SNOMED CT Expo 2019
Kuala Lumpur | Oct 31-Nov 1
Leading health innovation through data

201935 Taking advantage of ontologies to carry out searches of scientific bibliography in reliable information sources

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Summary

Using SNOMED CT for the generation of suggestions of terms to use for the search of material hosted in the databases of reliable information sources on the Internet (eg PubMed), and the mapping of snomed-ct to other ontologies, decreases the Medical search times and allows the process of automation.

Audience

Clinical, Research/academic, Technical

Learning Objectives

Gain an understanding of:

1. Mapping between ontologies use of ontologies as indexes in sources of scientific information
2. Mapping of terms obtained with natural language processing techniques to SNOMED CT
3. Generating suggestions for terms through SNOMED

Abstract

Problematic:
Medical professionals spend a lot of time modifying the queries they make on the Internet, exchanging keywords or making use of advanced search services from different sources of scientific information, such as pubmed, clinicaltrials, etc., trying to obtain satisfactory results regarding their search. The semantic web The use of ontologies has been of great help in order to organize and facilitate the search for material distributed on the web.

Ontologies in Health:
There are several ontologies in the domain of health. For example MESH, is an ontology used by PubMed, to index the material that is in its library that currently consists of a little more than 33 million publications. The same goes for clinical trials, which uses its own ontology (thesaurus). In the field of the exchange of electronic clinical records and the registry itself of diagnoses, problems, procedures, etc., Snomed CT is the chosen ontology par excellence.

Ontology mapping:
There are services that allow you to map the terms that are represented in a certain ontology to another. In this way, it is possible to transform terms found in the snomed ontology ct, for example, to MESH. These services are particularly interesting, since we can always work using the same ontology and then map the ontology that we need according to the source of information to be consulted.

Practical example:
Terms (through natural language processing) of the electronic clinical record mapped to Snomed-CT can be obtained. Then you can map these terms to MESH. Then you can use the terms mapped in MESH as terms to search

for articles in pubMed. Using snomed-ct to generate suggestions Through the structure of snomed-ct, the idea is to generate suggestions for terms that can be used to specify the search in the bibliographic information sources. The sources of information establish their own suggestions to the users so that they can adjust the search and thus obtain better results. To make this process transparent and not involve the user in setting up the most efficient query to determine the corresponding search parameters, the structure of snomed-ct is used to generate suggestions and automatically assemble the corresponding query.

Benefits:
To abstract to the medical professionals of the complexity of the searches in bibliographical sources. Narrow search times and access to relevant bibliography. To limit the start-up times of treatments that already have bibliographic support and that currently involves a lot of time of disclosure among health professionals.