang diacu sesuai dengan tema penelitian dan sebagian besar pustaka adalah mutakhir.
penelitian

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Semarang, 23 Nopember 2021
Reviewer 2

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Document type
Article • *Gold Open Access*

Source type
Journal

ISSN
14254689

DOI
10.2478/pjmpe-2019-0024

Polish Journal of Medical Physics and Engineering • *Open Access* • Volume 25, Issue 3, Pages 179 - 187 • 1 September 2019

Automated MTF measurement in CT images with a simple wire phantom

Anam C.[a], Fujibuchi T.[b], Haryanto F.[c], Budi W.S.[a], Sutanto H.[a], Adi K.[a], Muhlisin Z.[a], Dougherty G.[d]

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polymethyl methacrylate (PMMA) phantom

Ainurrofik, N. , Anam, C. , Sutanto, H.
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Abstract

This study developed a simple wire phantom and an algorithm to automatically measure the modulation transfer function (MTF) in computed tomography (CT) and implemented it to evaluate the effect of focal spot size and reconstruction filter type. The phantom consisted of a resin cylinder filled with water, with a tin wire of diameter 0.1 mm positioned along the center of the cylinder. The automated MTF algorithm used an axial image of the phantom and comprised several steps. The center position of a region of interest (ROI) was automatically determined at the center of the wire image . The pixels were then summed along the y-direction to obtain the profile of the pixel values at a point along the x-direction. Following this, both edges of the profile were made equal to zero. The profile curve was then normalized so that the total of all the data was equal to unity. The normalized profile curve is the line spread function (LSF), and the MTF curve was obtained by taking its Fourier transform. Our system (phantom and algorithm) is able to differentiate the MTFs of CT images from different focal sizes and reconstruction filter types. © 2019 Choirul Anam et al., published by Sciendo 2019.

Author keywords

CT scan; image quality; modulation transfer function (MTF); simple phantom ; spatial resolution

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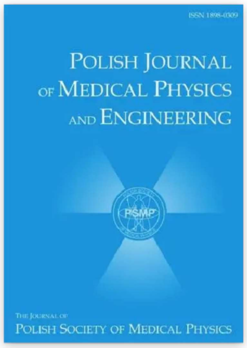

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The Journal publishes original contributions in medical physics and biomedical engineering, involving new methods and techniques, clinical applications, technological developments, research studies, and experimental science. Most of the publications concern the following subject categories: radiotherapy (including brachytherapy), radiology (X-ray, magnetic resonance, and ultrasound imaging), nuclear medicine (diagnostics and therapeutic applications), biosignals, biomedical engineering, and radiation protection. We accept manuscripts from all over the world and particularly invite young researchers from Poland to publish their first papers in the Journal.

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Polish Journal of Medical Physics and Engineering
The Journal of Polish Society of Medical Physics
ISSN 1898-0309, doi: 10.2478/pjmpe-2019-0019
September 2019
Vol 25, Issue 3

Scientific Paper

Diffuse reflectance spectroscopy for identification of carcinogen transformation stages in skin tissue

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(received 20 September 2018; revised 19 February, 2 April and 7 May 2019; accepted 8 May 2019)

Abstract

Today, to establish a diagnosis, the patient must undergo a biopsy followed by histopathological diagnosis, which causes unnecessary cost, patient trauma, and time delay to obtain a diagnosis. However, the metastases can be discovered by diffuse reflectance spectroscopy, which is a simple method that investigates the light distribution within tissue. The theme of this paper is the use of diffuse reflectance spectroscopy (DRS) to determine the optical spectrum of hamster specimen's tissue and to differentiate biological changes due to laser irradiation (scattering, and cell changes) under the skin. DRS measurements were made on healthy and malignant tissue to diagnose the stages of cancer formation using a fiber-optic probe. The results show that malignant tissue is characterized by a significant decrease in diffuse reflectance spectrum compared to normal tissue.

Key words: optical; spectrum; diffuse reflectance spectroscopy; healthy; malignant tissue.

Introduction

Knowledge of the degree to which tissue scatters light is important for understanding the physical processes manifested by the interaction of light and tissue [1]. When illuminating tissue with light, the light will travel along certain paths in the tissue depending on the optical properties [2]. The absorption coefficient determines how far the light propagates in a medium before absorption. The refractive index and the reduced scattering coefficient determine how far the light propagates in the medium before scattering [3]. The absorption is due to different chromophores in the tissue. The chromophores absorb a different amount of light for different wavelength [4]. The scattering is caused by variations in the refractive index within the tissue and is wavelength dependent, which results in a different amount of scattering for different wavelengths [5]. The photons that are scattered and exits the tissue can then be collected by another optical fiber, resulting in a wavelength-dependent reflectance spectrum. The chromophores differ from healthy tissue, tumors and treatment tissues, which results in different reflectance spectra [6].

Various types of optical spectroscopy have been investigated as methods for assessment of tissue pathology [7]. All of these methods have one basic principle in common: the optical spectrum of tissue contains information about the biochemical composition and/or the structure of the tissue, and that information conveys diagnostic information [8].

Optical spectroscopy can also be employed in the management of disease treatment. The diagnostic spectroscopy can be used to monitor response to treatment as well [9].

The benefits of this technique is to develop a diagnostic tool in real-time during surgery and could facilitate the determination of biological changes relevant spectroscopic optical diagnostic techniques for treatment tissue, which would be reduced the number of unnecessary biopsies, the suffering of the patients, and introduce a practical way for surgeons, low cost and ease of implementation, generally mediated with small portable instruments, not requiring any specialized facilities, and eventually not requiring expert interpretation.

Materials and Methods

Experimental setup for the diffuse reflectance measurements consisted of a pulsed Xenon-arc lamp (HL-2000-Ocean optics) as a broadband light source [10], a spectrometer (USB4000 FL-Ocean optics) and a fiber probe for the delivery and collection of the light to and from the sample as shown in (**Figure 1**). The light transport within a tissue a probe that comprises two multimode optical fibers (a source and a detector), which are parallel to each other.

Polish Journal of Medical Physics and Engineering
The Journal of Polish Society of Medical Physics
ISSN 1898-0309, doi: 10.2478/pjmpe-2019-0023

September 2019
Vol 25, Issue 3

Scientific Paper

Secured healthcare monitoring system in wireless body area network using polynomial based technique

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(received 19 February 2019; accepted 27 June 2019)

Abstract

Nowadays healthcare is a standout amongst the most rapidly developing application zone in body area networks (BANs). BANs are anticipated to play a significant role in the stream of patient-health monitoring. To provide, secure BAN access to the entire system without disturbing the confidentiality of patients' therapeutic data is a major challenge. Security of the BAN can be improved by using a polynomial curve-based steganography technique. The performance of the proposed BAN is evaluated by using a Fourier transform and Wavelet transform. The results of the proposed BAN are presented and compared for both the transforms.

Key words: healthcare; body area networks; confidentiality; security; steganography; polynomial curve; transforms.

Introduction

The last couple of decades have seen a relentless increment in various parts of the world prompting a sharp ascent in the number of elderly individuals. A current report from the United Nations [1] anticipated that there will be 2 billion (22% of the total populace) more seasoned individuals by 2050. Likewise, research shows that around 89% of aged individuals are probably going to live autonomously. However, medicinal research found that around 80% of the aged individuals older than 65 experiences at least one endless malady [2-5]. Accordingly, giving a nice personal satisfaction for aged individuals has turned into a genuine social challenge. The rapid multiplication of data and communication technologies is empowering creative healthcare arrangement and devices that show guarantee in addressing the aforementioned challenges.

Body Area Network (BAN) permits the integration of astute, small-sized low-power sensor hubs in, on or nearby human body to screen body capacities and the encompassing condition. It can possibly reform the eventual fate of human services and accomplish various analysts both from the scholarly world and industry in a previous couple of years. For the most part, BAN comprises in-body and on-body sensor systems. In-body sensor permits the correspondence between intrusive/embedded gadgets and base station. However, the on-body sensor permits the correspondence between non-obtrusive/wearable gadgets and a facilitator [6-11]. Each sensor in the BANs is integrated with biosensors to collect vital signs like Electrocardiogram (ECG), Blood Pressure (BP), Electroencephalography (EEG), etc. The gathered physiological signs are forwarded to a facilitator called controller which can be a compact gadget, such as smartphone, PDA, etc. In addition, when the controller distinguishes any variations from the norm then it gives the prompt alarm to the individual wearing the bio-sensors. For instance, a normal level of BP in an individual should not be less than or equivalent to 120. If the BP of an individual goes beyond 126, the controller will give a delicate caution to the individual (e.g. beep tone) is shown in **Figure 1**.

Security plays the most important role in any system. Individuals have a different point of view with respect to security and consequently, it is projected in various perspectives. In general, communication in sensor-related network applications (like BAN) in medicinal services are usually wireless in nature. This may result in different security issues to these frameworks. In this part, we portray the key security prerequisites in healthcare system utilizing BAN.

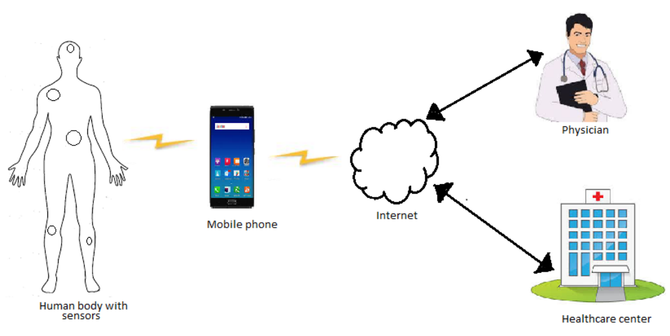

Figure 1.Body Area Network Architecture