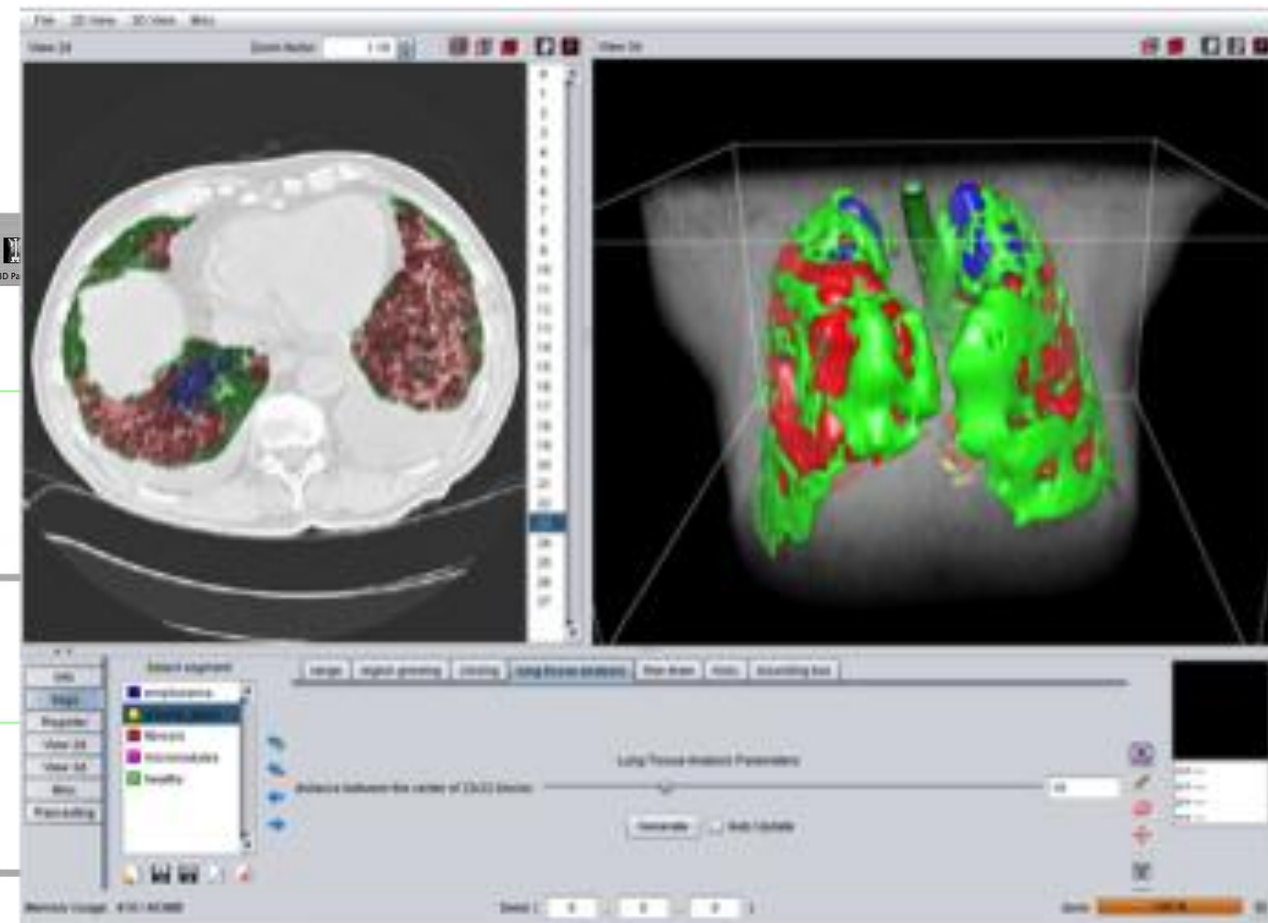
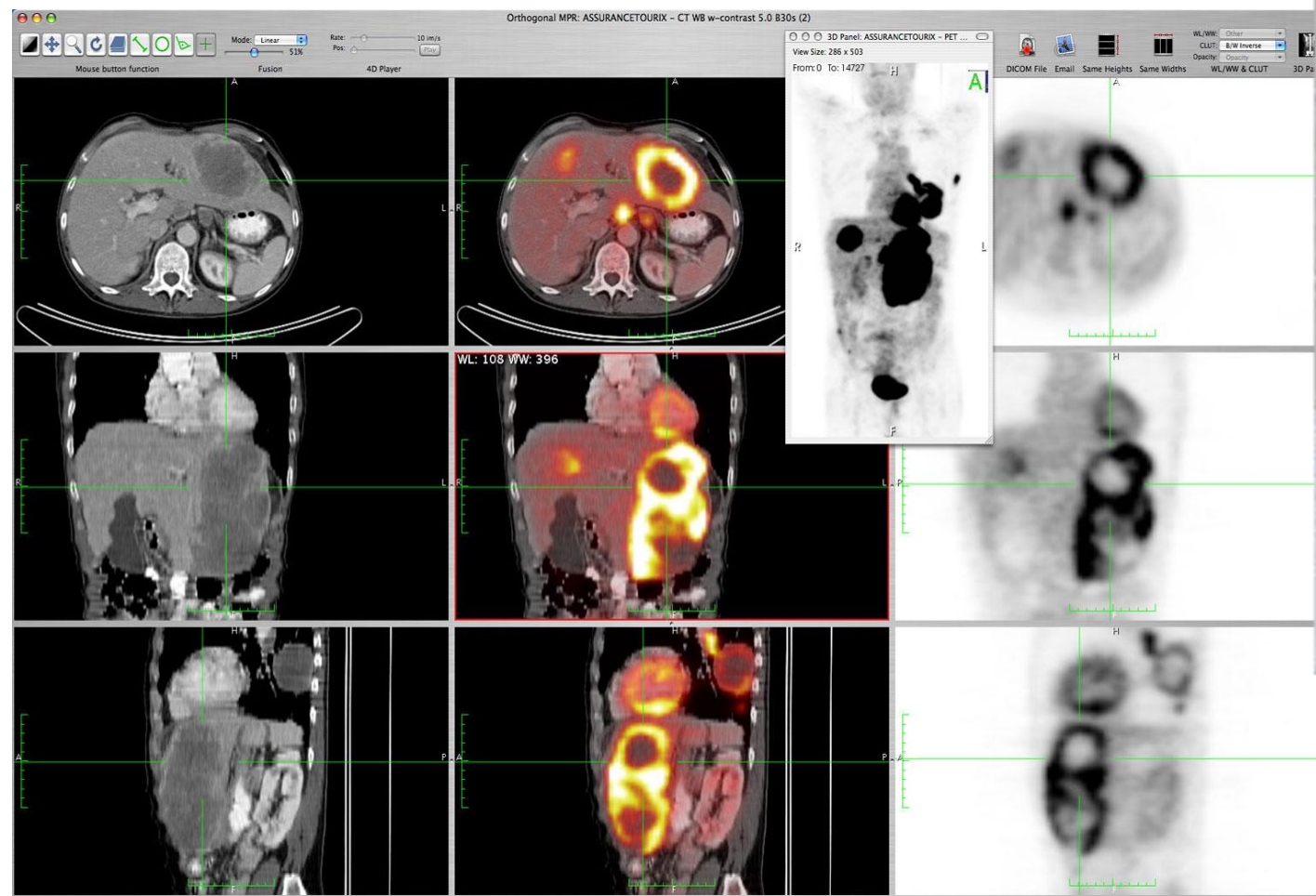


Khresmoi – medical information analysis and retrieval

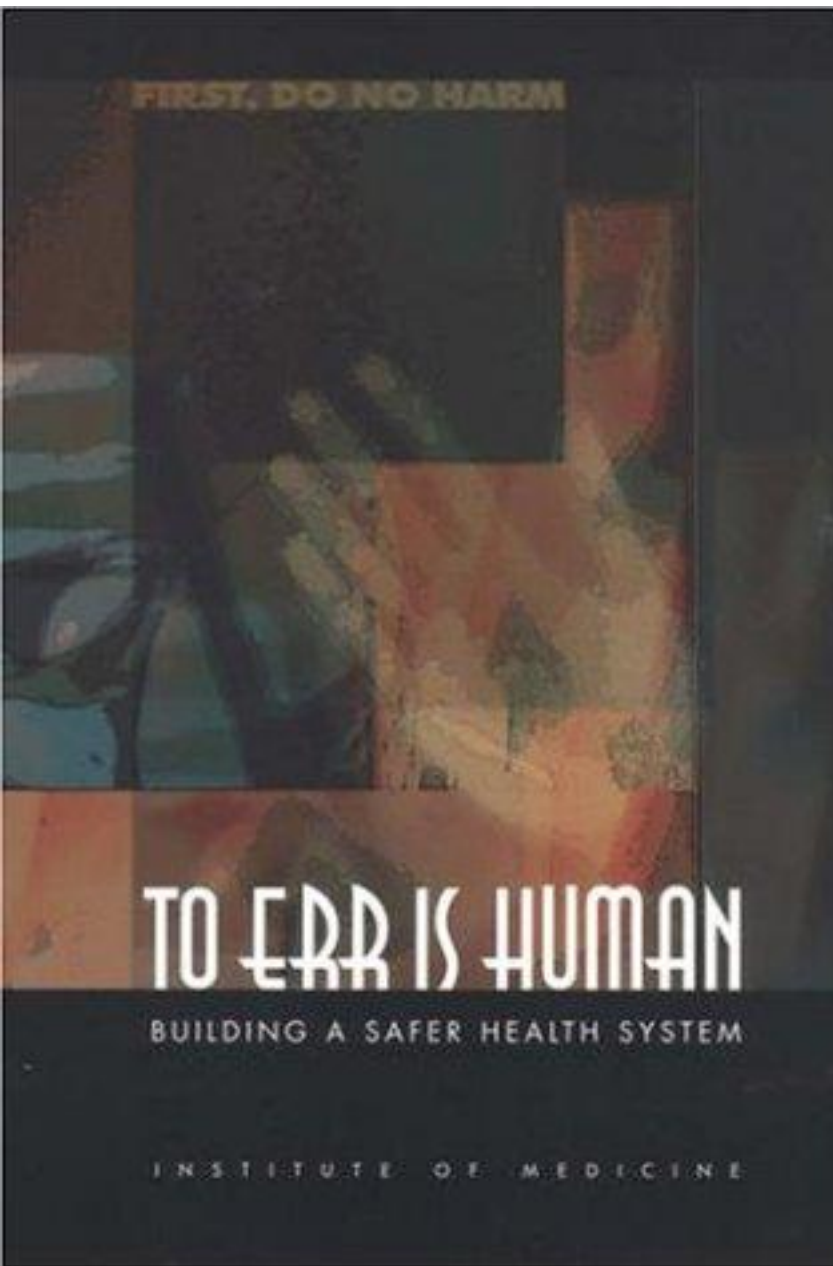
Henning Müller / Allan Hanbury



Khresmoi Overview

- Why?
- What?
- How?
- For Whom?
- Who?

Why?



- Linda T. Kohn, Janet M. Corrigan, and Molla S. Donaldson, **To err is human** – building a safer health system”, Institutes of Medicine, 2000.
- Estimations: 100’000 deaths due to avoidable mistakes in US hospitals
- Several interesting articles:
 - Even good English speakers prefer native language responses to search [1]
 - HON search engine preferred by health professionals over Google [2]



The Current Situation

- Knowledge is produced increasingly **quickly**
 - Medical literature has an explosion in publications
 - Not all clinicians have access to new information with the same speed
- Clinicians search for information frequently
 - Physicians have an unmet information need for 2 of every 3 patients seen [3]
 - PubMed search takes long (30+ minutes instead of 5 available) [4,5]
 - Imaging and other exams create information overload
- We want **empowered** patients but no Cyberchondria
 - But can they access information of high quality? [6,7,10]

A Google Example

Google

cancer treatment

Cerca

Circa 70.700.000 risultati (0,17 secondi)

Ricerca avanzata

Tutto

Notizie

Più contenuti

Nel Web

Pagine in italiano

Pagine da: Italia

Qualsiasi data

Ultimi 2 giorni

Visual. standard

Wonder wheel

Più strumenti

Cancer Management

www.gehealthcare.com/esmo

Multidisciplinary Cancer management GE HC @ ESMO 2010. Learn More

Link sponsorizzato

Suggerimento: Cerca risultati solo in Italiano

Puoi specificare la lingua di ricerca su Preferenze

Cancer Treatment - National Cancer Institute

[Traduci questa pagina]

Information on standard, complementary, and alternative methods of cancer treatment, on specific anticancer drugs, and on drug development and approval.

www.cancer.gov/cancertopics/treatment - Copia cache - Simili

Types of Treatment - National Cancer Institute

[Traduci questa pagina]

Information on chemotherapy, radiation therapy, surgery, and other cancer treatment methods.

www.cancer.gov/cancertopics/treatment/types-of-treatment - Copia cache - Simili

Management of cancer - Wikipedia, the free encyclopedia

[Traduci questa pagina]

Chemotherapy is the treatment of cancer with drugs ("anticancer drugs") that can destroy cancer cells. In current usage, the term "chemotherapy" usually ...

en.wikipedia.org/wiki/Management_of_cancer - Copia cache - Simili

ScienceDirect - Cancer Treatment Reviews, Volume 36, Issue 6 ...

[Traduci questa pagina]

The online version of Cancer Treatment Reviews on ScienceDirect, the world's leading platform for high quality peer-reviewed full-text publications in ...

www.sciencedirect.com/science/journal/03057372 - Simili

Cancer Treatment and Symptoms : Doctor-Review

Treatment also varies based on the type of cancer and its sta

refers to how much it has grown and whether the tumor has sp

health.yahoo.net/channel/cancer.html - Copia cache

HERBAL CANCER TREATMENT

[Traduci questa pagina]

This has shown potential as a treatment for AIDS and cancer

available in cancer treatment centers or hospices, ...

www.lifepositive.com/.../herbal-cancer-treatment

Life

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New Cancer Treatment

Herbs for Cancer

Herbal Cancer Cure

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Before a Prostate Biopsy

Know your potential prostate cancer risk before an invasive biopsy.

www.ProstateHealthIndex.org

All Natural Products

Use Alone or with Chemo & Radiation

Peer-Reviewed

HERBAL CANCER TREATMENT

Check out our section on Holistic Cancer Cure



Herbal Therapies

INTRODUCTION

Many herbs (including astragalus, dong quai, echinacea, and Asian ginseng) supposedly "boost" the immune system and so shore up the body against future or existing cancer. Extremely small studies suggest that shiitake or maitake mushrooms, mistletoe, extracts of the Venus flytrap, and various botanical therapies used in traditional Chinese medicine may help treat certain forms of cancer. But until better evidence is in, we cannot completely rely on them. Ginger, and maybe some other herbs, may help relieve nausea that often accompanies conventional cancer therapies.

MEMBER AREA

Username:

Password:

☐ Remember my password on this computer

[Sign in](#) [Forgot Password?](#)

[Register here](#) | [Why should I register?](#)

INTERACTIVE FEATURES



GET YOUR TAROT READ



FORTUNE COOKIE



ASK THE LAUGHING BUDDHA

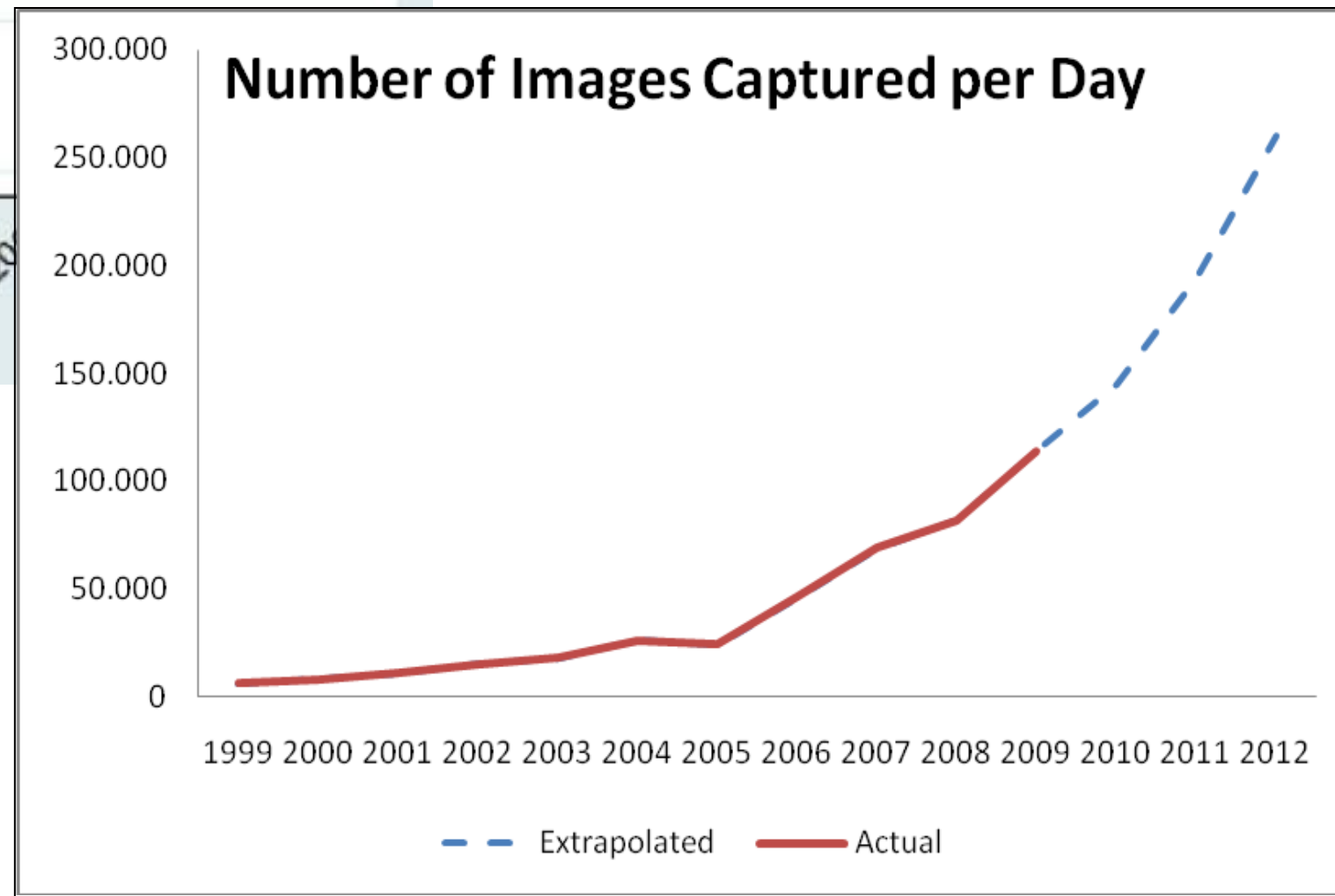
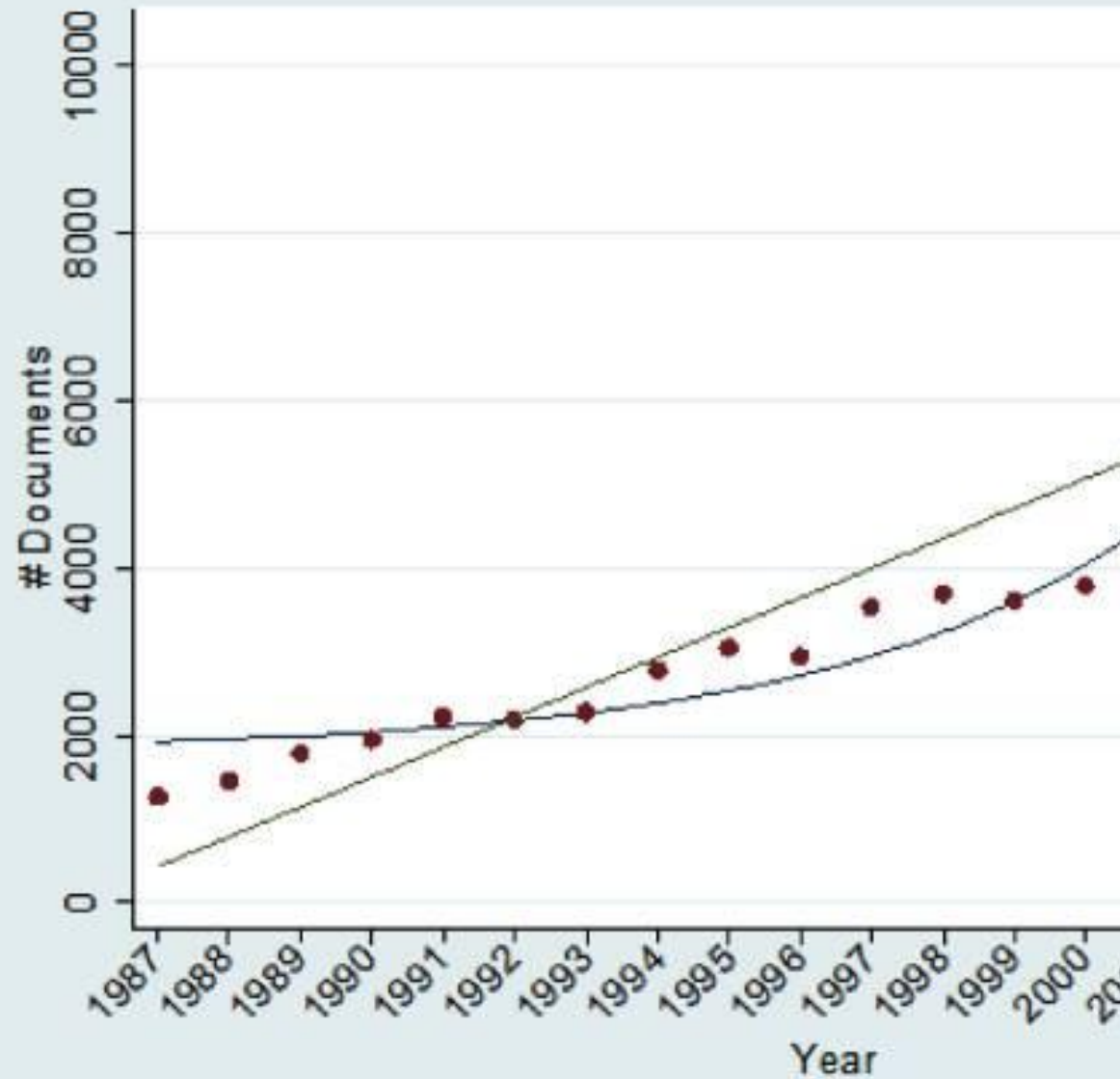


SEND A HOLISTIC E-GREETING



[8]

Growth ...



[9]

- Extremely **large** repositories

- 100s of Terabytes
- Zetabytes of Meta-Information

- **Open** access publishing is expanding

- BiomedCentral



- Many closed access journals are available after 12 months, also through public pressure

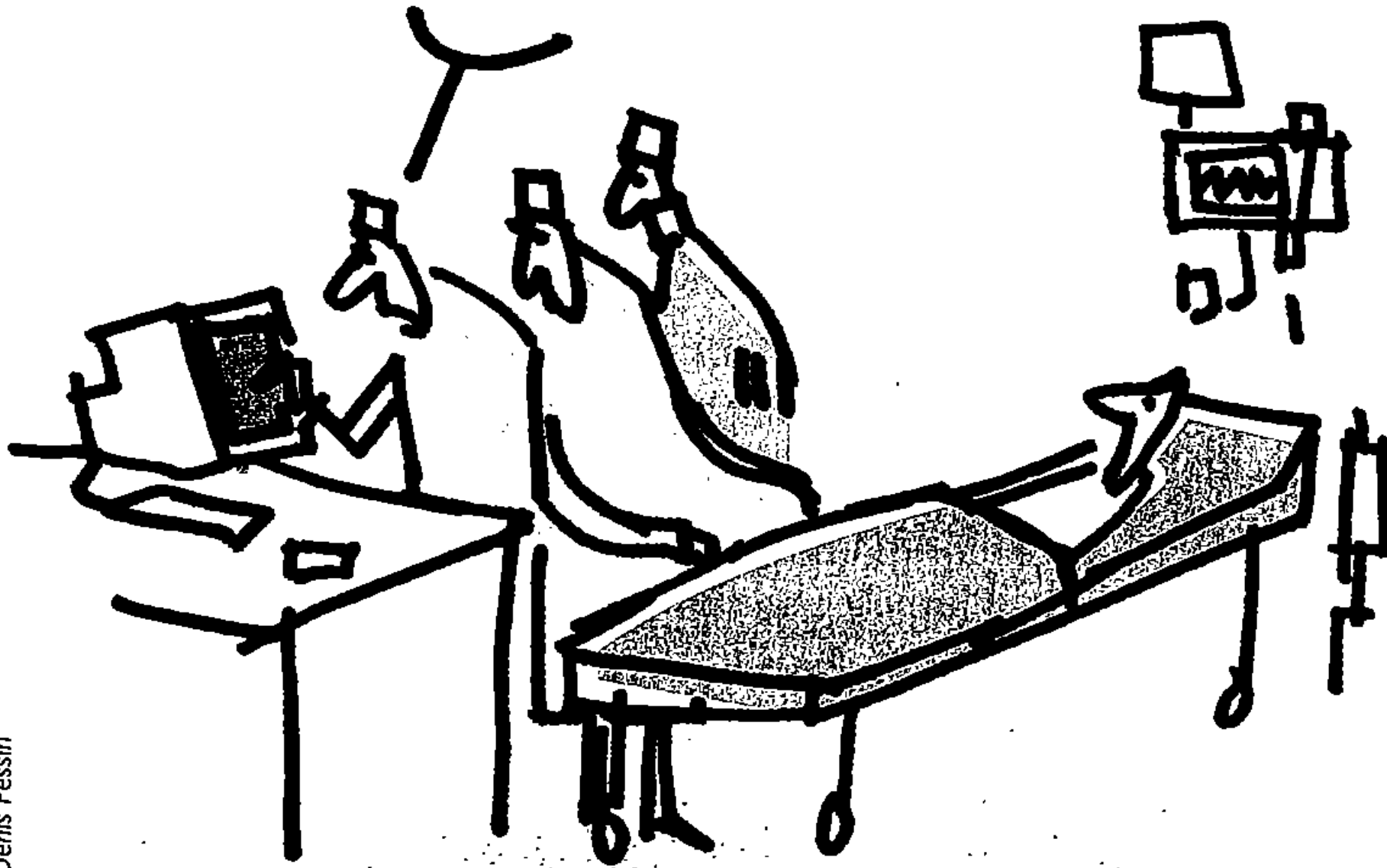
- **Knowledge** bases exist

- UMLS, MeSH, SNOMED
- Linked Life Data



How diagnosis aid is perceived

DOES IT HURT
WHEN I PRESS HERE?

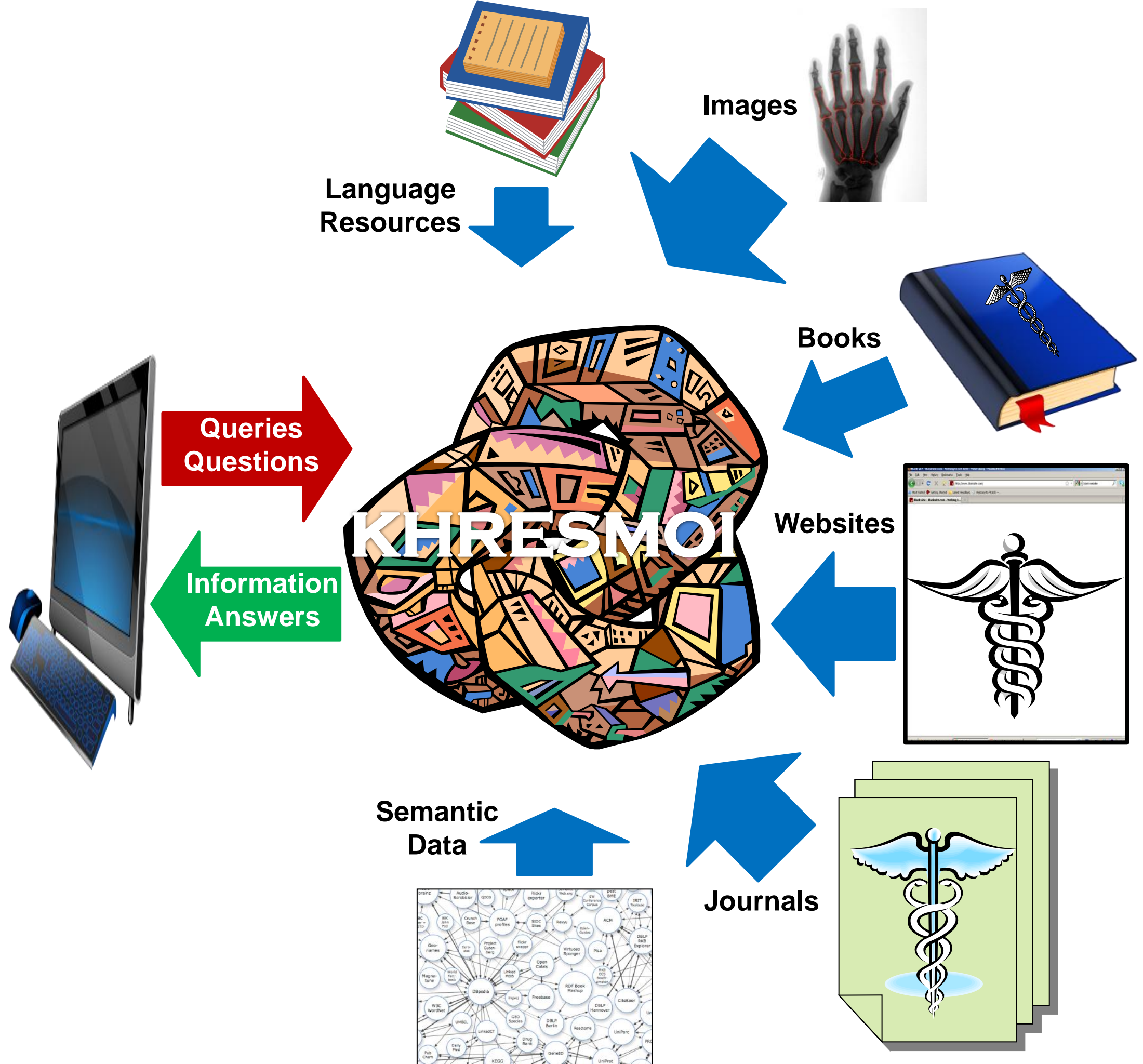


© Denis Pessin

Pessin

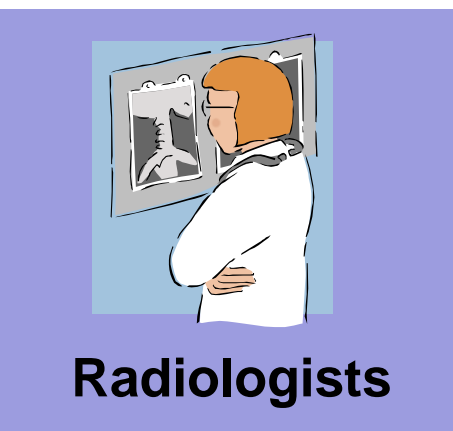
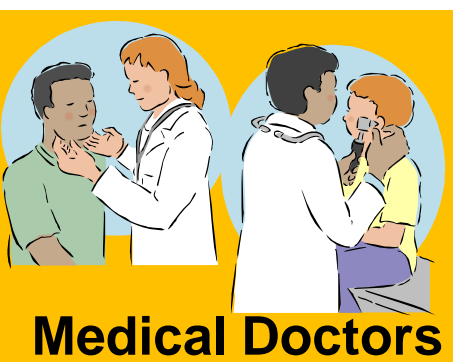
- A **multi-lingual, multi-modal** search and access system for biomedical information and documents
- Data from **many sources**
- **Multi-dimensional medical images** (2D, 3D, 4D)
- **Improved search capabilities** through natural language processing, information extraction, supervised and unsupervised categorization, linking text to knowledge base facts, ...
- **Trustable results** at a **level of understanding** adapted to the users

What?

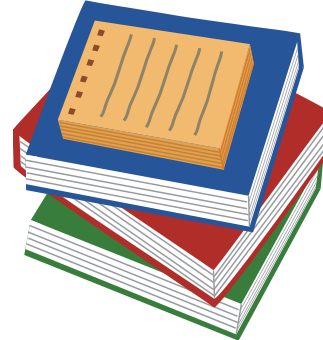


For Whom?

Users



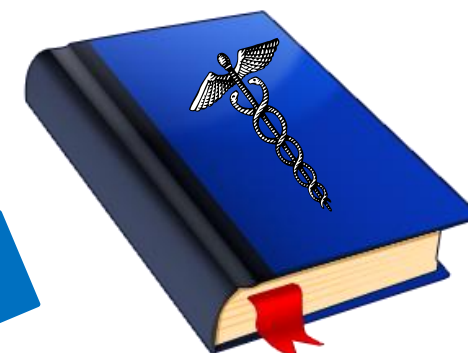
Language
Resources



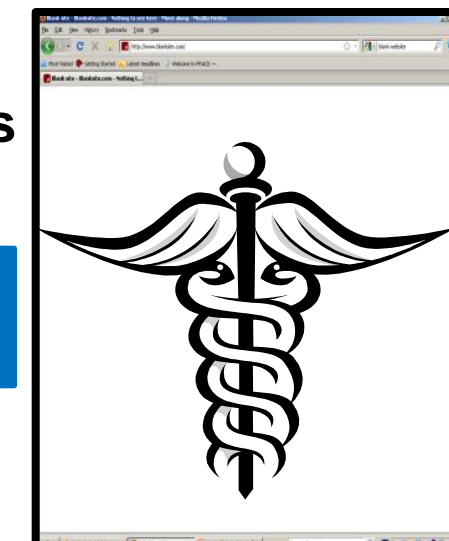
Images



Books



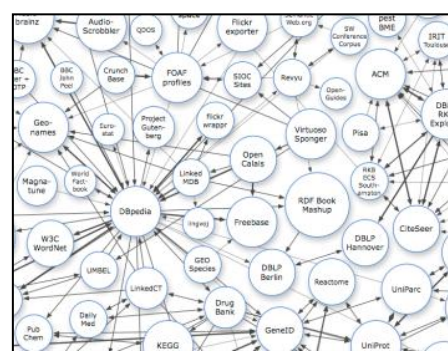
Websites



Journals



Semantic
Data

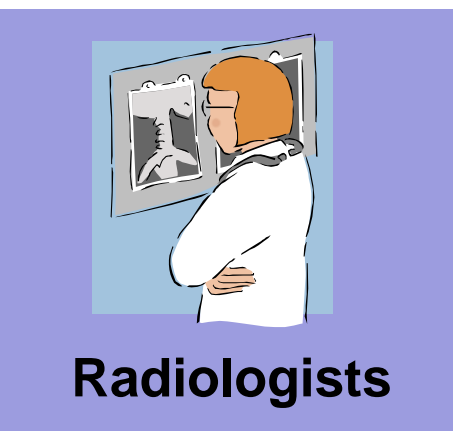
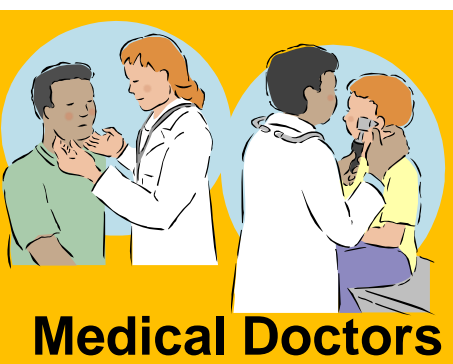
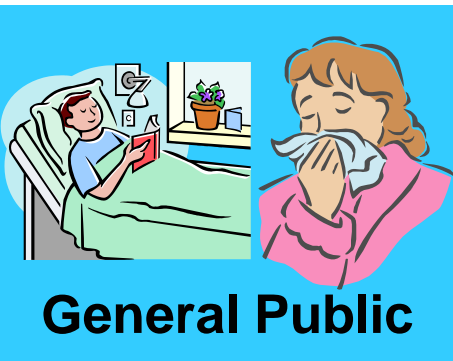


Queries
Questions

Information
Answers



Use Cases



Use Case 1:
Medical Information for
European Citizens and
Medical Professionals

Focus on Text

Use Case 2:
Medical Information for
Radiologists

Focus on Images

- Information should be:
 - In the **language** of the user
 - At the **level** required by the user
 - **Trustworthy** and **reliable**
 - Easy to find
- Innovative **user interfaces**, also mobile access
- End users:
 - Health on the Net
 - Society of Physicians in Vienna



Use Case: Radiology

- Overcome the **flood of images** and their complexity
- (Semi) automatic analysis of radiological images (CT, MRI, fMRI, ...)
- Link images to literature and past cases (anonymised)
- Innovative **user interfaces**
- End users:
 - Vienna Medical University
 - University Hospitals of Geneva

How?

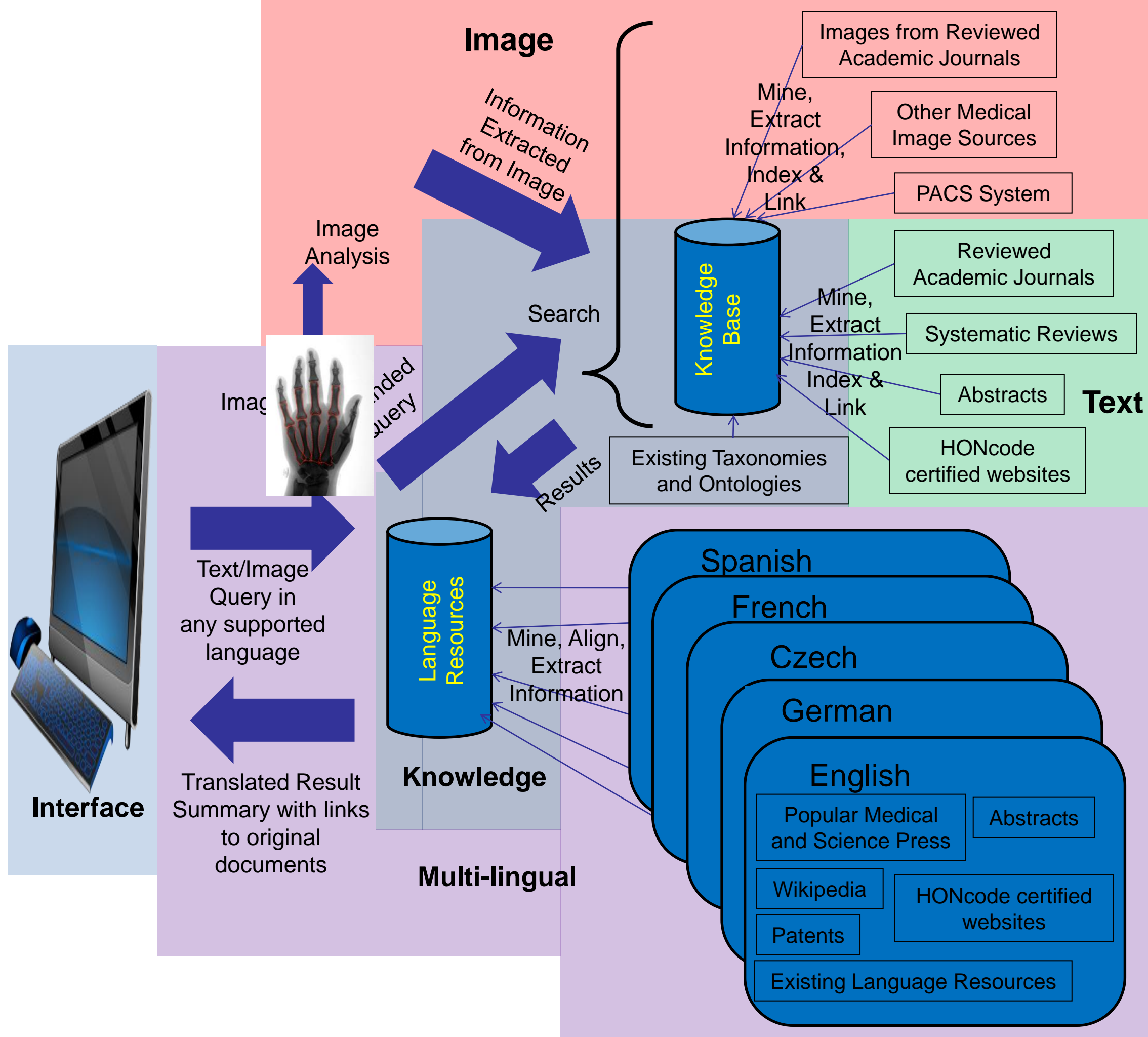
End Users



General Public and Doctors

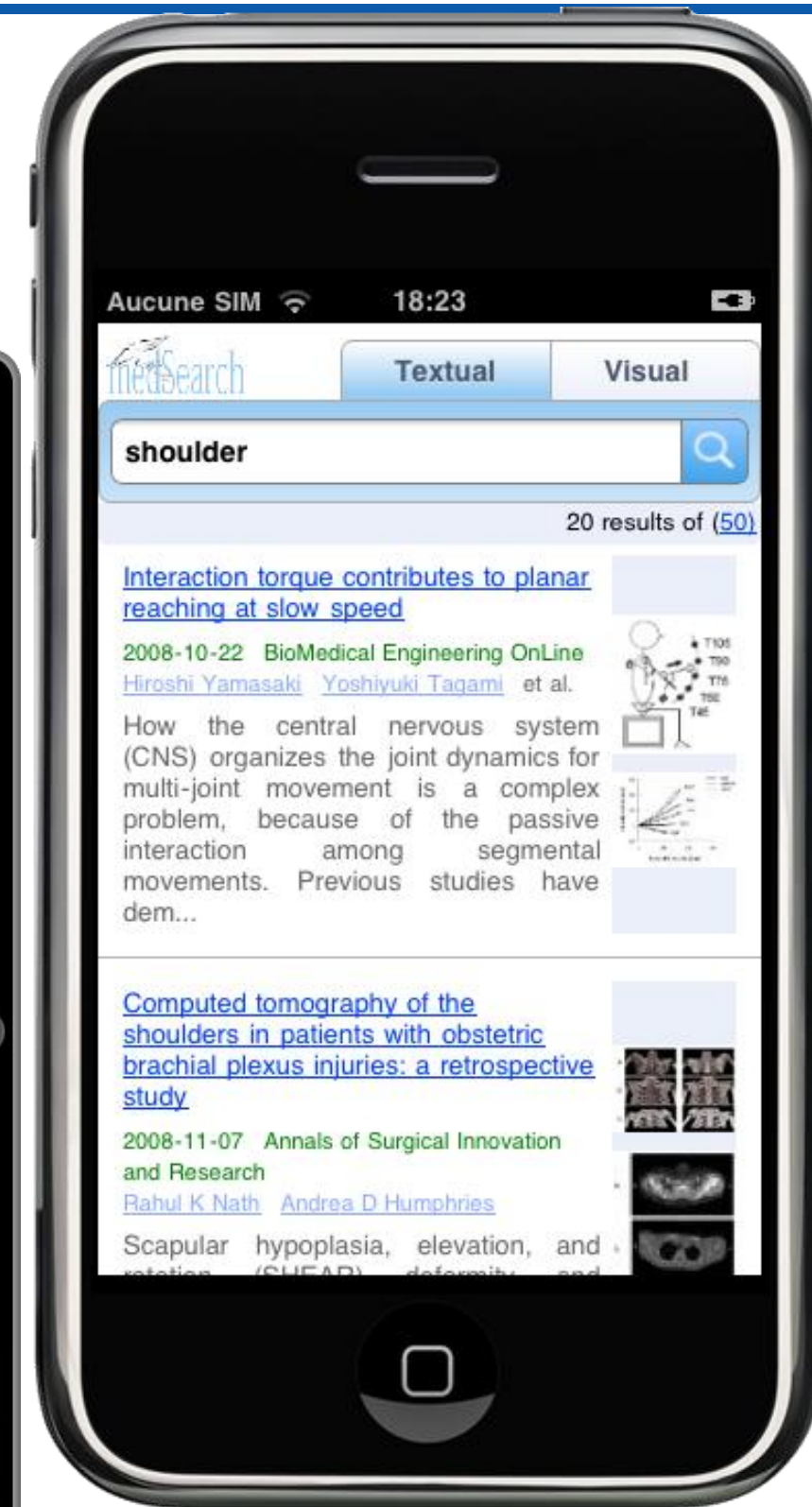
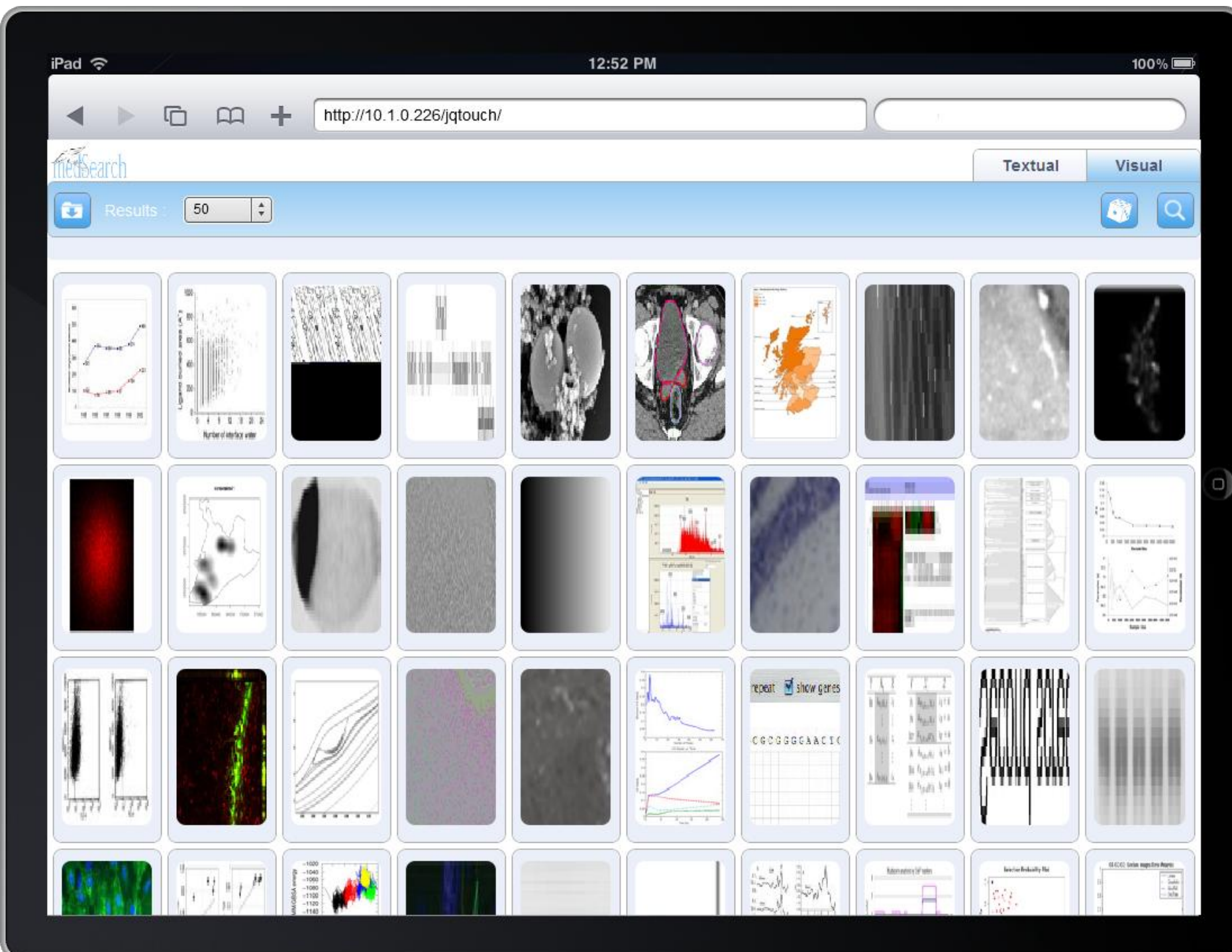


Radiologists



- GATE – information extraction
- DAFFODIL – user interfaces
- GIFT – visual retrieval
- MOSES – machine translation
- ...

Many New Ideas ...



Khresmoi Consortium



HES

University of Applied Sciences of Western Switzerland,
Switzerland

IRF

Information Retrieval Facility, Austria

ATOS

ATOS Research, Spain

ELDA

Evaluations and Language resources Distribution Agency,
France

ONTO

Ontotext, Bulgaria

DCU

Dublin City University, Ireland

UDE

University of Duisburg-Essen, Germany

CUNI

Charles University Prague, Czech Republic

USFD

University of Sheffield, United Kingdom

HON

Health on the Net, Switzerland

MUW

Medical University of Vienna, Austria

GAW

Society of Physicians in Vienna, Austria

- **Integrated Project**
- **Budget: €10 Million**
- **EU Contribution: €8 million**
- **Partners: 12 institutes, 9 countries**
- **Duration: 1 September 2010 – 31 August 2014**

- **Project Coordinator: Henning Müller,**
University of Applied Sciences Western
Switzerland
- **Scientific Coordinator: Allan Hanbury,**
Information Retrieval Facility, Austria

Χρησμοί

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