OpenGALEN: Open Source Medical Terminology and Tools

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& OpenGALEN www.opengalen.org

The GALEN programme of research into medical terminology began in 1991. In 1999 OpenGALEN was formed to provide an open source route both for disseminating the results of that programme and as a framework for its future development. Currently available open source resources include a sophisticated ontology development environment and a large open source description logic-based ontology for the medical domain.

INTRODUCTION

A computable medical terminology is recognised as one of the foundational resources needed to realise our hopes for healthcare computing. Traditional terminologies, optimised for direct human use, fall short of meeting our hopes for extensive data analysis, sharing and re-use. New kinds of terminology, designed for computation, are required.

The GALEN programme proposed a paradigm shift: replace monolithic static look-up terminologies with a common reference model (ontology) that can be dynamically extended using an automatic classification engine, in a terminology server.

More than a decade of collaborative research in the medical domain has followed [1], through EC-funded projects such as GALEN, GALEN-IN-USE, Synex and PRESTIGE, and in other nationally funded projects such as PRODIGY and CLEF.

The central GALEN programme vision of computed ontologies has been adopted, adapted and developed in other domains, notably bioinformatics. The programme's results and experience continue to influence the development of tools and software for the wider semantic web, such as OWL and OilEd.

The *Open*GALEN Initiative

The *Open*GALEN Foundation (www.opengalen.org) is a Dutch-registered organisation, similar to a charity, charged with promoting GALEN technology to the health-care systems industry. The wider *Open*GALEN initiative includes the *Open*GALEN Foundation and other parties providing open source access to some of the core outputs of the GALEN programme so far, as well as commercial and closed source suppliers building on that core.

Significant open source resources now available include:

*Open*GALEN Common Reference Model

The *Open*GALEN Foundation provides open source access specifically to the GALEN Common Reference Model, a large ontology of the medical domain centred on significant core content relating to human anatomy. Other content relates to human physiology, pathology and symptomatology as well as pharmacology [2].

*Open*KnoME Ontology Authoring Environment

*Open*KnoME is the cornerstone application used by the knowledge engineers who construct and maintain the Common Reference Model. Available under open source license for non-commercial use, it includes support for geographically distributed, collaborative and loosely coupled authoring including full browse and debug. Other significant modules support rapid iterative ontology prototyping and development through use of intermediate representations.

Specifications and Methodologies

The *Open*GALEN Foundation also acts as a repository for other important documentation relating to the overall GALEN approach, including a functional specification of the classification engine and terminology server components, and descriptions of the knowledge authoring and delivery methodologies.

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