

# Shambala - A Modern Web Interface for Medical Image Retrieval

*Roger Schaer, Henning Müller*

SGMI2014

Presented by : Alba García Seco de Herrera

# Motivation

- Image search is a daily task for medical professionals
- Medical images are abundant
- Clinicians' schedules are tight
- Intuitive, easy-to-use, efficient retrieval tools are needed!

# KHRESMOI

- Multilingual, multimodal search and access system for biomedical information and documents
- Three target user groups
  - General public
  - General practitioners
  - Radiologists

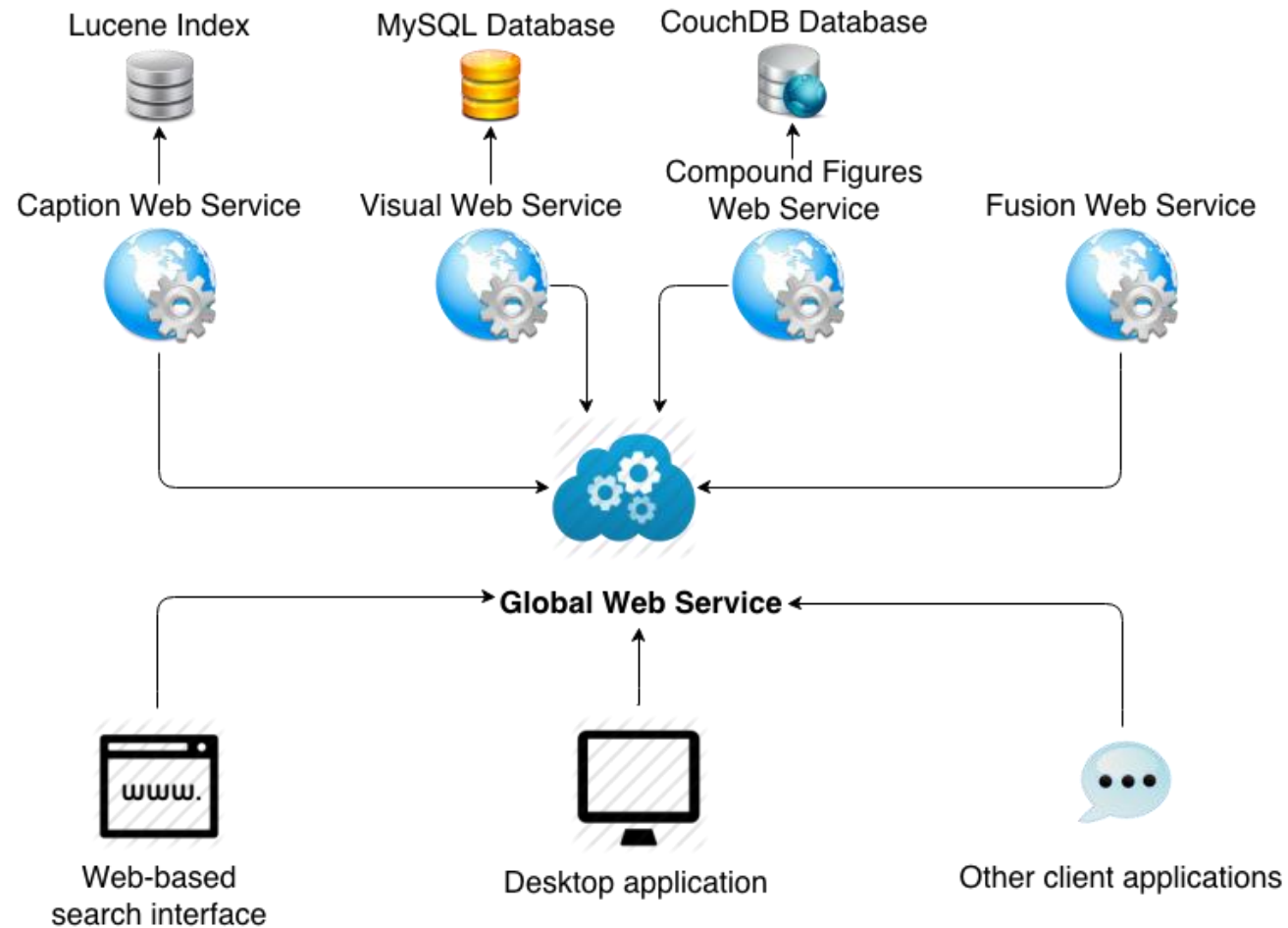


# Methods

- ParaDISE (**P**arallel **D**istributed **I**mage **S**earch **E**ngine)
  - Image retrieval system
    - Text & CBIR
  - Focused on
    - Modularity : independent components
    - Expandability : easy to add new features
    - Scalability : efficient with very large image collections



# ParaDISE Web Layer



# Datasets



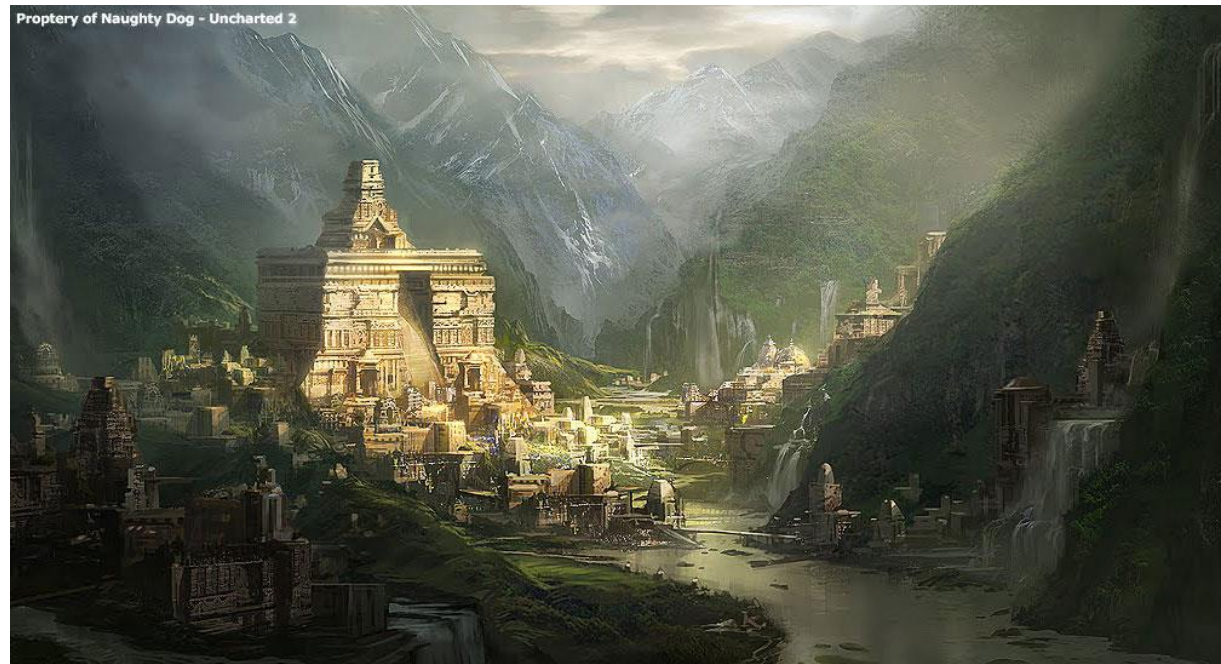
**ImageCLEF2012**  
>300'0000 images



**PubMed OpenAccess**  
>1'500'000 images

# Shambhala

- Buddhist concept of ParaDISE :-)
- Based on 3 principles
  - Easy
  - Interactive
  - Modern



# Shambala

Relevant Text  
brain mri

Relevant Images  
1

Search options 5

khresmoi  
MEDICAL INFORMATION ANALYSIS & RETRIEVAL

3

Irrelevant Text  
craniopharyngioma

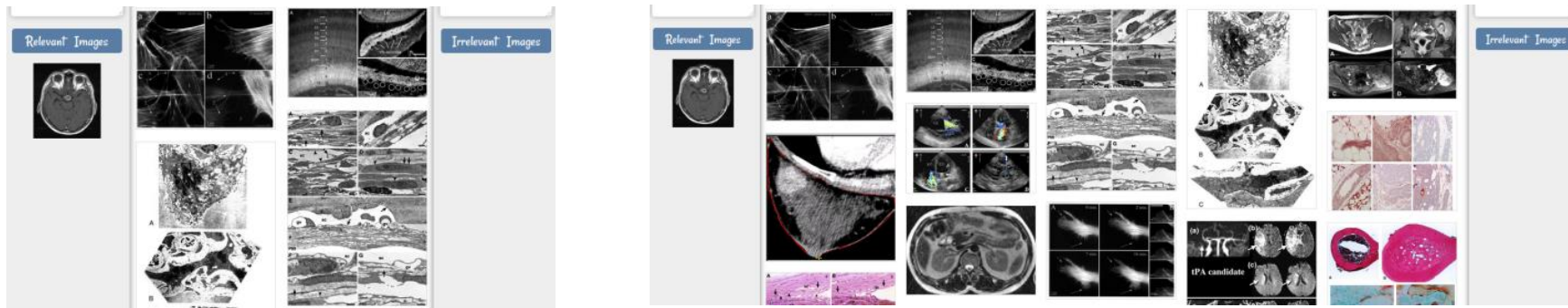
Irrelevant Images  
2

4



# Features

- Adaptive results zone

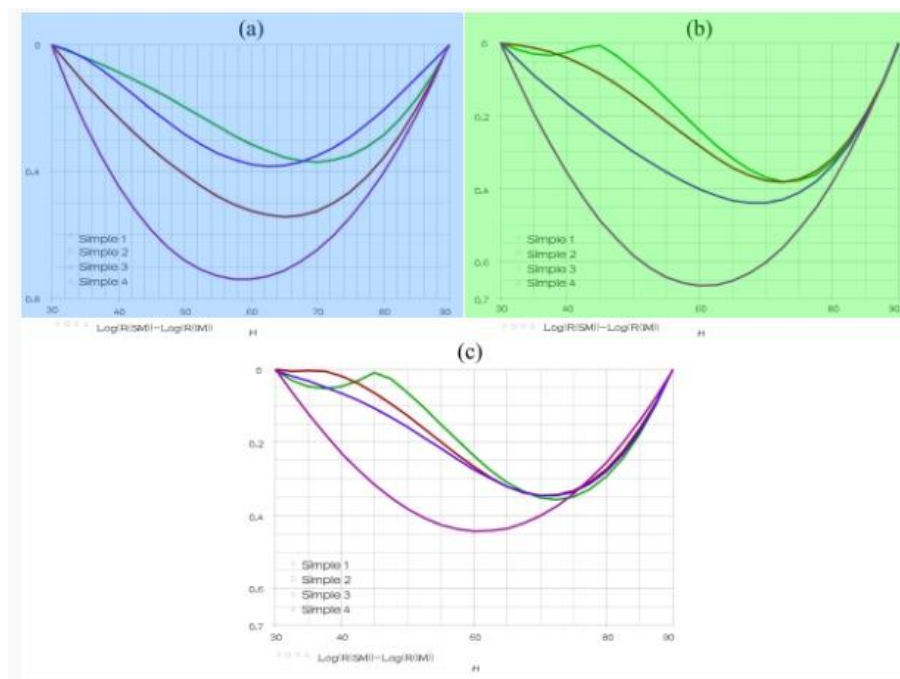
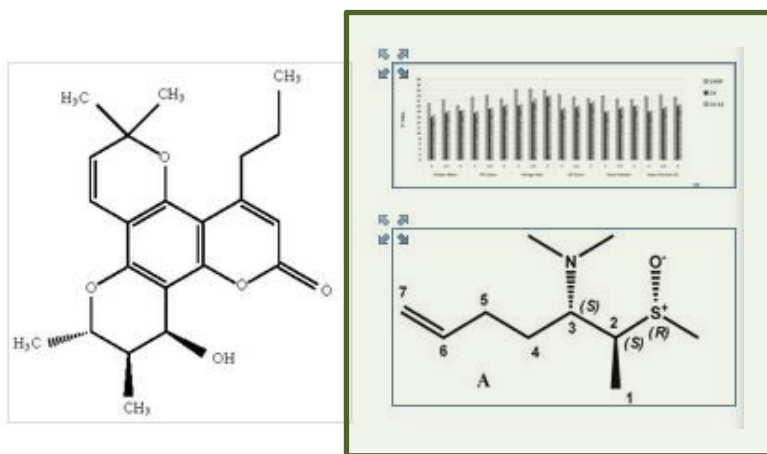


- Image editing



# Features

- Compound figure interaction

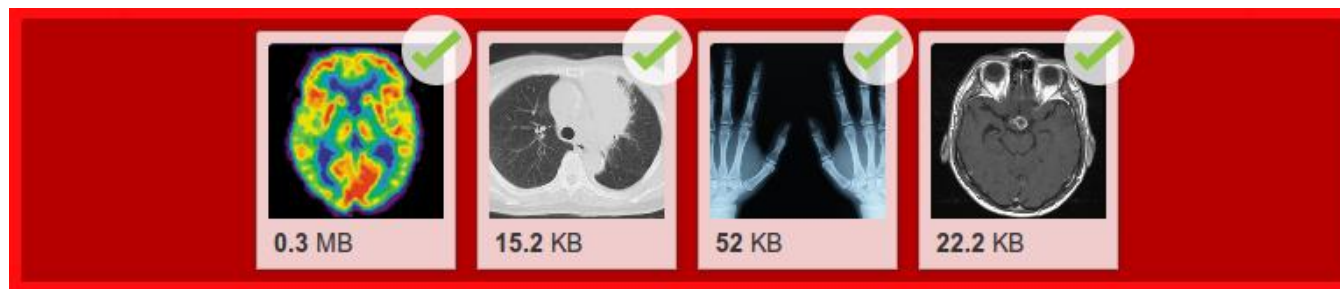


# Features

- Image samples & upload
  - Random samples from ImageCLEF2012



- Upload by drag'n'drop from the computer directly



# Features

- Search configuration

- Choose dataset
- Filter by imaging modality
- Use image examples' captions for text search
- Replace image captions with semantic terms obtained by a third-party Web Service



# Future Work

- Integration with Leap Motion sensor

# Conclusions

- Shambala is easy-to-use and modern
- Currently works with ParaDISE, could be adapted for any web-based retrieval system
- User tests will be performed to evaluate the benefit of using this interface

# Thank you for your attention !

## Questions?



<http://shambala.khresmoi.eu>