IMAGE CLASSIFICATION & ANNOTATION FOR BRIDGING THE SEMANTIC GAP

Automatic Image Classification & Annotation

Image classification and annotation involve the identification of objects in images or the labelling of images with keywords. These may describe the image content or contextual information to provide direct access to the semantics. Automatic classification and annotation help to bridge the semantic gap by producing object labels or keyword annotations which are nearer to the high level semantic descriptions needed for good image retrieval.

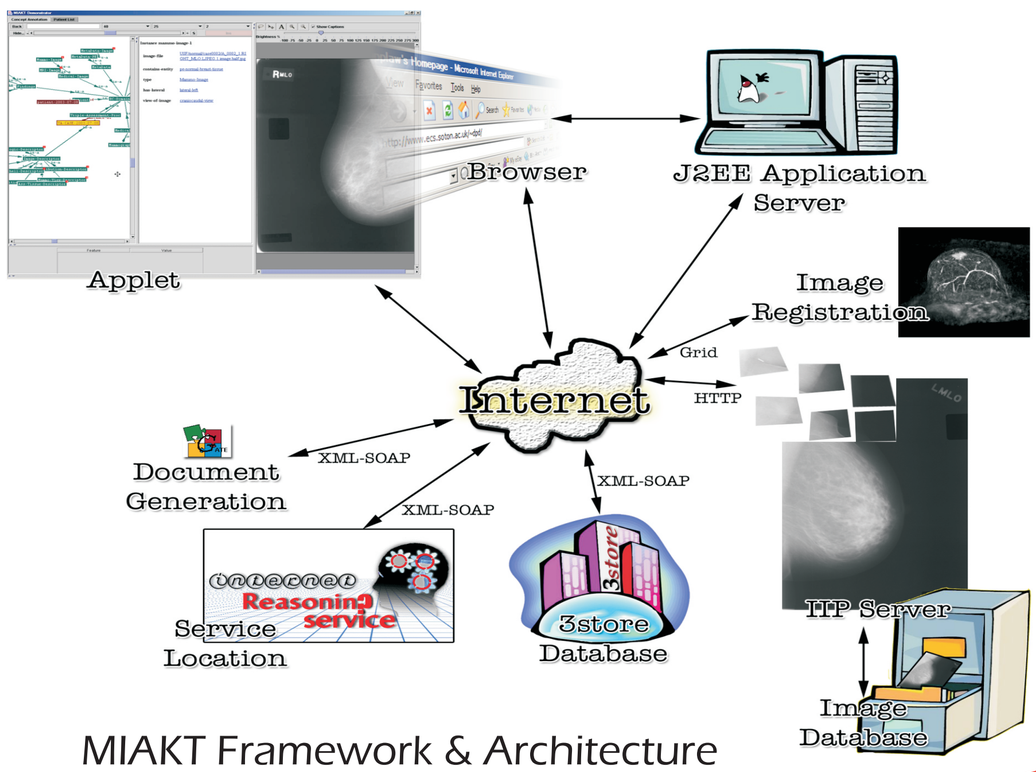
The Semantic Gap

The Semantic gap exists between low-level visual features and the high-level abstractions perceived by humans. New techniques are essential to improve inference of semantic information from low-level features in order to narrow the gap. To overcome the Semantic gap, a number of current research efforts focus on combining low-level features as visual terms with textual descriptions or text terms. Vector space method can then be applied to the visual and textual terms together to provide more powerful retrieval tools.

Medical Domain

The MIAKT project funded by ESPRC, aimed to support management, retrieval and display of knowledge at the consultative meetings that take place between medical staff of different disciplines during breast cancer screening.

Novel aspects of the system include the generic architecture for application composition to provide support for management of multi-modal knowledge (patient records, mammograms and others) through image annotation and ontological databases.

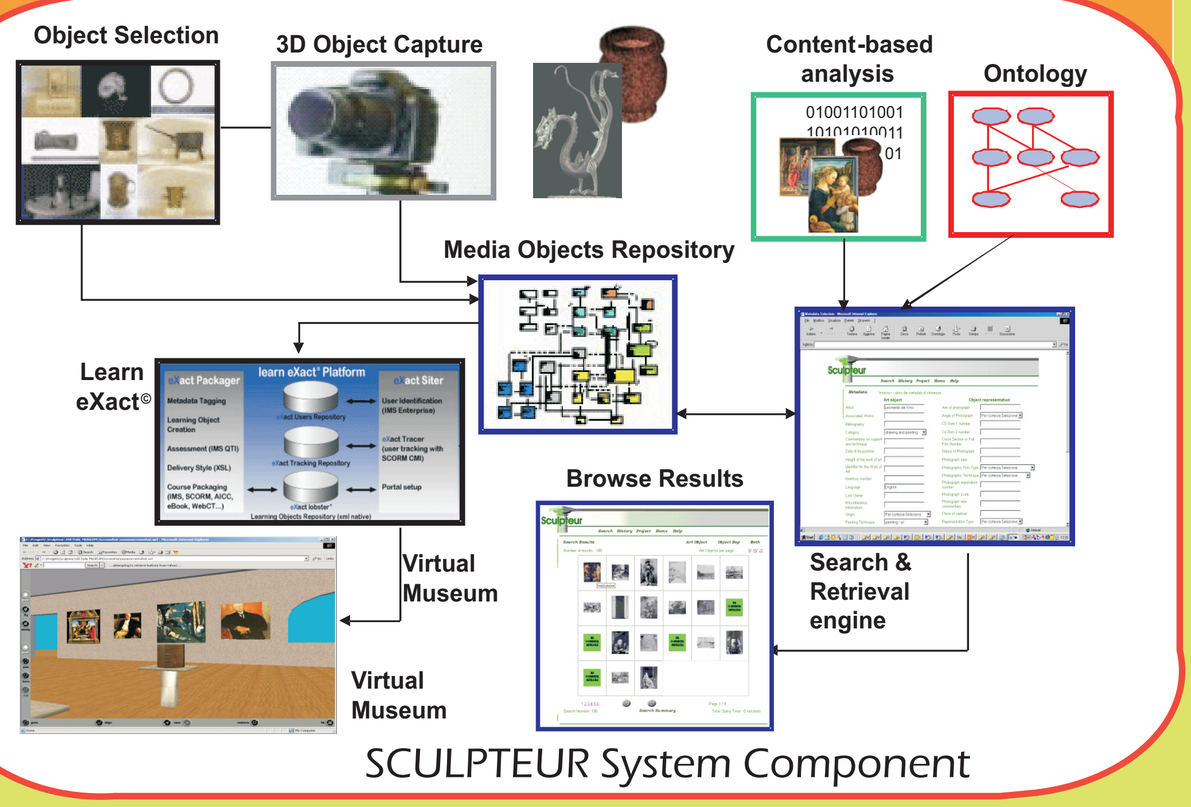


MIAKT Framework & Architecture

Cultural Heritage Domain

The SCULPTEUR project, initially supported by the European Commission aimed to develop novel ways of creating, searching, navigating, accessing, sharing and using museum and gallery multimedia content over the Web.

Recent research and development has produce new approaches for exploring rich cultural heritage information spaces; integration into museum and gallery infrastructure; and advances in interoperability and delivery of multimedia content over the Web.



SCULPTEUR System Component

Conclusion & Research Interest

Automatic image classification and annotation offer many advantages for image retrieval by helping to bridge the semantic gap. My area of research will involve the integration of image classification and annotation with semantic web technologies in medical image analysis domain. It will be associated with the use of pattern recognition technique in the HealthAgents project concerned with brain tumor diagnosis and prognosis.

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