Shambala - A Modern Web Interface for Medical Image Retrieval

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SGMI2014
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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 (Parallel Distributed Image Search Engine)
  – 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

- Lucene Index
- MySQL Database
- CouchDB Database
- Compound Figures Web Service
- Fusion Web Service

Caption Web Service
Visual Web Service

Global Web Service

- Web-based search interface
- Desktop application
- Other client applications
Datasets

ImageCLEF2012
>300’0000 images

PubMed OpenAccess
>1’500’000 images
Shambala

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

http://shambala.khresmoi.eu
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?

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