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OntoMama: An Ontology Applied to Breast Cancer

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Abstract

This article describes the process of building an ontology to assist medical students and professionals specialized in Oncology. The ontology allows the user to obtain knowledge more quickly and thus assist professionals in their decision-making.

Keywords:
Breast Cancer, Ontology, OntoMama.

Introduction

Technological advances are having a strong impact in the health sector. Information technology, for example, which seeks improvements in the processing and dissemination of data, assist health professionals in their work [1].

The human body consists of several structures organized hierarchically. For the process of learning the human body, including the study of dysfunctions, it is necessary to organize these structures according to their concept, relationships and functions, in order to facilitate identi-fication to these elements [2].

An example of pathology that affects the functioning of the organism is breast cancer. This type of cancer develops in the mammary gland as a result of genetic changes in some set of breast cells [2]. This article presents the development of OntoMama, an ontology to assist professionals and students specialized in Oncology. It consists of a query web service that provides conceptual information, images, videos and prototypes developed in an environment of three-dimensional (3D) modeling.

Materials and Methods

The domain and scope established for the development of the ontology are linked to breast cancer. The methodology adopted was the METHONTOLOGY and the construction tool chosen was the editor for ontologies and knowledge bases Protégé.

Results

Figure 1 shows the topics that compose the ontological model. This model is partially implemented because there is a need to standardize the structures with bibliographic material.

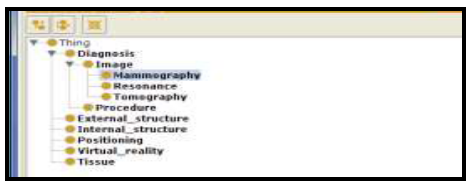

Figure 1 – OntoMama Model.

Conclusion

This article introduced the development of an ontology for to the study of breast cancer. The next step is to complete the ontology with textual content, 3D models, images, and videos for each element. The implementation phase will be finalized with an Intelligent Tutor System (ITS) based on the ontological model developed [3].

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References

[1] Baracho RMA, Magalhães AMD. Information management as support for reducing uncertainty in decision making: case study of the Instituto Federal de Minas Gerais-IFMG. Information & Technology, 2014; 1(1):81-95.

[2] BREAST CANCER. Available from: http://www.cancer.org/acs/groups/cid/documents/webcontent/003090-pdf.pdf.

[3] Melo JSS. Service oriented architecture for integration of technologies applied to a Three-dimensional Breast Anatomy interactive Atlas. PhD thesis in electrical engineering. Brasília: University of Brasília, 2012.

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