

• **Advances in Health Technology Use and Implementation in the Era of Healthy Living: Implications for Precision Medicine**

Typ	Artykuł z czasopisma
Autor	Shane A. Phillips
Autor	Mohamed Ali
Autor	Charles Modrich
Autor	Shariwa Oke
Autor	Ahmed Elokda
Autor	Deepika Laddu
Autor	Samantha Bond
Krótki opis	Much of the focus of precision medicine has been directed toward genomics, despite the fact that “lifestyle and behavioral factors” are included in the description of precision medicine. Numerous structured diet and PA interventions have demonstrated success in preventing and/or reducing chronic-disease risk. The use of personal health technologies has expanded exponentially in the health care arena; there are a number of consumerbased technologies yielding health information to individual users. The explosion in technology use provides an opportunity for broader dissemination of health care services and products. In addition, tracking cardiovascular disease risk and lifestyle and behavioral aspects of healthy living (HL) profiles in those products may be an important leveraging interface for precision medicine. This review will discuss and present an overview of current health technologies, their use in promotion of HL metrics and how this data may be integrated into venues that support HL and precision medicine.
Data	01/2019
Język	en
Krótki tytuł	Advances in Health Technology Use and Implementation in the Era of Healthy Living
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0033062018302597
Dostęp	28.11.2021, 16:46:49
Tom	62
Strony	44-49
Publikacja	Progress in Cardiovascular Diseases
DOI	10.1016/j.pcad.2018.12.007
Numer	1
Wykaz skrótów	Progress in Cardiovascular Diseases
ISSN	00330620
Data dodania	28.11.2021, 16:46:49

- **Załączniki**
 - Phillips et al. - 2019 - Advances in Health Technology Use and Implementati.pdf
- **Artificial intelligence in medical imaging: threat or opportunity? Radiologists again at the forefront of innovation in medicine**

Typ	Artykuł z czasopisma
Autor	Filippo Pesapane
Autor	Marina Codari
Autor	Francesco Sardanelli
Krótki opis	<p>One of the most promising areas of health innovation is the application of artificial intelligence (AI), primarily in medical imaging. This article provides basic definitions of terms such as “machine/deep learning” and analyses the integration of AI into radiology. Publications on AI have drastically increased from about 100–150 per year in 2007–2008 to 700–800 per year in 2016–2017. Magnetic resonance imaging and computed tomography collectively account for more than 50% of current articles. Neuroradiology appears in about one-third of the papers, followed by musculoskeletal, cardiovascular, breast, urogenital, lung/thorax, and abdomen, each representing 6–9% of articles. With an irreversible increase in the amount of data and the possibility to use AI to identify findings either detectable or not by the human eye, radiology is now moving from a subjective perceptual skill to a more objective science. Radiologists, who were on the forefront of the digital era in medicine, can guide the introduction of AI into healthcare. Yet, they will not be replaced because radiology includes communication of diagnosis, consideration of patient’s values and preferences, medical judgment, quality assurance, education, policy-making, and interventional procedures. The higher efficiency provided by AI will allow radiologists to perform more value-added tasks, becoming more visible to patients and playing a vital role in multidisciplinary clinical teams.</p>
Data	12/2018
Język	en
Krótki tytuł	Artificial intelligence in medical imaging
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://eurradioexp.springeropen.com/articles/10.1186/s41747-018-0061-6
Dostęp	10.12.2021, 14:51:18
Tom	2

Strony 35
Publikacja European Radiology Experimental
DOI [10.1186/s41747-018-0061-6](https://doi.org/10.1186/s41747-018-0061-6)
Numer 1
Wykaz skrótów Eur Radiol Exp
ISSN 2509-9280
Data dodania 10.12.2021, 14:51:18
Zmodyfikowany 10.12.2021, 14:51:18

- **Załączniki**

- Pesapane et al. - 2018 - Artificial intelligence in medical imaging threat.pdf

- **Artificial intelligence in ultrasound**

Typ Artykuł z czasopisma
Autor Yu-Ting Shen
Autor Liang Chen
Autor Wen-Wen Yue
Autor Hui-Xiong Xu

Krótki opis

Ultrasound (US), a flexible green imaging modality, is expanding globally as a first-line imaging technique in various clinical fields following with the continual emergence of advanced ultrasonic technologies and the well-established US-based digital health system. Actually, in US practice, qualified physicians should manually collect and visually evaluate images for the detection, identification and monitoring of diseases. The diagnostic performance is inevitably reduced due to the intrinsic property of high operator-dependence from US. In contrast, artificial intelligence (AI) excels at automatically recognizing complex patterns and providing quantitative assessment for imaging data, showing high potential to assist physicians in acquiring more accurate and reproducible results. In this article, we will provide a general understanding of AI, machine learning (ML) and deep learning (DL) technologies; We then review the rapidly growing applications of AI-especially DL technology in the field of US-based on the following anatomical regions: thyroid, breast, abdomen and pelvis, obstetrics heart and blood vessels, musculoskeletal system and other organs by covering image quality control, anatomy localization, object detection, lesion segmentation, and computer-aided diagnosis and prognosis evaluation; Finally, we offer our perspective on the challenges and opportunities for the clinical practice of biomedical AI systems in US.

Data 06/2021
Język en
Usługa katalogowa DOI.org (Crossref)

Adres URL <https://linkinghub.elsevier.com/retrieve/pii/S0720048X21001972>
Dostęp 28.11.2021, 18:30:29
Tom 139
Strony 109717
Publikacja European Journal of Radiology
DOI [10.1016/j.ejrad.2021.109717](https://doi.org/10.1016/j.ejrad.2021.109717)
Wykaz skrótów European Journal of Radiology
ISSN 0720048X
Data dodania 28.11.2021, 18:30:29
Zmodyfikowany 28.11.2021, 18:30:29

- **Załączniki**

- Shen et al. - 2021 - Artificial intelligence in ultrasound.pdf

- **Automatic localization of Common Carotid Artery in ultrasound images using Deep Learning**

Typ Artykuł z czasopisma
Autor Dina Hassanin
Autor mahmoud Abdellah
Autor Ashraf Khalaf
Autor Redial Ragib Gharrieb

Krótki opis

Accurate and automatic localization of the common carotid artery (CCA) is extremely important because the narrowing of the CCA is a silent disease. CCA disease doesn't cause any symptoms in its early stages, and people don't realize that they usually have a problem until they have a stroke. A stroke occurs when the brain doesn't receive enough blood for a long time. Brain damage from a stroke can lead to loss of speech or vision, and major strokes can cause death. In this paper, we proposed various techniques to localize the CCA in transverse section ultrasound (US) images using deep learning. First, we applied preprocessing to the images in the dataset before detecting the bounding box containing the CCA. We used a faster regional proposal convolutional neural network (Faster R-CNN) to detect the rectangular region (bounding box) around the CCA. Then we applied various localization techniques to localize the CCA in the US images. The proposed method has been performed on ultrasonic transverse images of the signal processing (SP) Lab. We compared our results with the clinicians' circles obtaining a great match between them. The accuracy of the bounding box detection was 97.5 and a Jaccard similarity of 90.86% between our proposed system and the clinicians' manual circles. Our proposed system has shown results that outperform other systems in Literature.

Data 2021-07-01
Język en

Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://jaet.journals.ekb.eg/article_128980.html
Dostęp	17.12.2021, 19:49:23
Tom	40
Strony	127-135
Publikacja	Journal of Advanced Engineering Trends
DOI	10.21608/jaet.2020.41138.1040
Numer	2
Wykaz skrótów	Journal of Advanced Engineering Trends
ISSN	2682-2091
Data dodania	17.12.2021, 19:49:23
Zmodyfikowany	17.12.2021, 19:49:23

- **Załączniki**

- Hassanin et al. - 2021 - Automatic localization of Common Carotid Artery in.pdf

- **Automatic segmentation of the carotid artery and internal jugular vein from 2D ultrasound images for 3D vascular reconstruction**

Typ	Artykuł z czasopisma
Autor	Leah A. Groves
Autor	Blake VanBerlo
Autor	Natan Veinberg
Autor	Abdulrahman Alboog
Autor	Terry M. Peters
Autor	Elvis C. S. Chen

Krótki opis

Purpose In the context of analyzing neck vascular morphology, this work formulates and compares Mask R-CNN and UNet-based algorithms to automatically segment the carotid artery (CA) and internal jugular vein (IJV) from transverse neck ultrasound (US). **Methods** US scans of the neck vasculature were collected to produce a dataset of 2439 images and their respective manual segmentations. Fourfold cross-validation was employed to train and evaluate Mask RCNN and U-Net models. The U-Net algorithm includes a post-processing step that selects the largest connected segmentation for each class. A Mask R-CNN-based vascular reconstruction pipeline was validated by performing a surface-to-surface distance comparison between US and CT reconstructions from the same patient. **Results** The average CA and IJV Dice scores produced by the Mask R-CNN across the evaluation data from all four sets were 0.90 ± 0.08 and 0.88 ± 0.14 . The average Dice scores produced by the post-processed U-Net were 0.81 ± 0.21 and

0.71±0.23, for the CA and IJV, respectively. The reconstruction algorithm utilizing the Mask R-CNN was capable of producing accurate 3D reconstructions with majority of US reconstruction surface points being within 2 mm of the CT equivalent.

Conclusions On average, the Mask R-CNN produced more accurate vascular segmentations compared to U-Net. The Mask R-CNN models were used to produce 3D reconstructed vasculature with a similar accuracy to that of a manually segmented CT scan. This implementation of the Mask R-CNN network enables automatic analysis of the neck vasculature and facilitates 3D vascular reconstruction.

Data	11/2020
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://link.springer.com/10.1007/s11548-020-02248-2
Dostęp	28.11.2021, 18:19:20
Tom	15
Strony	1835-1846
Publikacja	International Journal of Computer Assisted Radiology and Surgery
DOI	10.1007/s11548-020-02248-2
Numer	11
Wykaz skrótów	Int J CARS
ISSN	1861-6410, 1861-6429
Data dodania	28.11.2021, 18:19:20
Zmodyfikowany	28.11.2021, 18:19:20

- **Załączniki**
 - Groves et al. - 2020 - Automatic segmentation of the carotid artery and i.pdf
- **Carotid Artery Ultrasound Image Segmentation Using Fuzzy Region Growing**

Typ	Rozdział
Redaktor serii	David Hutchison
Redaktor serii	Takeo Kanade
Redaktor serii	Josef Kittler
Redaktor serii	Jon M. Kleinberg
Redaktor serii	Friedemann Mattern
Redaktor serii	John C. Mitchell
Redaktor serii	Moni Naor
Redaktor serii	Oscar Nierstrasz
Redaktor serii	C. Pandu Rangan
Redaktor serii	Bernhard Steffen

Redaktor serii Madhu Sudan
Redaktor serii Demetri Terzopoulos
Redaktor serii Dough Tygar
Redaktor serii Moshe Y. Vardi
Redaktor serii Gerhard Weikum
Redaktor Mohamed Kamel
Redaktor Aurélio Campilho
Autor Amr R. Abdel-Dayem
Autor Mahmoud R. El-Sakka

Krótki opis In this paper, we propose a new scheme for extracting the contour of the carotid artery using ultrasound images. Starting from a user defined seed point within the artery, the scheme uses the fuzzy region growing algorithm to create a fuzzy connectedness map for the image. Then, the fuzzy connectedness map is thresholded using a threshold selection mechanism to segment the area inside the artery. Experimental results demonstrated the efficiency of the proposed scheme in segmenting carotid artery ultrasound images, and it is insensitive to the seed point location, as long as it is located inside the artery.

Data 2005
Język en
Usługa katalogowa DOI.org (Crossref)
Adres URL http://link.springer.com/10.1007/11559573_106
Dostęp 16.12.2021, 21:38:02
Dodatkowe Series Title: Lecture Notes in Computer Science DOI: 10.1007/11559573_106
Tom 3656
Miejsce Berlin, Heidelberg
Wydawca Springer Berlin Heidelberg
ISBN 978-3-540-29069-8 978-3-540-31938-2
Strony 869-878
Tytuł książki Image Analysis and Recognition
Data dodania 16.12.2021, 21:38:03
Zmodyfikowany 16.12.2021, 21:38:03

- **Załączniki**
 - Abdel-Dayem i El-Sakka - 2005 - Carotid Artery Ultrasound Image Segmentation Using.pdf
- **Carotid plaque segmentation from three-dimensional ultrasound images by direct three-dimensional sparse field level-set optimization**

Typ Artykuł z czasopisma
Autor Jieyu Cheng
Autor Yimin Chen
Autor Yanyan Yu
Autor Bernard Chiu

Krótki opis

Total plaque volume (TPV) measured from 3D carotid ultrasound has been shown to be able to predict cardiovascular events and is sensitive in detecting treatment effects. Manual plaque segmentation was performed in previous studies to quantify TPV, but is tedious, requires long training times and is prone to observer variability. This article introduces the first 3D direct volume-based level-set algorithm to segment plaques from 3D carotid ultrasound images. The plaque surfaces were first initialized based on the lumen and outer wall boundaries generated by a previously described semi-automatic algorithm and then deformed by a direct three-dimensional sparse field level-set algorithm, which enforced the longitudinal continuity of the segmented plaque surfaces. This is a marked advantage as compared to a previously proposed 2D slice-by-slice plaque segmentation method. In plaque boundary initialization, the previous technique performed a search on lines connecting corresponding point pairs of the outer wall and lumen boundaries. A limitation of this initialization strategy was that an inaccurate initial plaque boundary would be generated if the plaque was not enclosed entirely by the wall and lumen boundaries. A mechanism is proposed to extend the search range in order to capture the entire plaque if the outer wall boundary lies on a weak edge in the 3D ultrasound image. The proposed method was compared with the previously described 2D slice-by-slice plaque segmentation method in 26 three-dimensional carotid ultrasound images containing 27 plaques with volumes ranging from 12.5 to 450.0 mm³. The manually segmented plaque boundaries serve as the surrogate gold standard. Segmentation accuracy was quantified by volume-, area- and distance-based metrics, including absolute plaque volume difference ($j\Delta PV_j$), Dice similarity coefficient (DSC), mean and maximum absolute distance (MAD and MAXD). The proposed direct 3D plaque segmentation algorithm was associated with a significantly lower $j\Delta PV_j$, MAD and MAXD, and a significantly higher DSC compared to the previously described slice-by-slice algorithm ($j\Delta PV_j$: $p = 0.012$, DSC: $p = 2.1 \times 10^{-4}$, MAD: $p = 1.3 \times 10^{-4}$, MAXD: $p = 5.2 \times 10^{-4}$). The proposed 3D volume-based algorithm required 72 ± 22 s to segment a plaque, which is 40% lower than the 2D slice-by-slice algorithm (114 ± 18 s). The proposed automatic plaque segmentation method generates accurate and reproducible boundaries efficiently and will allow for streamlining plaque quantification based on 3D ultrasound images.

Data 03/2018
Język en

Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0010482518300027
Dostęp	29.11.2021, 20:01:22
Tom	94
Strony	27-40
Publikacja	Computers in Biology and Medicine
DOI	10.1016/j.combiomed.2018.01.002
Wykaz skrótów	Computers in Biology and Medicine
ISSN	00104825
Data dodania	29.11.2021, 20:01:22
Zmodyfikowany	29.11.2021, 20:01:22

- **Załączniki**
 - Cheng et al. - 2018 - Carotid plaque segmentation from three-dimensional.pdf

• **Carotid Ultrasound**

Typ	Artykuł z czasopisma
Autor	Leslie M. Scoutt
Autor	Gowthaman Gunabushanam
Data	05/2019
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0033838919300119
Dostęp	28.11.2021, 17:31:27
Tom	57
Strony	501-518
Publikacja	Radiologic Clinics of North America
DOI	10.1016/j.rcl.2019.01.008
Numer	3
Wykaz skrótów	Radiologic Clinics of North America
ISSN	00338389
Data dodania	28.11.2021, 17:31:27
Zmodyfikowany	28.11.2021, 17:31:27

- **Załączniki**
 - Scoutt i Gunabushanam - 2019 - Carotid Ultrasound.pdf

• **Current trends in medical image registration and fusion**

Typ	Artykuł z czasopisma
Autor	Fatma El-Zahraa Ahmed El-Gamal

Autor	Mohammed Elmogy
Autor	Ahmed Atwan
Krótki opis	<p>Recently, medical image registration and fusion processes are considered as a valuable assistant for the medical experts. The role of these processes arises from their ability to help the experts in the diagnosis, following up the diseases' evolution, and deciding the necessary therapies regarding the patient's condition. Therefore, the aim of this paper is to focus on medical image registration as well as medical image fusion. In addition, the paper presents a description of the common diagnostic images along with the main characteristics of each of them. The paper also illustrates most well-known toolkits that have been developed to help the working with the registration and fusion processes. Finally, the paper presents the current challenges associated with working with medical image registration and fusion through illustrating the recent diseases/disorders that were addressed through such an analyzing process.</p>
Data	03/2016
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S111086651500047X
Dostęp	28.11.2021, 18:36:02
Tom	17
Strony	99-124
Publikacja	Egyptian Informatics Journal
DOI	10.1016/j.eij.2015.09.002
Numer	1
Wykaz skrótów	Egyptian Informatics Journal
ISSN	11108665
Data dodania	28.11.2021, 18:36:02
Zmodyfikowany	28.11.2021, 18:36:02

- **Załączniki**
 - El-Gamal et al. - 2016 - Current trends in medical image registration and f.pdf
- **Deep learning in biomedical image analysis**

Typ	Rozdział
Autor	Minjeong Kim
Autor	Chenggang Yan
Autor	Defu Yang
Autor	Qian Wang
Autor	Junbo Ma
Autor	Guorong Wu

Data	2020
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/B9780128160343000080
Dostęp	10.12.2021, 14:51:16
Dodatkowe	DOI: 10.1016/B978-0-12-816034-3.00008-0
Wydawca	Elsevier
ISBN	978-0-12-816034-3
Strony	239-263
Tytuł książki	Biomedical Information Technology
Data dodania	10.12.2021, 14:51:16
Zmodyfikowany	10.12.2021, 14:51:16

- **Załączniki**

- Kim et al. - 2020 - Deep learning in biomedical image analysis.pdf

- **Digital Image Processing Methods**

Typ	Książka
Autor	Edward R. Dougherty
Krótki opis	This unique reference presents in-depth coverage of the latest methods and applications of digital image processing describing various computer architectures ideal for satisfying specific image processing demands.
Data	2020-08-26
Język	en
Usługa katalogowa	Google Books
Dodatkowe	Google-Books-ID: 84T3DwAAQBAJ
Wydawca	CRC Press
ISBN	978-1-00-010565-0
Liczba stron	503
Data dodania	9.12.2021, 20:21:33
Zmodyfikowany	9.12.2021, 20:21:33

- **Etykiety:**

- Computers / Image Processing
- Computers / Social Aspects
- Technology & Engineering / Electrical
- Young Adult Nonfiction / Technology / Electricity & Electronics

Załączniki

- Dougherty - 2020 - Digital Image Processing Methods.pdf
- Google Books Link

- **Guidelines for Performing Ultrasound Guided Vascular Cannulation: Recommendations of the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists**

Typ	Artykuł z czasopisma
Autor	Christopher A. Troianos
Autor	Gregg S. Hartman
Autor	Kathryn E. Glas
Autor	Nikolaos J. Skubas
Autor	Robert T. Eberhardt
Autor	Jennifer D. Walker
Autor	Scott T. Reeves
Data	12/2011
Język	en
Krótki tytuł	Guidelines for Performing Ultrasound Guided Vascular Cannulation
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0894731711007279
Dostęp	29.11.2021, 18:46:08
Tom	24
Strony	1291-1318
Publikacja	Journal of the American Society of Echocardiography
DOI	10.1016/j.echo.2011.09.021
Numer	12
Wykaz skrótów	Journal of the American Society of Echocardiography
ISSN	08947317
Data dodania	29.11.2021, 18:46:08
Zmodyfikowany	29.11.2021, 18:46:08

- **Załączniki**

- Troianos et al. - 2011 - Guidelines for Performing Ultrasound Guided Vascu.pdf

- **IMAI district clinician manual: hospital care adolescents and adults : guidelines for the management of illnessess with limited-resources**

Typ Książka

Autor	World Health Organization
Data	2012
Język	en
Krótki tytuł	IMAI district clinician manual
Usługa katalogowa	WHO IRIS
Adres URL	https://apps.who.int/iris/handle/10665/77751
Dostęp	1.12.2021, 20:32:31
Dodatkowe	Section: 2 v.
Miejsce	Geneva
Wydawca	World Health Organization
ISBN	978-92-4-154831-1
Data dodania	1.12.2021, 20:32:36
Zmodyfikowany	1.12.2021, 20:32:36

• **Etykiety:**

- Adolescent
- Adult
- Clinical Competence
- Community Health Services
- Delivery of Health Care
- Developing Countries
- Disease Management
- Guideline
- Hospitals
- standards

Załączniki

- World Health Organization - 2012 - IMAI district clinician manual hospital care adol.pdf

• **Intravascular ultrasound image segmentation: a three-dimensional fast-marching method based on gray level distributions**

Typ	Artykuł z czasopisma
Autor	M.-H.R. Cardinal
Autor	J. Meunier
Autor	G. Soulez
Autor	R.L. Maurice
Autor	E. Therasse
Autor	G. Cloutier
Krótki opis	Intravascular ultrasound (IVUS) is a catheter based medical imaging technique particularly useful for studying atherosclerotic disease. It produces cross-sectional images of blood vessels that

provide quantitative assessment of the vascular wall, information about the nature of atherosclerotic lesions as well as plaque shape and size. Automatic processing of large IVUS data sets represents an important challenge due to ultrasound speckle, catheter artifacts or calcification shadows. A new three-dimensional (3-D) IVUS segmentation model, that is based on the fast-marching method and uses gray level probability density functions (PDFs) of the vessel wall structures, was developed. The gray level distribution of the whole IVUS pullback was modeled with a mixture of Rayleigh PDFs. With multiple interface fast-marching segmentation, the lumen, intima plus plaque structure, and media layers of the vessel wall were computed simultaneously. The PDF-based fast-marching was applied to 9 in vivo IVUS pullbacks of superficial femoral arteries and to a simulated IVUS pullback. Accurate results were obtained on simulated data with average point to point distances between detected vessel wall borders and ground truth 0.072 mm. On in vivo IVUS, a good overall performance was obtained with average distance between segmentation results and manually traced contours 0.16 mm. Moreover, the worst point to point variation between detected and manually traced contours stayed low with Hausdorff distances 0.40 mm, indicating a good performance in regions lacking information or containing artifacts. In conclusion, segmentation results demonstrated the potential of gray level PDF and fast-marching methods in 3-D IVUS image processing.

Data	05/2006
Język	en
Krótki tytuł	Intravascular ultrasound image segmentation
Usługa katalogowa	DOI.org (Crossref)
Adres URL	http://ieeexplore.ieee.org/document/1626322/
Dostęp	29.11.2021, 19:41:57
Tom	25
Strony	590-601
Publikacja	IEEE Transactions on Medical Imaging
DOI	10.1109/TMI.2006.872142
Numer	5
Wykaz skrótów	IEEE Trans. Med. Imaging
ISSN	0278-0062
Data dodania	29.11.2021, 19:41:57
Zmodyfikowany	29.11.2021, 19:41:57

- **Załączniki**
 - Cardinal et al. - 2006 - Intravascular ultrasound image segmentation a thr.pdf
- **Introduction to the DICOM standard**

Typ Artykuł z czasopisma

Autor	Peter Mildemberger
Autor	Marco Eichelberg
Autor	Eric Martin
Krótki opis	Digital Imaging and Communication in Medicine (DICOM) has become one of the most popular standards in medicine. In the beginning, DICOM was used for communication of image data between different systems. Actual developments of the standardisation enables increasingly more DICOMbased services for the integration of modalities and information systems (e.g. RIS, PACS). In this article a review of the historical background, the technological concept, the organizational structure and current developments is given.
Data	4/2002
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	http://link.springer.com/10.1007/s003300101100
Dostęp	29.11.2021, 21:36:26
Tom	12
Strony	920-927
Publikacja	European Radiology
DOI	10.1007/s003300101100
Numer	4
Wykaz skrótów	Eur Radiol
ISSN	0938-7994, 1432-1084
Data dodania	29.11.2021, 21:36:26
Zmodyfikowany	29.11.2021, 21:36:26

- **Załączniki**
 - Mildemberger et al. - 2002 - Introduction to the DICOM standard.pdf
- **Is Ultrasound Sufficient for Vascular Imaging Prior to Carotid Endarterectomy?**

Typ	Artykuł z czasopisma
Autor	John W. Norris
Autor	Alison Halliday
Data	02/2004
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://www.ahajournals.org/doi/10.1161/01.STR.0000115295.63866.E0
Dostęp	29.11.2021, 19:56:04

Tom	35
Strony	370-371
Publikacja	Stroke
DOI	10.1161/01.STR.0000115295.63866.E0
Numer	2
Wykaz skrótów	Stroke
ISSN	0039-2499, 1524-4628
Data dodania	29.11.2021, 19:56:04
Zmodyfikowany	29.11.2021, 19:56:04

- **Załączniki**

- Norris i Halliday - 2004 - Is Ultrasound Sufficient for Vascular Imaging Prio.pdf

- **Machine Learning and Prediction in Medicine — Beyond the Peak of Inflated Expectations**

Typ	Artykuł z czasopisma
Autor	Jonathan H. Chen
Autor	Steven M. Asch
Data	2017-06-29
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	http://www.nejm.org/doi/10.1056/NEJMp1702071
Dostęp	28.11.2021, 16:46:47
Tom	376
Strony	2507-2509
Publikacja	New England Journal of Medicine
DOI	10.1056/NEJMp1702071
Numer	26
Wykaz skrótów	N Engl J Med
ISSN	0028-4793, 1533-4406
Data dodania	28.11.2021, 16:46:47
Zmodyfikowany	28.11.2021, 16:46:47

- **Załączniki**

- Chen i Asch - 2017 - Machine Learning and Prediction in Medicine — Beyo.pdf

- **Overview of artificial intelligence in medicine**

Typ	Artykuł z czasopisma
------------	----------------------

Autor Amisha
Autor Paras Malik
Autor Monika Pathania
Autor VyasKumar Rathaur

Krótki opis

Background: Artificial intelligence (AI) is the term used to describe the use of computers and technology to simulate intelligent behavior and critical thinking comparable to a human being. John McCarthy first described the term AI in 1956 as the science and engineering of making intelligent machines. Objective: This descriptive article gives a broad overview of AI in medicine, dealing with the terms and concepts as well as the current and future applications of AI. It aims to develop knowledge and familiarity of AI among primary care physicians. Materials and Methods: PubMed and Google searches were performed using the key words 'artificial intelligence'. Further references were obtained by cross-referencing the key articles. Results: Recent advances in AI technology and its current applications in the field of medicine have been discussed in detail. Conclusions: AI promises to change the practice of medicine in hitherto unknown ways, but many of its practical applications are still in their infancy and need to be explored and developed better. Medical professionals also need to understand and acclimatize themselves with these advances for better healthcare delivery to the masses.

Data 2019
Język en
Usługa katalogowa DOI.org (Crossref)
Adres URL <http://www.jfmprc.com/text.asp?2019/8/7/2328/263820>
Dostęp 28.11.2021, 16:46:45
Tom 8
Strony 2328
Publikacja Journal of Family Medicine and Primary Care
DOI [10.4103/jfmprc.jfmprc_440_19](https://doi.org/10.4103/jfmprc.jfmprc_440_19)
Numer 7
Wykaz skrótów J Family Med Prim Care
ISSN 2249-4863
Data dodania 28.11.2021, 16:46:45
Zmodyfikowany 28.11.2021, 16:46:45

- **Załączniki**
 - Amisha et al. - 2019 - Overview of artificial intelligence in medicine.pdf
- **Overview of the DICOM Standard**

Typ Artykuł z czasopisma
Autor Mario Mustra

Autor	Kresimir Delac
Autor	Mislav Grgic
Krótki opis	Digital technology has in the last few decades entered almost every aspect of medicine. There has been a huge development in noninvasive medical imaging equipment. Because there are many medical equipment manufacturers, a standard for storage and exchange of medical images needed to be developed. DICOM (Digital Imaging and Communication in Medicine) makes medical image exchange more easy and independent of the imaging equipment manufacturer. Besides the image data, DICOM file format supports other information useful to describe the image. This makes DICOM easy to use and the data exchange fast and safe while avoiding possible confusion caused by multiple files for the same study.
Data	2008
Język	en
Usługa katalogowa	Zotero
Strony	6
Publikacja	th International Symposium ELMAR
Data dodania	29.11.2021, 21:36:27
Zmodyfikowany	29.11.2021, 21:36:28

- **Załączniki**
 - Mustra et al. - 2008 - Overview of the DICOM Standard.pdf
- **Real-Time Automatic Artery Segmentation, Reconstruction and Registration for Ultrasound-Guided Regional Anaesthesia of the Femoral Nerve**

Typ	Artykuł z czasopisma
Autor	Erik Smistad
Autor	Frank Lindseth
Krótki opis	The goal is to create an assistant for ultrasoundguided femoral nerve block. By segmenting and visualizing the important structures such as the femoral artery, we hope to improve the success of these procedures. This article is the first step towards this goal and presents novel real-time methods for identifying and reconstructing the femoral artery, and registering a model of the surrounding anatomy to the ultrasound images. The femoral artery is modelled as an ellipse. The artery is first detected by a novel algorithm which initializes the artery tracking. This algorithm is completely automatic and requires no user interaction. Artery tracking is achieved with a Kalman filter. The 3D artery is reconstructed in real-time with a novel algorithm and a tracked ultrasound probe. A mesh model of the surrounding anatomy was

created from a CT dataset. Registration of this model is achieved by landmark registration using the centerpoints from the artery tracking and the femoral artery centerline of the model. The artery detection method was able to automatically detect the femoral artery and initialize the tracking in all 48 ultrasound sequences. The tracking algorithm achieved an average dice similarity coefficient of 0.91, absolute distance of 0.33 mm, and Hausdorff distance 1.05 mm. The mean registration error was 2.7 mm, while the average maximum error was 12.4 mm. The average runtime was measured to be 38, 8, 46 and 0.2 milliseconds for the artery detection, tracking, reconstruction and registration methods respectively.

Data	3/2016
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://ieeexplore.ieee.org/document/7305813/
Dostęp	29.11.2021, 19:55:08
Tom	35
Strony	752-761
Publikacja	IEEE Transactions on Medical Imaging
DOI	10.1109/TMI.2015.2494160
Numer	3
Wykaz skrótów	IEEE Trans. Med. Imaging
ISSN	0278-0062, 1558-254X
Data dodania	29.11.2021, 19:55:08
Zmodyfikowany	29.11.2021, 19:55:08

- **Załączniki**
 - Smistad i Lindseth - 2016 - Real-Time Automatic Artery Segmentation, Reconstru.pdf
- **Robust spatial fuzzy GMM based MRI segmentation and carotid artery plaque detection in ultrasound images**

Typ	Artykuł z czasopisma
Autor	Mehdi Hassan
Autor	Iqbal Murtza
Autor	Aysha Hira
Autor	Safdar Ali
Autor	Kashif Kifayat
Krótki opis	Background and Objective: In medical image analysis for disease diagnosis, segmentation is one of the challenging tasks. Owing to the inherited degradations in MRI improper segments are produced.

Segmentation process is an important step in brain tissue analysis. Moreover, an early detection of plaque in carotid artery using ultrasound images may prevent serious brain strokes. Unfortunately, low quality and noisy ultrasound images are still challenges for accurate segmentation. The objective of this research is to develop a robust segmentation approach for medical images such as brain MRI and carotid artery ultrasound images. Methods: In this paper, a novel approach is proposed to address the segmentation challenges of medical images. The proposed approach employed fuzzy intelligence and Gaussian mixture model (GMM). It comprises two phases; firstly, incorporating spatial fuzzy c-means in GMM by exploiting statistical, texture, and wavelet image features. During model development, GMM parameters are estimated in presence of noise by EM algorithm iteratively. Utilizing these parameters, brain MRI images are segmented. In next phase, developed approach is applied to solve a real problem of carotid artery plaque detection using ultrasound images. The dataset of real patients annotated by radiologists has been obtained from Radiology Department, Shifa International Hospital Islamabad, Pakistan. For this, intima-media-thickness values are computed from the proposed segmentation followed by support vector machines for plaque classification (normal/abnormal). Results: The obtained segmentation has been evaluated on standard brain MRI dataset and offers high segmentation accuracy of 99.2%. The proposed approach outperforms in term of segmentation performance range of 3–9% as compared to the state of the art approaches on brain MRI. Furthermore, the proposed approach shows robustness to various levels of Gaussian and Rician image noises. On carotid artery dataset, we have obtained high plaque detection rate in terms of accuracy, sensitivity, specificity, and F-score values of 98.8%, 99.3%, 98.0%, and 97.5% respectively. Conclusions: The proposed approach segments both modalities with high precision and shows robustness at Gaussian and Rician noise levels. Results for brain MRI and ultrasound images indicate its effectiveness and can be used as second opinion in addition to the radiologists. The developed approach is straightforward, efficient, and reproducible. It may benefit to improve the clinical evaluation of the disease in both asymptomatic and symptomatic individuals.

Data	07/2019
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0169260719301646
Dostęp	29.11.2021, 20:03:48
Tom	175
Strony	179-192
Publikacja	Computer Methods and Programs in Biomedicine

DOI [10.1016/j.cmpb.2019.04.026](https://doi.org/10.1016/j.cmpb.2019.04.026)

Wykaz skrótów Computer Methods and Programs in Biomedicine

ISSN 01692607

Data dodania 29.11.2021, 20:03:48

Zmodyfikowany 29.11.2021, 20:03:49

- **Załączniki**

- Hassan et al. - 2019 - Robust spatial fuzzy GMM based MRI segmentation an.pdf

- **Segmentation of common and internal carotid arteries from 3D ultrasound images based on adaptive triple loss**

Typ Artykuł z czasopisma

Autor Mingjie Jiang

Autor Yuan Zhao

Autor Bernard Chiu

Krótki opis

Purpose: Vessel wall volume (VWV) and localized vessel-wall-plus-plaque thickness (VWT) measured from three-dimensional (3D) ultrasound (US) carotid images are sensitive to anti-atherosclerotic effects of medical/dietary treatments. VWV and VWT measurements require the lumen-intima (LIB) and media-adventitia boundaries (MAB) at the common and internal carotid arteries (CCA and ICA). However, most existing segmentation techniques were capable of segmenting the CCA only. An approach capable of segmenting the MAB and LIB from the CCA and ICA was required to accelerate VWV and VWT quantification. Methods: Segmentation for CCA and ICA was performed independently using the proposed two-channel U-Net, which was driven by a novel loss function known as the adaptive triple Dice loss (ADTL) function. The training set was augmented by interpolating manual segmentation along the longitudinal direction, thereby taking continuity of the artery into account. A test-time augmentation (TTA) approach was applied, in which segmentation was performed three times based on the input axial images and its flipped versions; the final segmentation was generated by pixel-wise majority voting. Results: Experiments involving 224 3DUS volumes produce a Dice similarity coefficient (DSC) of $95.1\% \pm 4.1\%$ and $91.6\% \pm 6.6\%$ for the MAB and LIB, in the CCA, respectively, and $94.2\% \pm 3.3\%$ and $89.0\% \pm 8.1\%$ for the MAB and LIB, in the ICA, respectively. TTA and ADTL independently contributed to a statistically significant improvement to all boundaries except the LIB in ICA. Conclusions: The proposed two-channel U-Net with ADTL and TTA can segment the CCA and ICA accurately and efficiently from the 3DUS volume. Our

approach has the potential to accelerate the transition of 3DUS measurements of carotid atherosclerosis to clinical research.

Data	09/2021
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://onlinelibrary.wiley.com/doi/10.1002/mp.15127
Dostęp	21.12.2021, 20:32:47
Tom	48
Strony	5096-5114
Publikacja	Medical Physics
DOI	10.1002/mp.15127
Numer	9
Wykaz skrótów	Med. Phys.
ISSN	0094-2405, 2473-4209
Data dodania	21.12.2021, 20:32:47
Zmodyfikowany	21.12.2021, 20:32:47

- **Załączniki**

- Jiang et al. - 2021 - Segmentation of common and internal carotid arteri.pdf

- **SPARQ New Way of Thinking1. 2 OCZEKIWANIA Intencive care/RA Mobilność aparatu USG Łatwość i intuicyjność użycia aparatu USG Pewność diagnostyczna. - ppt pobierz**

Typ	Strona internetowa
Krótki opis	SPARQ New Way of Thinking3 APARAT ULTRASONOGRAFICZNY
Adres URL	https://slideplayer.pl/slide/811173/
Dostęp	28.11.2021, 21:23:19
Data dodania	28.11.2021, 21:23:19
Zmodyfikowany	28.11.2021, 21:23:19

- **Załączniki**

- Snapshot

- **The role of artificial intelligence in medical imaging research**

Typ	Artykuł z czasopisma
Autor	Xiaoli Tang

Krótki opis

Without doubt, artificial intelligence (AI) is the most discussed topic today in medical imaging research, both in diagnostic and therapeutic. For diagnostic imaging alone, the number of publications on AI has increased from about 100–150 per year in 2007–2008 to 1000–1100 per year in 2017–2018. Researchers have applied AI to automatically recognizing complex patterns in imaging data and providing quantitative assessments of radiographic characteristics. In radiation oncology, AI has been applied on different image modalities that are used at different stages of the treatment. i.e. tumor delineation and treatment assessment. Radiomics, the extraction of a large number of image features from radiation images with a high-throughput approach, is one of the most popular research topics today in medical imaging research. AI is the essential boosting power of processing massive number of medical images and therefore uncovers disease characteristics that fail to be appreciated by the naked eyes. The objectives of this paper are to review the history of AI in medical imaging research, the current role, the challenges need to be resolved before AI can be adopted widely in the clinic, and the potential future.

Data	11/2020
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://www.birpublications.org/doi/10.1259/bjro.20190031
Dostęp	10.12.2021, 15:00:11
Tom	2
Strony	20190031
Publikacja	BJR Open
DOI	10.1259/bjro.20190031
Numer	1
Wykaz skrótów	BJR Open
ISSN	2513-9878
Data dodania	10.12.2021, 15:00:11
Zmodyfikowany	10.12.2021, 15:00:11

- **Załączniki**

- Tang - 2020 - The role of artificial intelligence in medical ima.pdf

- **Trends in medical imaging: from 2D to 3D**

Typ	Artykuł z czasopisma
Autor	Georgios Sakas
Krótki opis	In recent years, three important new developments have dominated the world of medical imaging: “better diagnosis alone” is not desired by end users if there is no impact on the therapy procedure; interventional procedures are gaining importance as compared to

pure diagnostics; and a general shift from 2D slices to 3D models of organs has been observed. These trends influence all existing imaging modalities. In this article, we review some aspects of this tendency on applications from CT, MRI/MRA, angiography, 3D ultrasound, cancer treatment, simulation and training, and VR/AR in navigation. We expect that intraoperative imaging and surgical applications, including operation planning, pre-operative simulation and intraoperative navigation, will shape the future of medical imaging and introduce new applications in the field. r 2002 Elsevier Science Ltd. All rights reserved.

Data	8/2002
Język	en
Krótki tytuł	Trends in medical imaging
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0097849302001036
Dostęp	28.11.2021, 19:39:15
Tom	26
Strony	577-587
Publikacja	Computers & Graphics
DOI	10.1016/S0097-8493(02)00103-6
Numer	4
Wykaz skrótów	Computers & Graphics
ISSN	00978493
Data dodania	28.11.2021, 19:39:15
Zmodyfikowany	28.11.2021, 19:39:16

- **Załączniki**
 - Sakas - 2002 - Trends in medical imaging from 2D to 3D.pdf
- **Two-stage and dual-decoder convolutional U-Net ensembles for reliable vessel and plaque segmentation in carotid ultrasound images**

Typ	Materiał konferencyjny
Autor	Meiyan Xie
Autor	Yunzhu Li
Autor	Yunzhe Xue
Autor	Lauren Huntress
Autor	William Beckerman
Autor	Saum A. Rahimi
Autor	Justin W. Ady
Autor	Usman W. Roshan

Krótki opis	<p>Carotid ultrasound is a screening modality used by physicians to direct treatment in the prevention of ischemic stroke in high-risk patients. It is a time intensive process that requires highly trained technicians and physicians. Evaluation of a carotid ultrasound requires segmentation of the vessel wall, lumen, and plaque of the carotid artery. Convolutional neural networks are state of the art in image segmentation yet there are no previous methods to solve this problem on carotid ultrasounds. We introduce two novel convolutional U-net models for both vessel and plaque from ultrasound images of the entire carotid system. We obtained de-identified images under IRB approval from 226 patients. We isolated a total of 500 ultrasound images spanning the internal, external, and common carotid arteries. We manually segmented the vessel lumen and plaque in each image that we then use as ground truth. In 10-fold cross-validation all models attain over 90% accuracy for vessel segmentation. With a basic convolutional U-Net we obtained an accuracy of 66.8% for plaque segmentation. With our dual-decoder model we see an improvement to 68.8% whereas our two-stage model falls behind at 65.1% accuracy. However, if we gave our twostage model the true correct vessel as input its plaque accuracy rises to 81.7% suggesting that the method has potential and needs more work. We ensemble our U-Net and dual decoder U-Net models to obtain confidence scores for segmentations. By considering high confidence outputs above the 60% and 80% thresholds the accuracy of our dual decoder U-Net rises to 75.2% and 87.3% respectively. Our work here shows the potential of dual and two-stage methods for vessel and plaque segmentation in carotid artery ultrasound images and is an important first step in creating a system that can independently evaluate carotid ultrasounds.</p>
Data	12/2020
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://ieeexplore.ieee.org/document/9356278/
Dostęp	17.12.2021, 22:25:00
Miejsce	Miami, FL, USA
Wydawca	IEEE
ISBN	978-1-72818-470-8
Strony	1376-1381
Tytuł sprawozdania	2020 19th IEEE International Conference on Machine Learning and Applications (ICMLA)
Nazwa konferencji	2020 19th IEEE International Conference on Machine Learning and Applications (ICMLA)
DOI	10.1109/ICMLA51294.2020.00214
Data dodania	17.12.2021, 22:25:00
Zmodyfikowany	17.12.2021, 22:25:00

- **Załączniki**
 - Xie et al. - 2020 - Two-stage and dual-decoder convolutional U-Net ens.pdf
- **Ultrasound Common Carotid Artery Segmentation Based on Active Shape Model**

Typ Artykuł z czasopisma
Autor Xin Yang
Autor Jiaoying Jin
Autor Mengling Xu
Autor Huihui Wu
Autor Wanji He
Autor Ming Yuchi
Autor Mingyue Ding

Krótki opis

Carotid atherosclerosis is a major reason of stroke, a leading cause of death and disability. In this paper, a segmentation method based on Active Shape Model (ASM) is developed and evaluated to outline common carotid artery (CCA) for carotid atherosclerosis computer-aided evaluation and diagnosis. The proposed method is used to segment both media-adventitia-boundary (MAB) and lumen-intima-boundary (LIB) on transverse views slices from three-dimensional ultrasound (3D US) images. The data set consists of sixty-eight, $17 \times 2 \times 2$, 3D US volume data acquired from the left and right carotid arteries of seventeen patients (eight treated with 80 mg atorvastatin and nine with placebo), who had carotid stenosis of 60% or more, at baseline and after three months of treatment. Manually outlined boundaries by expert are adopted as the ground truth for evaluation. For the MAB and LIB segmentations, respectively, the algorithm yielded Dice Similarity Coefficient (DSC) of $94.4\% \pm 3.2\%$ and $92.8\% \pm 3.3\%$, mean absolute distances (MAD) of 0.26 ± 0.18 mm and 0.33 ± 0.21 mm, and maximum absolute distances (MAXD) of 0.75 ± 0.46 mm and 0.84 ± 0.39 mm. It took 4.3 ± 0.5 mins to segment single 3D US images, while it took 11.7 ± 1.2 mins for manual segmentation. The method would promote the translation of carotid 3D US to clinical care for the monitoring of the atherosclerotic disease progression and regression.

Data 2013
Język en
Usługa katalogowa DOI.org (Crossref)
Adres URL <https://www.hindawi.com/journals/cmmm/2013/345968/>
Dostęp 16.12.2021, 21:37:43
Tom 2013
Strony 1-11
Publikacja Computational and Mathematical Methods in Medicine

DOI [10.1155/2013/345968](https://doi.org/10.1155/2013/345968)
Wykaz skrótów Computational and Mathematical Methods in Medicine
ISSN 1748-670X, 1748-6718
Data dodania 16.12.2021, 21:37:43
Zmodyfikowany 16.12.2021, 21:37:43

- **Załączniki**

- Yang et al. - 2013 - Ultrasound Common Carotid Artery Segmentation Base.pdf

- **Ultrasound imaging in vascular access:**

Typ Artykuł z czasopisma
Autor Tim Maecken
Autor Thomas Grau
Data 05/2007
Język en
Krótki tytuł Ultrasound imaging in vascular access
Usługa katalogowa DOI.org (Crossref)
Adres URL <http://journals.lww.com/00003246-200705001-00009>
Dostęp 29.11.2021, 18:52:47
Tom 35
Strony S178-S185
Publikacja Critical Care Medicine
DOI [10.1097/01.CCM.0000260629.86351.A5](https://doi.org/10.1097/01.CCM.0000260629.86351.A5)
Numer Suppl
Wykaz skrótów Critical Care Medicine
ISSN 0090-3493
Data dodania 29.11.2021, 18:52:47
Zmodyfikowany 29.11.2021, 18:52:47

- **Załączniki**

- Maecken i Grau - 2007 - Ultrasound imaging in vascular access.pdf

- **Ultrasound registration: A review**

Typ Artykuł z czasopisma
Autor Chengqian Che
Autor Tejas Sudharshan Mathai
Autor John Galeotti
Krótki opis This article is a review of registration algorithms for use between ultrasound images (monomodal image-based ultrasound registration). Ultrasound is safe, inexpensive, and real-time, providing many advantages for clinical and scientific use on both humans and animals, but ultrasound images are also notoriously

noisy and subject to several unique artifacts/distortions. This paper introduces the topic and unique aspects of ultrasound-to-ultrasound image registration, providing a broad introduction and summary of the literature and the field. Both theoretical and practical aspects are introduced. The first half of the paper is theoretical, organized according to the basic components of a registration framework, namely preprocessing, image-similarity metrics, optimizers, etc. It further subdivides these methods between those suitable for elastic (non-rigid) vs. inelastic (matrix) transforms. The second half of the paper is organized by anatomy and is practical in nature, presenting and discussing the complete published systems that have been validated for registration in specific anatomic regions.

Data	02/2017
Język	en
Krótki tytuł	Ultrasound registration
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S1046202316304789
Dostęp	28.11.2021, 17:31:26
Tom	115
Strony	128-143
Publikacja	Methods
DOI	10.1016/j.ymeth.2016.12.006
Wykaz skrótów	Methods
ISSN	10462023
Data dodania	28.11.2021, 17:31:26
Zmodyfikowany	28.11.2021, 17:31:26

- **Załączniki**
 - Che et al. - 2017 - Ultrasound registration A review.pdf
- **Use of ultrasound guidance in vascular cannulation and effusion punctures at the cardiology department**

Typ	Artykuł z czasopisma
Autor	Radim Špaček
Autor	Otakar Jiravský
Autor	Radek Neuwirth
Autor	Bronislav Holek
Autor	Libor Škňouřil
Autor	Jan Hečko
Autor	Marian Branny
Data	2018-6-1
Język	en

Usługa katalogowa DOI.org (Crossref)

Adres URL	http://e-coretvasa.cz/doi/10.1016/j.crvasa.2017.08.001.html
Dostęp	29.11.2021, 18:46:05
Tom	60
Strony	e306-e313
Publikacja	Cor et Vasa
DOI	10.1016/j.crvasa.2017.08.001
Numer	3
Wykaz skrótów	Cor Vasa
ISSN	00108650, 18037712
Data dodania	29.11.2021, 18:46:05
Zmodyfikowany	29.11.2021, 18:46:06

- **Załączniki**
 - Špaček et al. - 2018 - Use of ultrasound guidance in vascular cannulation.pdf
- **Using the Hough Transform to Segment Ultrasound Images of Longitudinal and Transverse Sections of the Carotid Artery**

Typ	Artykuł z czasopisma
Autor	Spyretta Golemati
Autor	John Stoitsis
Autor	Emmanouil G. Sifakis
Autor	Thomas Balkizas
Autor	Konstantina S. Nikita

Krótki opis

Automatic segmentation of the arterial lumen from ultrasound images is an important task in clinical diagnosis. In this paper, the Hough transform (HT) was used to automatically extract straight lines and circles from sequences of B-mode ultrasound images of longitudinal and transverse sections, respectively, of the carotid artery. In 10 normal subjects, the specificity and accuracy of HT-based segmentation were on average higher than 0.96 for both sections, whereas the sensitivity was higher than 0.96 in longitudinal and higher than 0.82 in transverse sections. The intima-media thickness (IMT) was also estimated from images of longitudinal sections; the corresponding validation parameters were generally higher than 0.90. To further validate the results, arterial distension waveforms (ADW) were estimated from sequences of images using the HT technique as well as motion analysis using block matching (BM). In longitudinal sections, diastolic and systolic diameters and relative diameter changes using HT and BM were not significantly different. In transverse sections, diastolic and systolic diameters were significantly lower using the HT technique; the differences were <7%. Relative diameter changes in transverse

sections were not significantly different from BM-estimated ones. The HT technique was also applied to four subjects with atherosclerosis, in which sensitivity, specificity and accuracy were comparable to those of normal subjects; the low values of sensitivity in transverse sections may reflect departure from the circular model because of the presence of plaque. In conclusion, the HT technique provides a reliable way to segment ultrasound images of the carotid artery and can be used in clinical practice to estimate indices of arterial wall physiology, such as the IMT and the ADW. (E-mail: knikita@cc.ece.ntua.gr) © 2007 World Federation for Ultrasound in Medicine & Biology.

Data	12/2007
Język	en
Usługa katalogowa	DOI.org (Crossref)
Adres URL	https://linkinghub.elsevier.com/retrieve/pii/S0301562907002700
Dostęp	16.12.2021, 21:39:02
Tom	33
Strony	1918-1932
Publikacja	Ultrasound in Medicine & Biology
DOI	10.1016/j.ultrasmedbio.2007.05.021
Numer	12
Wykaz skrótów	Ultrasound in Medicine & Biology
ISSN	03015629
Data dodania	16.12.2021, 21:39:02
Zmodyfikowany	16.12.2021, 21:39:02

- **Załączniki**

- Golemati et al. - 2007 - Using the Hough Transform to Segment Ultrasound Im.pdf