Semantic networks for improved access to biomedical databases

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Biomedical domain main features

- large amount of information available
- several information sources
- problematic exploitation of knowledge due to unstructured textual format

State of the art

- risk of proliferation of disorganized information, difficult to find and to interconnect
- demand for tools that suggest a new modality of content access
- Internet and in particular social networking tools allow to create networks of people sharing common interests

SUBITO (Unique Social Network for Biomedical Innovation in Tuscany)

the project allowed to specialize an intelligent browsing system: "DBT-Faccette" Explore Tuscany

SUBITO

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rete Sociale Unica per l'innovazione Blomedica TOscana

Il proliferare di tecnologie innovative ha consentito negli ultimi anni uno sviluppo esponenziale delle conoscenze in ambito bio-

medico. La mole di informazioni disponibili e l'eterogeneità delle fonti informative costituiscono un serio limite al pieno sfruttamento di tali conoscenze. E' diventato prioritario pertanto mettere a punto sia dei sistemi di raccolta e aggregazione dei dati, sia dei sistemi di analisi che consentano il massimo sfruttamento di tali conoscenze, in modo da sostenere sia la saluta pubblica sia una crescita economica basata sulla conoscenza (Knowledge Based Economy).



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http://subito.ifc.cnr.it/

Project partners



Regione Toscana

Diritti Valori Innovazione Sostenibilità



OBJECTIVES

- (GENERAL) development of a website and a database for the collection and correlation of information on publicprivate subjects operating in the medical, biomedical and pharmaceutical sector within the Tuscan regional area
- (SPECIFIC) development of techniques for the extraction and classification of textual data in order to enable a more efficient browsing

Sources of abstracts



Search approach

Top-down:

> the traditional search systems adopt a priori knowledge of the material, that can be combined to form user-defined keywords/ queries

• Bottom-up:

> the categorization systems allow the user to dynamically discover the concepts that are semantically relevant to a particular domain, and to carry out the search refinements on the basis of semantically related concepts, but virtually unknown

DBT-Faccette

- labeling and textual analysis system as customization of the traditional faceted classification system
- "auto-adaptive" categorization that allows for automatic reorganization of content on the basis of semantically relevant concepts
- identification of the texts related to a given topic thanks to an automatically recognized terminological lexicon

Search example

ex Ex	plore Tuscany Perso	on & Enterprises Researc	h & Innovation		Search
Search from text				login	
cadasil Search			More Detail	User:	1
Risultati della ricerca semantica percadasil				Password:	
cadasil domini leukoencephalopathy h aged(t) patients brain(t)	ant arteriopathy subcorti umans(t) female(t) middle age magnetic resonance imaging(t) me	cal infarcts cadasil(t) p ed male(t) adult(t) behaviour ethods receptors, notch physiolo	Sort by athology(t) genetics(t) al sciences physiopathology gy(t) gene cadasil patients	Login	
rufa mutation, missense dna mutational analysis(t) blood supply diagnosis(t) diagnosis psychiatric pedigree(t) amino acid substitution (t) exons(t) brain italy(t) receptors, cell surface risk factors cerebral infarction(t) gene symbol proto-oncogene proteins metabolism(t) leucoencephalopathy white matter cadasil subject cerebrovascular disease cerebrovascular disorders(t) dementia dementia, multi-infarct cridemionary(t) hein mri cerebral reterios(t) invite cerebrovascular disorders(t) dementia dementia, multi-infarct			Archives		
eprosentology(r) otari nin cen comorbidity(t) diagnosis, differe behavioral sciences lead pheno signs mitochondrial abnormality m control subjects apoptosis(t) muscl novel human media pathology a	ential biopsy(t) healthy age path type(t) lesion etiology codon, nons- yelin sheath(t) cognition disorders(t) mito e, skeletal clinical manifestations cognitive c m1	e inpaintent metrodo(r) vesse doe ogenesis magnetic resonance imaging ense psychiatric disturbances molecular ochondrial mitochondria, muscle neuromet deficits muscle cells psthological mutation	optic nerve clinical spectrum analysis suspected codon(t) clinical abolic disease neuropathy apoptosis a biopsy life exons age factors(t)	Explore Tuscany Geographical Map Temporal Trends Categories	
				Publications	
Recent Publications	Recent Clinical Trials	Recent Patents	Active Clinical Trials	View all Publications	
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