

Title (en)

SYSTEMS AND METHODS FOR DETECTING AN INDICATION OF A VISUAL FINDING TYPE IN AN ANATOMICAL IMAGE

Title (de)

SYSTÈME UND VERFAHREN ZUR ERKENNUNG EINER ANZEIGE EINES VISUELLEN BEFUNDS IN EINEM ANATOMISCHEN BILD

Title (fr)

SYSTÈMES ET PROCÉDÉS DE DÉTECTION D'UNE INDICATION D'UN TYPE DE RECHERCHE VISUELLE DANS UNE IMAGE ANATOMIQUE

Publication

EP 3791325 A4 20220413 (EN)

Application

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Abstract (en)

[origin: EP3567525A1] There is provided a method comprising: providing two anatomical images 104 of a target individual, each captured at a unique orientation of the target individual, inputting first and second anatomical images respectively into a first and second convolutional neural network (CNN) of a classifier to respectively output first and second feature vectors, inputting a concatenation of the first and second feature vectors into a fully connected layer of the classifier 110, and computing an indication of distinct visual finding(s) 112 present in the anatomical images by the fully connected layer, wherein the statistical classifier is trained on a training dataset including two anatomical images of each respective sample individual, each image captured at a respective unique orientation of the target individual, and a tag created based on an analysis that maps respective individual sentences of a text based radiology report to one of multiple indications of visual findings.

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CPC (source: EP US)

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Citation (search report)

- [I] CHERMAN EVERTON ALVARES ET AL: "Multi-label Problem Transformation Methods: A Case Study", CLEI ELECTRONIC JOURNAL, 1 April 2011 (2011-04-01), pages 4 - 4, XP055890951, Retrieved from the Internet <URL:<http://www.scielo.edu.uy/pdf/cleiej/v14n1/v14n1a05.pdf>> [retrieved on 20220214], DOI: 10.19153/cleiej.14.1.4
- [I] YUNCHAO WEI ET AL: "CNN: Single-label to Multi-label", 9 June 2014 (2014-06-09), pages 1 - 14, XP055404290, Retrieved from the Internet <URL:<https://arxiv.org/pdf/1406.5726.pdf>> [retrieved on 20170906], DOI: 10.1109/TPAMI.2015.2491929
- [Y] DONG YUXI ET AL: "Learning to Read Chest X-Ray Images from 16000+ Examples Using CNN", 2017 IEEE/ACM INTERNATIONAL CONFERENCE ON CONNECTED HEALTH: APPLICATIONS, SYSTEMS AND ENGINEERING TECHNOLOGIES (CHASE), IEEE, 17 July 2017 (2017-07-17), pages 51 - 57, XP033143653, DOI: 10.1109/CHASE.2017.59
- [Y] FELIX MAYER ET AL: "Transfer Learning for Data Triage Applications", ELECTRONIC IMAGING, vol. 2018, no. 2, 1 January 2018 (2018-01-01), US, pages 175 - 1, XP055651802, ISSN: 2470-1173, DOI: 10.2352/ISSN.2470-1173.2018.2.VIPC-175
- [A] XIAOSONG WANG ET AL: "ChestX-ray8: Hospital-scale Chest X-ray Database and Benchmarks on Weakly-Supervised Classification and Localization of Common Thorax Diseases", PROCEEDINGS OF THE IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION-ARXIV.ORG, CORNELL UNIVERSITY LIBRARY, 201 OLIN LIBRARY CORNELL UNIVERSITY ITHACA, NY 14853, 5 May 2017 (2017-05-05), pages 1 - 19, XP081148506, DOI: 10.1109/CVPR.2017.369
- See references of WO 2019215604A1

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