



FaericWorld

Indexing and visual browsing of multimedia collections thanks to links between documents

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computer science

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Overview

- Introduction
- Data
- Annotations
- Links
- Indexing system
- Browsers
- Performances
- Conclusion



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Introduction

- Recent trend: events recording
 - Lectures
 - Conferences
 - Meetings



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Introduction



- Difficult to extract high-level abstractions
- Hard to index and retrieve



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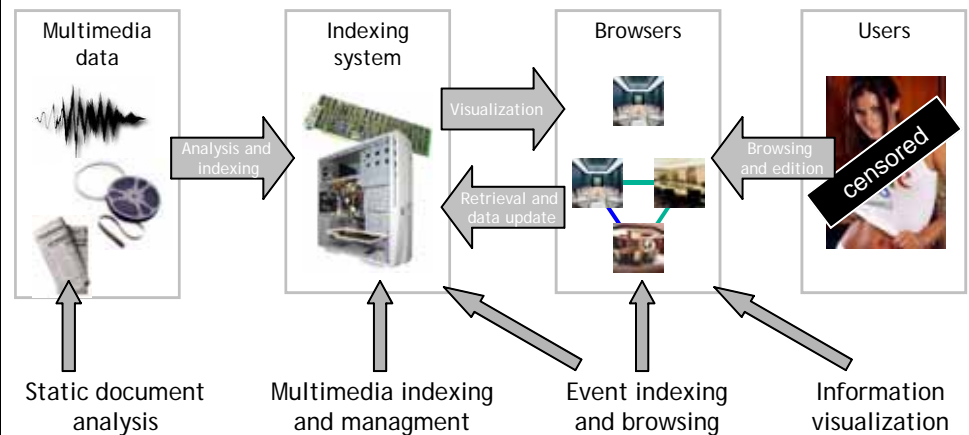


Introduction

- FaericWorld:
 - System for analyzing, indexing, and retrieving multimedia documents
 - Centered on **static documents**
 - Multimedia information automatically **linked**
 - A **novel browsing** paradigm based on links



Introduction



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Documents in the Archive

- **Media** (static documents, images, videos, and audio recordings)
- **Multimedia** documents (slideshows or websites)
- **Persons recordings** (person name, its publications, profiles, etc.)
- **Events** (meetings)





A Faeric Document



Links towards other documents

Annotations
Metadata

Media
Multimedia documents
Person recordings
Events

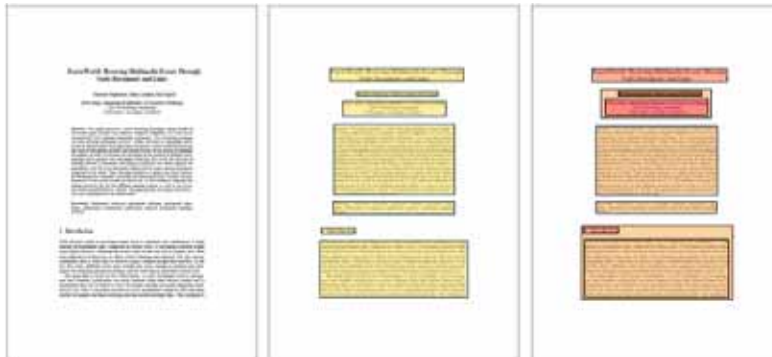


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Annotation on Static Documents



Original document

Physical structure

Logical structures



Xed: Annotating PDF Files



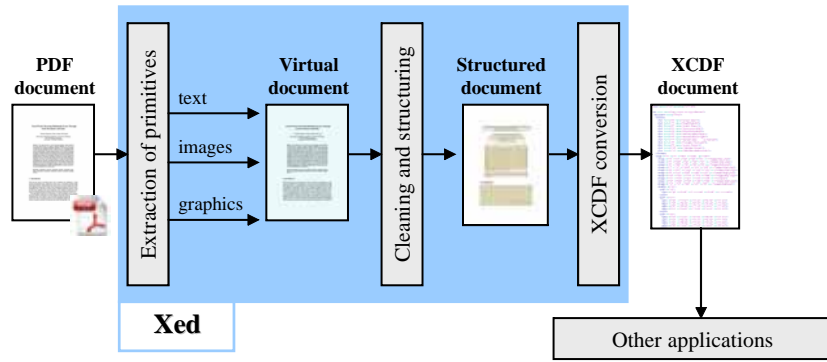
PDF document

Physical structure

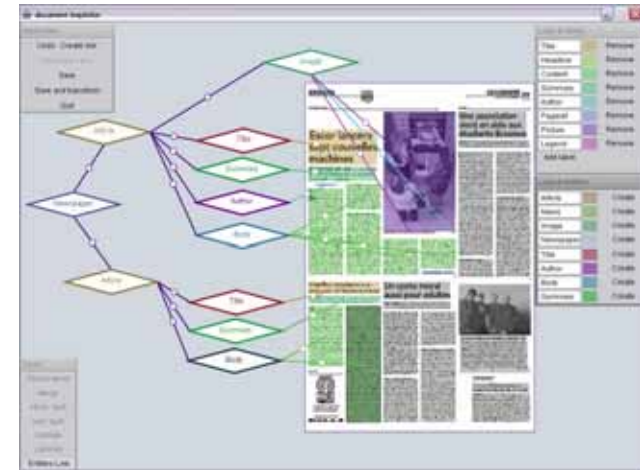




Xed: Its Architecture



Validation of Annotations on Static Documents



Other Annotations and Metadata

Denis 39:38-39:40	So that's the first poster .
Andrei 39:39-39:39	Mm-hmm.
Mirek 39:39-39:40	Mm-hmm.
Denis 39:41-39:45	There is also um this poster , quite dark also.



Video: track, person id, gestures, eye gaze, etc.

Audio: utterances, adjacency pairs, turns, etc.

Person recordings: PI (name, email, address)

Meetings: descriptors (name, date, scenario)

Multimedia documents: annotations of individual media



Fragmenting Data

- Annotations and metadata help to access content in a structured manner.
 - Documents' content can be fragmented
 - More precise indexing
- Examples
 - Static documents' text blocs
 - Utterances of audio transcript
 - Labels on videos

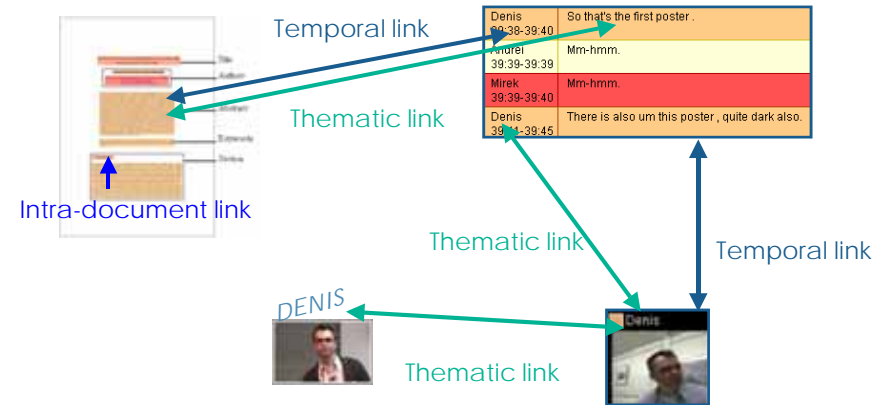


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Linking Information



Links Categories

- Created accessing the documents through their annotations

		Links		
Intra-Document	Cross-Document			
	Thematic	Strict		
		Temporal	Reference	Hyperlinks
	<i>similarities between two documents content</i>	<i>temporal coexistence of media</i>	<i>bibliographic references, citations, authors' name, etc.</i>	<i>explicit references</i>

Multimodal alignment Recording Syntactic analysis et al.

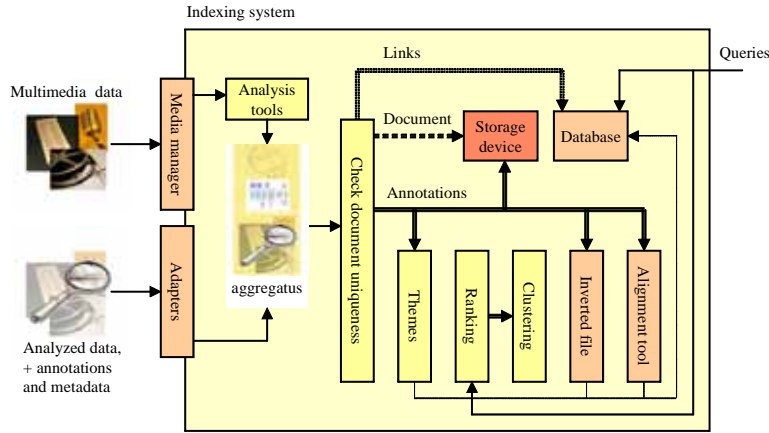


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Indexing System Architecture



Importing Data

- 2 mechanism for importing data:
 - Analyzed documents through adapters
 - « Raw » documents
- Check document' uniqueness:
 - New document
 - Already imported -> discard
 - Part of a compound document -> link



Indexing: Inverted File

- Index textual information (original content , annotations, metadata)

stems	occurrences	id range		id	document id	part id	occurrences
pessimist	2	22715	22716	22719	12	11	2
pestici	1	22717	22717	22720	17	4	1
pet	70	22719	22779	22721	20	32	7



Indexing: Multimodal Alignments

- Multimodal alignments produce:
 - Thematic links (all types of documents)
 - Temporal (time-based media towards static ones)
- Syntactic analysis
 - Thematic Links
 - References
 - Hyperlinks





Retrieval

- Textual query
 - supports searching functionalities for « known targets »[1]
- By links
 - enables browsing: « looking to see what is available in the world »[1]

[1]S. Jul and G. W. Furnas. Navigation in electronic worlds: a chi 97 workshop. SIGCHI Bull., 29(4):44-49, 1997.



Overview

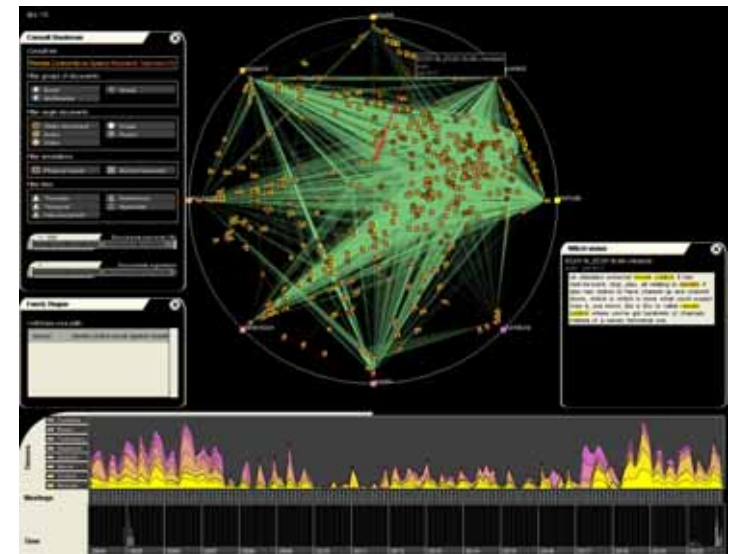
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JFriDoc, Document-centric Browser

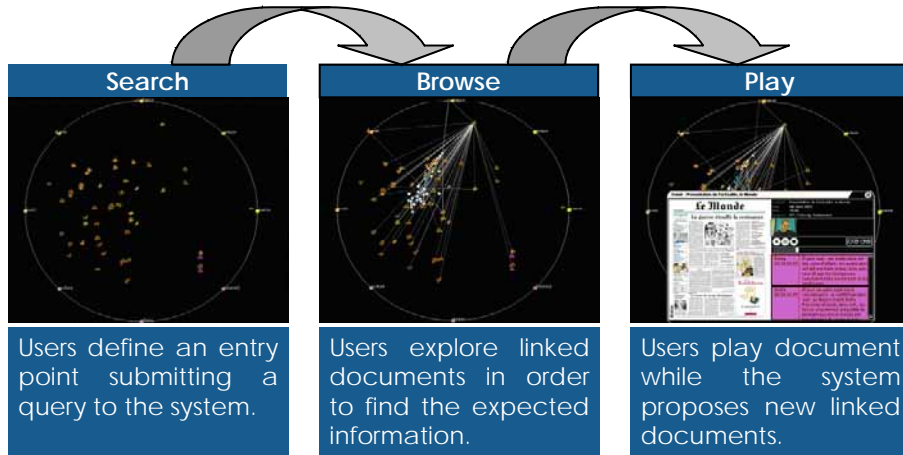


FaericWorld Browser

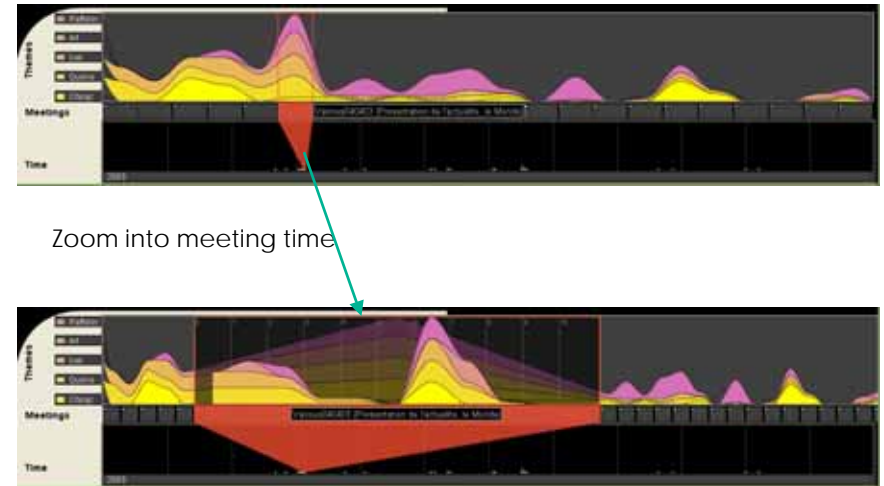




Combined Searching, Browsing and Playing

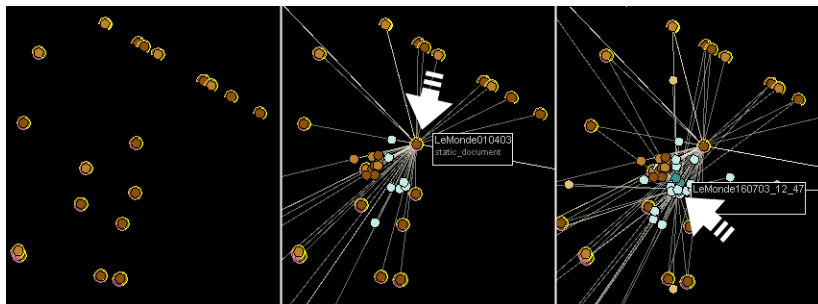


Searching



Browsing

- *Discovering linked documents!*



Playing



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Performances: Indexing

- 2 archives integrated in FaericWorld
 - IM2.DI:
 - 22 meetings
 - 245 documents
 - 4.278 parts of document
 - 38.747 links*
 - AMI:
 - 171 meetings
 - 3.644 (1697*) documents
 - 113.905 parts of document
 - 133.139.945 links*

* After replacement of recurrent documents

* similarity threshold: 10%



Performances: Data Access

- Java application + MySQL AB installation
- Pentium 4, 2.40 GHz, 512 Mb RAM
- Importing + Indexing time
 - IM2.DI corpus: 50 minutes
 - AMI corpus: 26 hours
- Access (AMI corpus)
 - 8-words query: < 1/2 second
 - Browsing by links: < 1 second



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