

On breast lesion segmentation in Ultra-Sound images and its assessment: A survey

Joan Massich^{1,✉}, Guillaume Lemaître^{1,2,✉}, Mojdeh Rastrgoo^{1,2,✉}, Joan Martí², Fabrice Mérieaudeau^{1,‡},

1 Le2i-UMR CNRS 6306, Université de Bourgogne, 71200 Le Creusot, France

2 ViCOROB, Universitat de Girona, 17071 Girona, Spain

✉These authors contributed equally to this work.

‡These authors also contributed equally to this work.

* joan.massich@u-bourgogne.fr

Abstract

1 materials and methods (Segmentation method analysis)

project
website in
github

Thus, the set of queries that generate the pool of methodologies present in this work are available at the *us-breast-lesion-delineation-survey* open repository as scripts. These queries screen all the publications included by targeted journals during the last 5 years for articles matching any of the search terms in order to build a bibliographic dataset. This dataset is complemented collecting all the articles that expand the citations tree, both forward and backwards, up to 2 levels. More details about this process can be found at the website of the project. Automatic criteria are used for rough pruning of the dataset while the final pruning has been carried out manually. Details of both are provided at the website.

sec:intro:analysis_of_the_methods

Analysis of the methods Apart from the gathering of the papers to review, the analysis has been done in the following manner: ^{sik}

- the analysis is carried out in both bottom-up and top-down fashion^{sik}
- using a generic corpora, key concepts from the selected articles are extracted using Rake algorithm.^{sik}
- the key concepts are studied and they mainly cluster in four categories: (1) medical-breast related, (2) segmentation strategy, (3) evaluation, (4) other.^{sik}

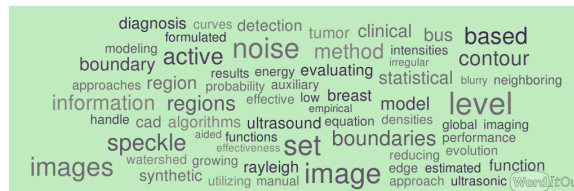


Figure 1. Word cloud representing the key-concepts generated from the bibliographic corpus.^{sik} ("make better caption")

fig:wcloud

- highly cited articles in such topics are used to refine the initial corpora and update the key concepts of each paper for the bottom-up description.^{sik}
- for the top-down strategy reference bibliography is used to drive the discussion of the articles key-concepts^{sik}

20

Table 1. $\text{Query}^{\text{sik}}$ ("make better caption")

token	keyword
organ:	breast
task:	segmentation, delineation, contouring
modality:	Ultrasound, Ultra-Sound, Ultrasonic, US image, Sonography, Sonograms
target publications:	

A combination of these keywords is used for each search.^{sik} ("table notes")

table1

Todo list

project website in github	1
---------------------------	---

References