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## Development of Ground Truth Data for Automatic Lumbar Spine MRI Image Segmentation (Conference Paper)

Natalia, F.[a], Meidia, H.[b], Afriliana, N.[c], Al-Kafri, A.S.[d], Sudirman, S.[d], Simpson, A.[d], Sophian, A.[e], Al-Jumaily, M.[f], Al-Rashdan, W.[g], Bashtawi, M.[g]

[a]Department of Information Systems, Universitas Multimedia Nusantara, Tangerang, Indonesia
[b]Department of Electronic Engineering, Universitas Multimedia Nusantara, Tangerang, Indonesia
[c]Department of Informatics, Universitas Multimedia Nusantara, Tangerang, Indonesia

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## Abstract

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Artificial Intelligence through supervised machine learning remains an attractive and popular research area in medical image processing. The objective of such research is often tied to the development of an intelligent computer aided diagnostic system whose aim is to assist physicians in their task of diagnosing diseases. The quality of the resulting system depends largely on the availability of good data for the machine learning algorithm to train on. Training data of a supervised learning process needs to include ground truth , i.e., data that have been correctly annotated by experts. Due to the complex nature of most medical images, human error, experience, and perception play a strong role in the quality of the ground truth . In this paper, we present the results of annotating lumbar spine Magnetic Resonance Imaging images for automatic image segmentation and propose confidence and consistency metrics to measure the quality and variability of the resulting ground truth data , respectively. © 2018 IEEE.

## SciVal Topic Prominence

Topic: Medical imaging | Computerized tomography | vertebral bodies

Prominence percentile: 87.526

## Author keywords

Confidence Metric | Consistency Metric | Ground Truth | Image Segmentation | Lumbar Spine MRI

## Indexed keywords

Engineering controlled terms: Data communication systems | Diagnosis | Learning algorithms | Machine learning | Magnetic resonance imaging | Medical imaging | Smart city | Supervised learning

Engineering uncontrolled terms: Automatic image segmentation; Computer aided diagnostics; Confidence Metric; Consistency Metric; Ground truth; Ground truth data; Lumbar spines; Supervised machine learning

Engineering main heading: Image segmentation

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1 Lodwick, G.S., Haun, C.L., Smith, W.E., Keller, R.F., Robertson, E.D.
Computer diagnosis of primary bone tumors
(1963) *Radiology*, 80 (2), pp. 273-275. Cited 56 times.

2 Doi, K.
Computer-aided diagnosis in medical imaging: Historical review, current status and future potential

(2007) *Computerized Medical Imaging and Graphics*, 31 (4-5), pp. 198-211. Cited 668 times.
www.elsevier.com/locate/compmedimag
doi: 10.1016/j.compmedimag.2007.02.002

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3 Al Kafri, A.S., Sudirman, S., Hussain, A.J., Al-Jumeily, D., Fergus, P., Natalia, F., Meidia, H., (...), Bashtawi, M.
Segmentation of Lumbar Spine MRI Images for Stenosis Detection Using Patch-Based Pixel Classification Neural Network

(2018) *2018 IEEE Congress on Evolutionary Computation, CEC 2018 - Proceedings*, art. no. 8477893. Cited 2 times.
http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=8466244
ISBN: 978-150906017-7
doi: 10.1109/CEC.2018.8477893

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