Workshop on Biomedical Ontology and Referent Tracking: Introduction to Basic Principles

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Abstract.. Ontologies, when designed appropriately, are ideal candidates to make individually compiled data collections comparable and fit for semantic integration. Whereas semantic technologies can check whether formal representations produce interpretations that are outside the intended model, they do not provide much help to build such a model. This is where Ontological Realism comes into play. In this workshop, using clinical research data collections about orofacial pain as an example, attendees will learn how to use formal methods and Ontological Realism not only to build ontologies that are faithful to reality and allow separate existing data collections to be semantically integrated, but also to design new data collections that do not suffer from terminological or ontological ambiguities.

Target audience

The tutorial is suited for a wide range of participants with diverse backgrounds. Clinical researchers will acquire knowledge in how to compile and document de novo data collections that can be more reliably compared with similar resources, or learn how to make existing collections more suitable for that goal. Developers of semantic technologies, including terminologies and ontologies, will obtain valuable insight in how to apply the principles underlying Ontological Realism [2-3] as a methodology to avoid mistakes that cannot be detected by logical formalisms alone [4]. Users of eHealth applications in general, and clinicians in particular, specifically if they wish to function as champions ('super users') in Electronic Health or Dental Records or data warehouse customization efforts will learn the requirements such technologies must adhere to in order to make optimal use of ontologies [5].

Prerequisite knowledge

This tutorial requires of the attendees some familiarity in either any of the healthcare professions (medicine, nursing, …) or informatics (computer science). No background in semantic technologies or ontology development is however necessary. It will be easier to follow the tutorial if attendees have read the references [2, 4-5]. Those who wish to come extremely well prepared will benefit from reading the other references as well.

Educational goal

After the tutorial, the audience will be able to (1) understand better the added value of the Ontological Realism principles over mere computational and logical frameworks [6], (2) apply the principles to build or evaluate ontologies, (3) assess how to optimally use such ontologies in eHealth Technologies such as EHR or Dental Record systems, clinical research systems and data warehouses and (4) make recommendations to clinicians and biomedical informaticists to improve the systems they are working with.

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