

# MEDAS

**MED**ical **A**ssistance **S**ystem: Cross Language  
Information Retrieval & Image Processing for  
Diagnosis



▣ Cross Language Retrieval from International and Greek Databases

▣ Semi-automatic Diagnosis from Image Database

# M E D A S

MEDAS is a project funded partially by the European Community and the General Secretariat of Research and Technology of Greece within the Information Society program.

The Project aims at developing tools for assisting doctors to retrieve bilingual information medical domains as well as to retrieve medical images (x-rays, mammography) for semi automatic diagnosis.

## **Cross Language Retrieval System**

Support doctors to retrieve information from international (MEDLINE) and Greek databases.

The innovation of this module includes the use of the Greek language which has not been investigated enough in the cross language retrieval task.

The system accepts queries in Greek and returns the answers in English.

## Image Retrieval

**Retrieves images** in accordance to their medical context.

It is based on the construction of a signature for every image based on the context of the image and the clinical findings being discovered by automatic or semi automatic methods. The images are categorized by several means thus they may retrieved either by browsing the categories or directly based on the similarity of their signatures.

## Partners



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## CLIR for medical Information



- ☐ Translation tools
- ☐ Disambiguation of translated queries
- ☐ Use of Ontologies to enhance retrieval (MeSH)

# Content Based Medical Image Retrieval

The goal is to retrieve images from a database that are **similar** to an image presented to the system. The system consists on the following stages:

- Image preprocessing.
- Image segmentation.
- Feature generation describing texture and shape
  - Using pattern recognition techniques associate feature values to clinical findings.
- Search **similar** images on the basis of “similarity measures” between derived feature vectors.





## Ontologies

Ontologies are used to enhance queries (broader, narrow terms)

MeSH (Medical Subject Headings) will be used as an ontology which will be translated into Greek.

This is a dynamic hierarchical classification scheme.

- Update the ontology

Queries are simple

No sophisticated machine translation is needed

- Dictionary based translation (translation memories)
- Machine Translation
- Statistical tools for translation

# M E D A S

Search machines retrieve documents in the language of the query.

It is very important for doctors to submit queries in their own language and retrieve documents written a another language

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