

S3MR | 10

Social Media and Personal Media

Media Informatics | University of Oldenburg
OFFIS | Institute for Information Technology

1st Spring School on

Social Media Retrieval

February 22nd - 25th 2010

Interlaken, Switzerland



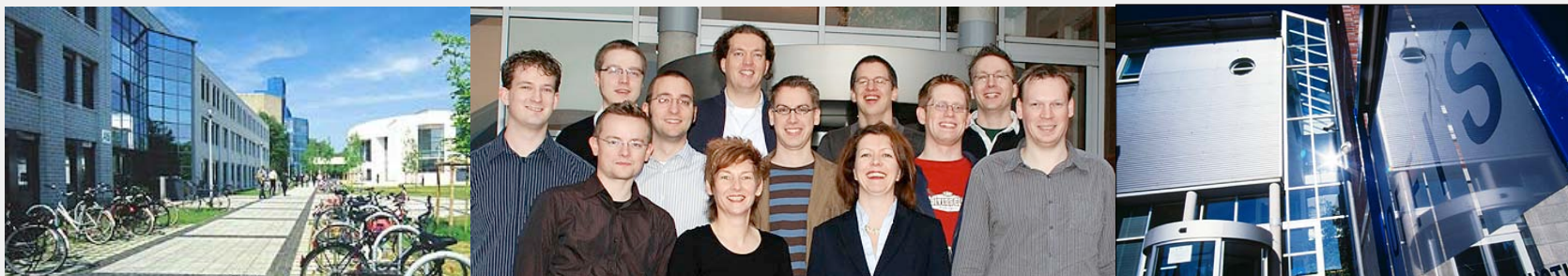
Where and what we research

Institutions

- ▶ Computer Science Department, University of Oldenburg
 - Professor for Media Informatics and Multimedia Systems
- ▶ OFFIS - Institute for Information Technology, Oldenburg
 - Member of the Scientific Board

Research

- ▶ Semantic multimedia retrieval: multimodal content analysis and retrieval
- ▶ Mobile multimedia systems: context-awareness, mobile interaction with the real world
- ▶ Intelligent user interfaces: multimodal interaction, non-visual modalities



Personal media means

That we

- ▶ capture and document personal experiences (e.g., a wedding)
- ▶ remember these events (e.g., when the bride kisses the groom)
- ▶ show the photos to others (e.g., on the next family meeting) and
- ▶ tell stories with these photos (e.g., a photo album or a photo movie)

Digital media today

- ▶ enormous increase in digital (video) cameras
- ▶ billions of photos are taken every year
- ▶ the carton shoebox turned into a digital shoe box
- ▶ many photos / media are newer found, viewed or used (again)

From personal to social media – and back

Personal media

- ▶ what we do with personal media
- ▶ semantically understanding personal media
- ▶ understanding social relations in you content
- ▶ retrieving personal media collections
- ▶ using personal media



Me

Social media

- ▶ use different Web 2.0 photo sharing sites
- ▶ share media with your friends
- ▶ harvest social media for personal media
- ▶ make your media social
- ▶ Understand your photos from their usage



and (my) social media

What we do with our photos (in the Social Media Web)



The role of metadata for personal media collections

save the experience

- ▶ With the metadata aim to overcome the semantic and sensory gap

browse and find previously taken photos

- ▶ Search for events and persons, places, moments in time, ...

edit and annotate

- ▶ add comments, alter the quality,

share photos with others

- ▶ Give your annotated Flickr Photo to your friend' application
- ▶ complement your media with media of other people

use and curate

- ▶ Create an automatic photo collage for a poster
- ▶ Send a sweet post card for your beloved
- ▶ eMail a flash presentation to your aunt's TV

Where metadata is created, used and needed



Problem and potential of digital photography

Problem

- The good old semantic gap
 - ▶ digital cameras leave us with a files like dsc5881.jpg
 - ▶ a very poor reflection of the actual event
 - ▶ a 2D visual snapshot of an multi-sensory personal experience
 - ▶ quality of photos often very limited (snapshots, over exposed, blurred, ...)

Potential

- Contextual information
 - ▶ photographs are always taken in context
 - ▶ in comparison to analog photography digital photos provide us with explicit contextual information (time, flash, aperture, ...)
 - ▶ a “unique id” such as the timestamp allows to later merge contextual information
 - ▶ photos are always taken and used in a context

What we might want to remember



1324234,847543

14.07.2005

Juist, Germany

close to the beach

summer

vacation with Susanne

just before lunch

outdoors

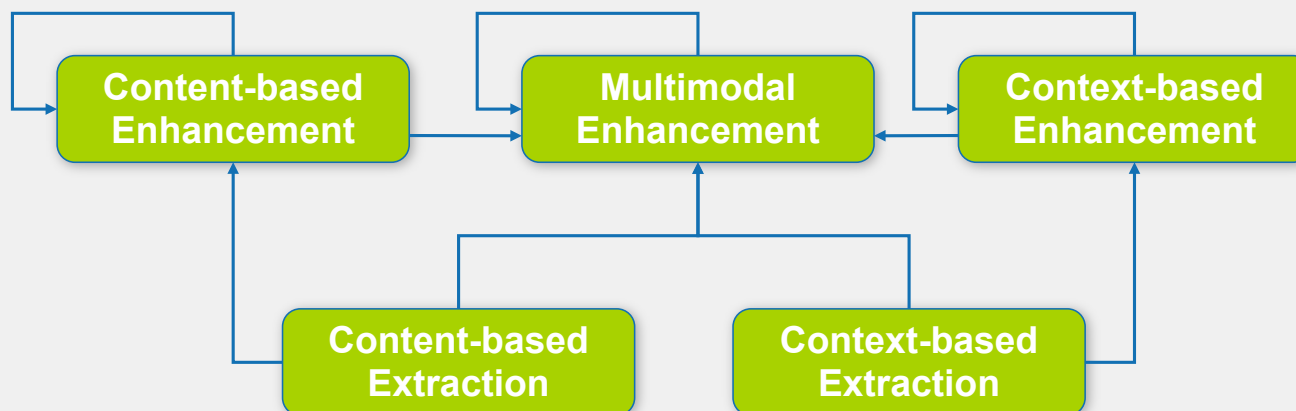
2 faces

no flash

slightly blurred

And the obvious solution is a combination

- not **Signal analysis (at least not alone)**
 - ▶ Hard problems but not always a satisfying solution
- **context analysis**
 - ▶ important for photos and very helpful for photo understanding
- **multimodal analysis and enhancement**
 - ▶ Combine **context** + **content**, iteratively
- **use the user(s)**
 - ▶ Manual annotation, usage, collaboration, public Web content, ...



Content-based and context-based annotation

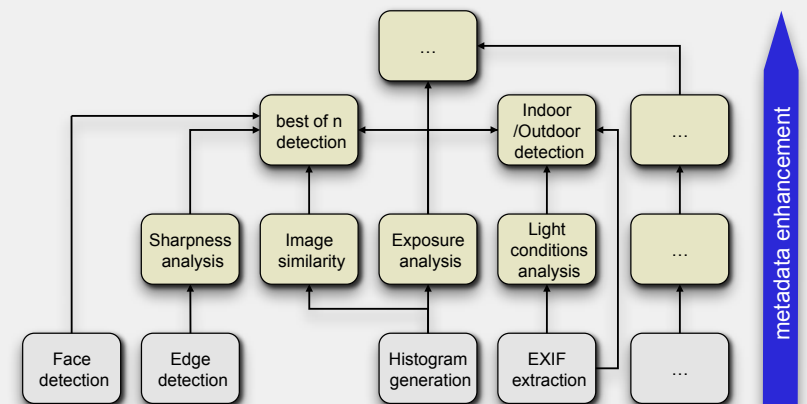
Annotation of personal media

- ▶ What, who, where, when?
- ▶ Is this photo relevant for me?
- ▶ Is there a similar, better one?
- ▶ Who was travelling with me?



Content and context analysis

- ▶ Content-based analysis is limited
- ▶ Combine context and content analysis
 - photo quality -> EXIF header + content
 - relevance -> time cluster
 - similarity -> time + content

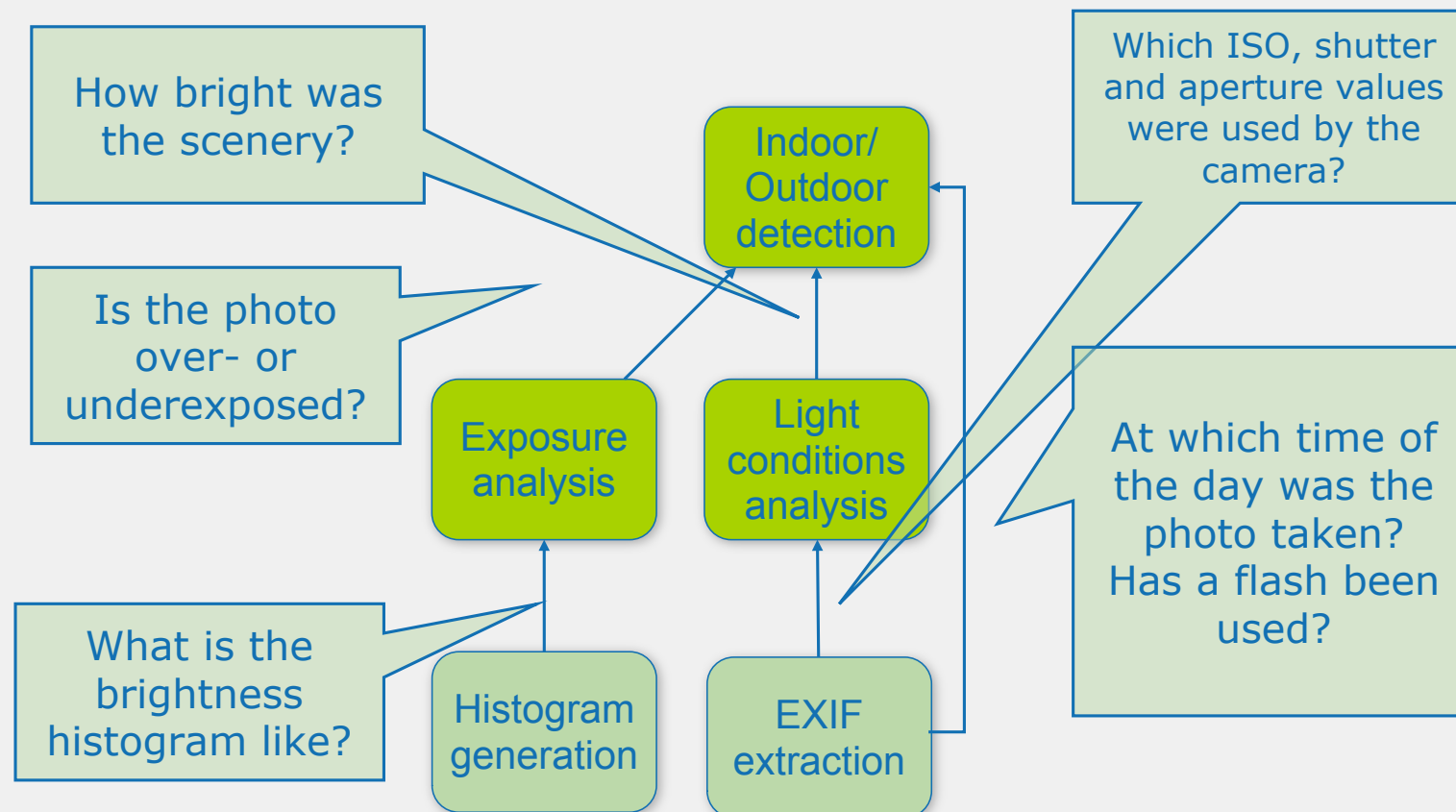


Multimodal augmentation of metadata

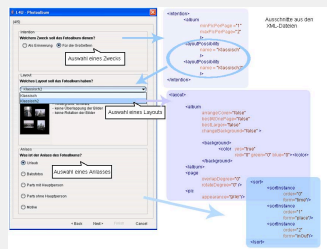
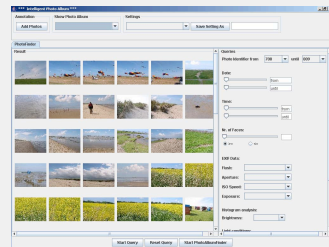
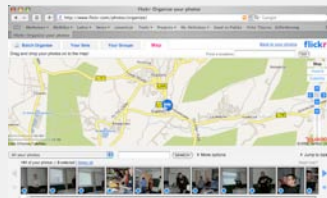
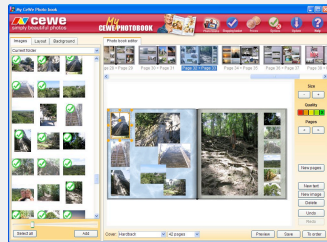
[MetaXa - Content- and Context-Driven Metadata Enhancement for Personal Photo Books. Phillip Sandhaus, Ansgar Scherp, Sabine Thieme, Susanne Boll. International Conference on Multimedia Modelling 2007, Singapore]

Combination of context and content analysis

An example



Examples of enhancement components from our lab



■ Context-extraction

- ▶ Filename, file date
- ▶ EXIF header information

■ Content-extraction

- ▶ Histogram
- ▶ Face detection + recognition
- ▶ Edge detection

■ Context-enhancement

- ▶ Light conditions
- ▶ Temporal clustering

■ Content-enhancement

- ▶ Exposure
- ▶ Sharpness

■ Multimodal enhancement

- ▶ In-/outdoor detection
- ▶ ...

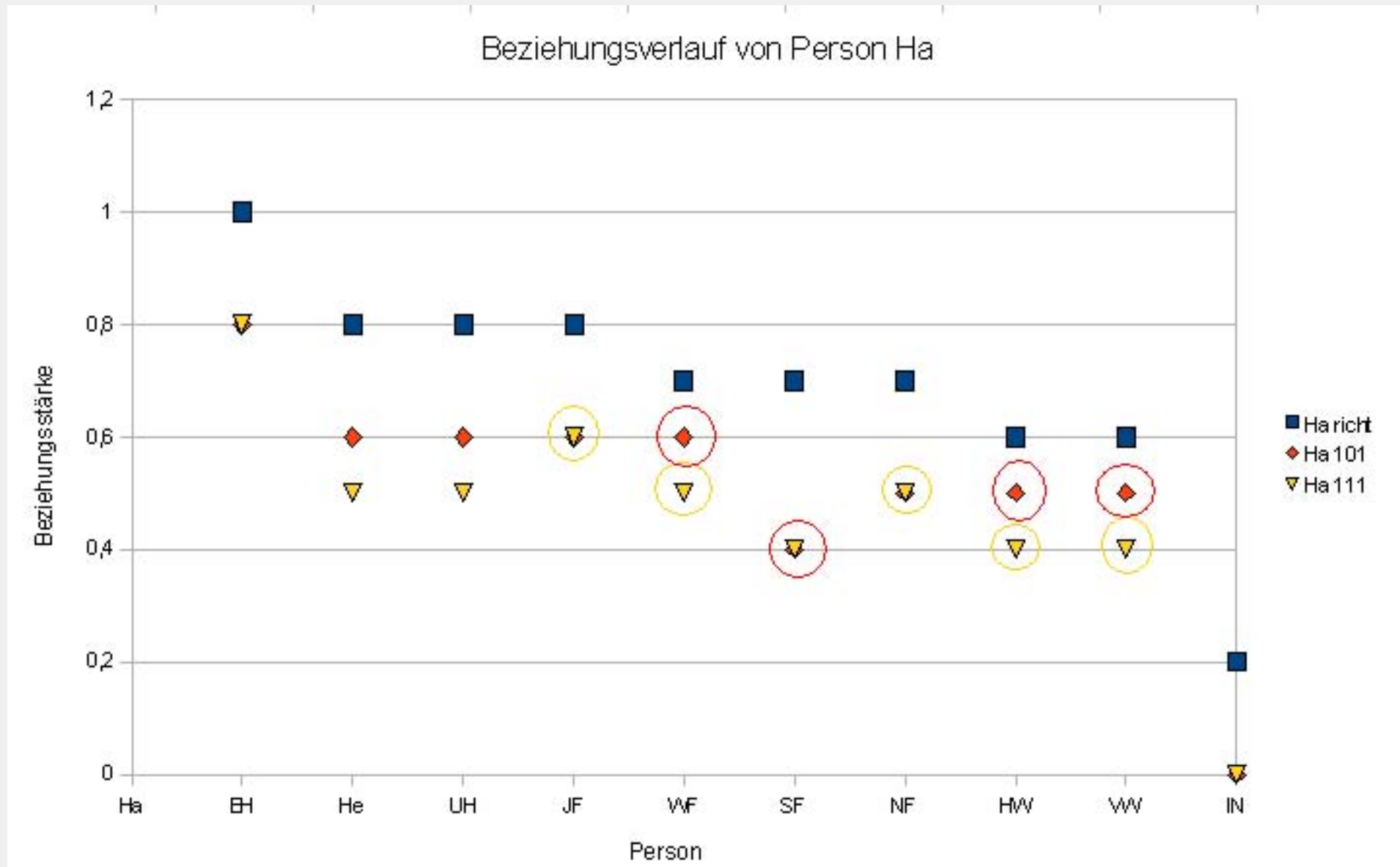
Discussion

I remember, when Flickr appeared, people said that the image understanding is solved by tagging.

Will „Flickr“ and „Facebook“ solve it all?

- ▶ where do we really store our photos? Only in the Web?
- ▶ how do we access the photos related to our event?
- ▶ who is manually and automatically annotating the content?
- ▶ will all my content be tagged by my friends or by machines?
- ▶ where are the metadata stored?
- ▶ to whom do the metadata belong?

Measuring your social relations just from your personal media



Understanding semantics such a social relations

The screenshot shows the 'Photo Relationship Finder' application window. It has a menu bar with 'Datei', 'Aktion', 'Konfig', and 'Hilfe'. Below the menu are three steps: '1. Schritt' (Importiere Fotosammlung), '2. Schritt' (Analysiere Fotos), and '3. Schritt' (Soziales Netzwerk anzeigen). The 'Soziales Netzwerk' tab is active, showing a network graph of faces. The graph consists of several nodes (faces) connected by edges with numerical weights. A legend at the bottom indicates relationship types: 'Familienangehörige' (yellow), 'Freunde' (blue), 'Arbeitskollegen' (green), and 'andere Be' (grey). The graph shows a central node connected to others with weights like 0.8, 0.5, 0.3, and 0.4. A yellow edge with weight 1.0 connects two nodes, and another yellow edge with weight 0.9 connects two nodes. A legend at the bottom indicates relationship types: Familienangehörige (yellow), Freunde (blue), Arbeitskollegen (green), and andere Be (grey).

- ▶ Facedetection and face recognition
- ▶ Co-presence on photos
- ▶ relation to number of persons on the photos
- ▶ physical distance
- ▶ overall weighting function

Retrieving an experience rather than just photos

Most approaches focus on searching in photo collections

- ▶ Find me the photos from the birthday party
- ▶ find me a photo of mum
- ▶ Find a photo from Amsterdam

Beyond this, we aim at finding sets of photos from collections

- ▶ Select a nice subset of my vacation photos
- ▶ Get me a well balanced year book 2004
- ▶ Select photos of all interesting steps and phases of my child from birth to the 18th birthday for a photo album

Metadata-driven selection of photo sets

Content and context can be used to actually retrieve photos from a collection

Typical tasks are finding

- ▶ a single photo to print, give away, put on the Web, ...
 - “my PhD defense”
- ▶ a set of semantically related photos
 - “photos from our conference for a souvenir-collage”
- ▶ a good subset of a set of given photos
 - “best 80 of 900 selection of my last vacation to Mexico”

Supporting this selection process using context & content

- ▶ Existing approaches use different techniques for querying photos based on different types of metadata
- ▶ this works well for retrieving a set of candidates from which the user chooses
- ▶ However, it is difficult to actually “understand” what a good selection is

Metadata-driven selection of photo sets



Multimedia Grand Challenge 2009 - CeWe Challenge

CeWe Challenge: The Next Generation of Tangible Multimedia Products

Thematic Photo Story Generation from Personal Photo Collections

- ▶ For the media selection, the system should take into account the target use of the selection, which should be oriented at commercial print products such as calendars, collages, posters or photo books.
- ▶ The process could incorporate the exploitation and addition of shared media from social community platforms to augment the personal collection.
- ▶ The solution should not only consist of an approach for the selection but could be embedded in an authoring system the user in the loop.

Metadata-driven authoring

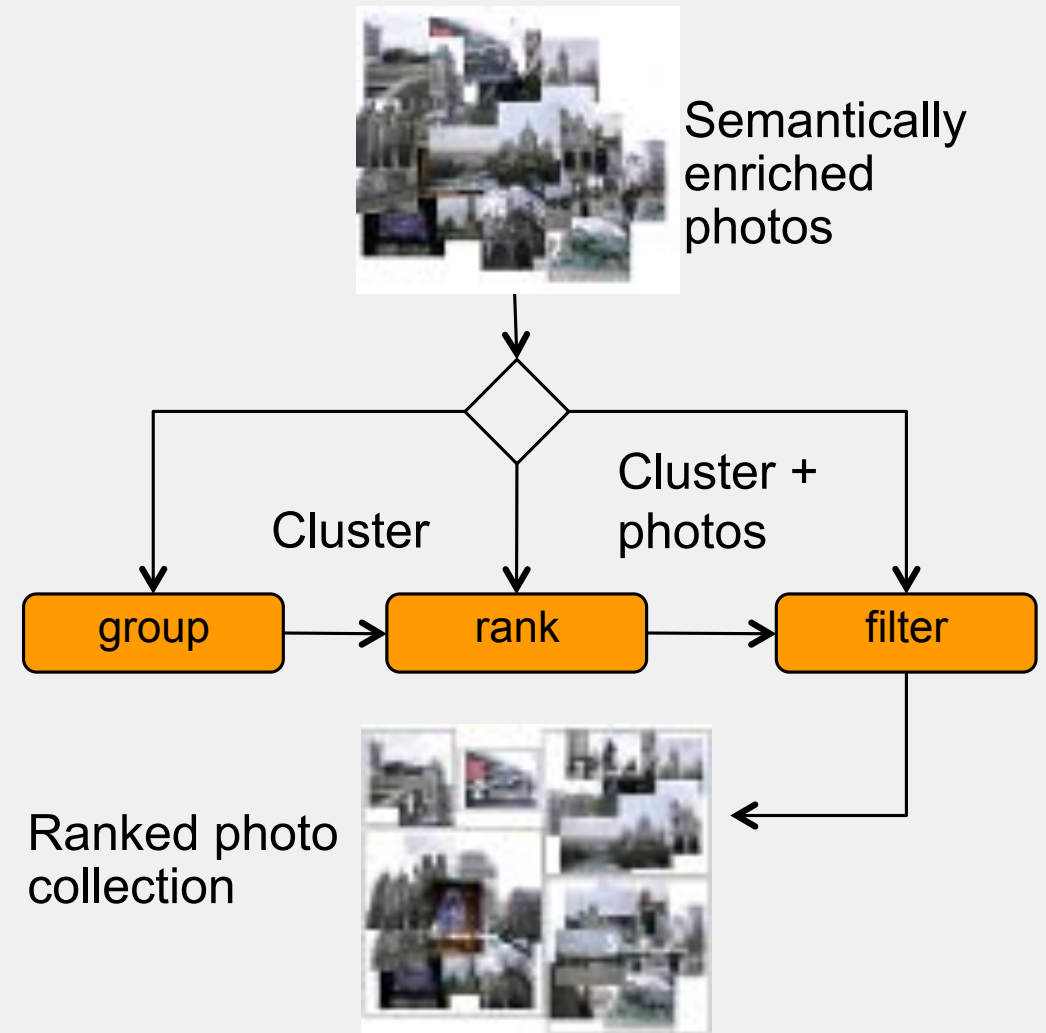
Guide the authoring task by metadata to make authoring quicker and easier

- ▶ Selection
 - Use metadata for a “pre-selection” of content
- ▶ Arrangement
 - Use metadata to create a multimedia “photo” story
- ▶ Style
 - Use metadata to suggest layout and style
- ▶ Deployment
 - Use metadata to create the final output presentation

Selection framework

Finding the right set

- ▶ filter irrelevant photos
- ▶ group photos based on different aspects such as time, similarity,
- ▶ model analysis, grouping and ranking
- ▶ configurable selection criteria



xSMART - context-driven multimedia authoring

Context-driven selection

Auswahl eines Zwecks

Auswahl eines Layouts

Auswahl eines Anlasses

interactive editor

format, layout & style

```
<intention>
/>
<album
  arrangeCover="false"
  bestAtOnePage="false"
  bestLarger="false"
  changeBackground="false" >
  <background>
    <color yes="true"
      red="0" green="0" blue="0"></color>
  </background>
  </album>
  <page
    overlapDegree="0"
    rotateDegree="0" />
    <pic
      appearance="true" />
      <sortinstance
        order="0"
        form="time"/>
      <sortinstance
        order="1"
        form="place"/>
      <sortinstance
        order="2"
        form="inOut"/>
    </sort>
  </page>
</sort>
```

[Scherp, A. and Boll, S. 2005. Context-driven smart authoring of multimedia content with xSMART. In Proceedings of the 13th Annual ACM Intl. Conf. on Multimedia (Hilton, Singapore, November 06 - 11, 2005). MULTIMEDIA '05.ACM, 802-803.]

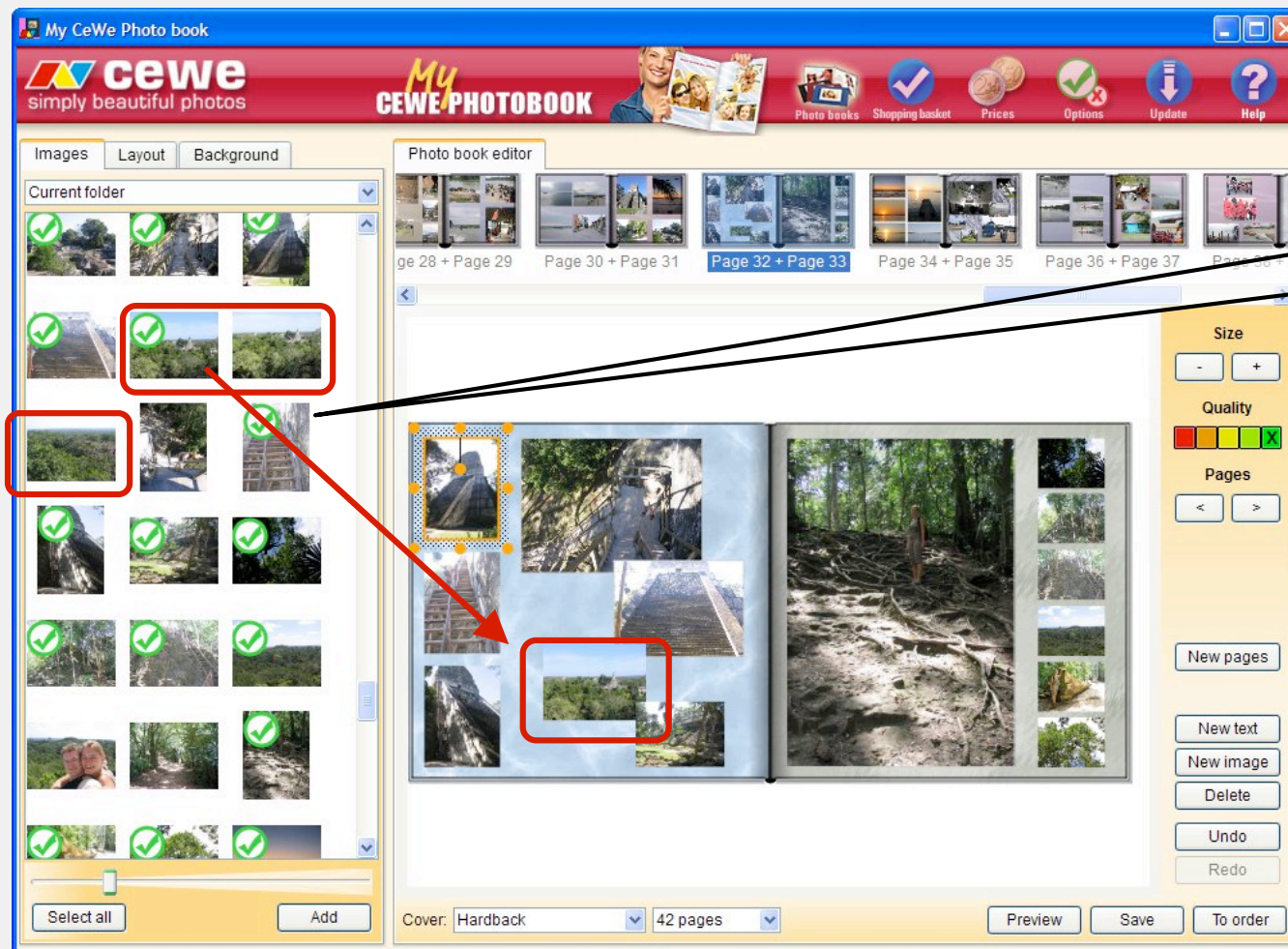
Usage in a commercial photo book application

- ▶ Usage in a commercial photo book authoring software
 - Automatic assembly of a photo book
 - Clustering of photos
 - preselection of good photos
 - automatic layouts
 - selection of backgrounds
 - ...



[Image selection: no longer a dilemma. Reiner Fageth (CeWe Color AG), Susanne Boll, Philipp Sandhaus. Proceedings of the IS&T/ SPIE's, Volume 6807 Jan. 28, 2008.]

Usage in a commercial photo book application



Automatic selection from a series of 3 photos

Usage in a commercial photo book application



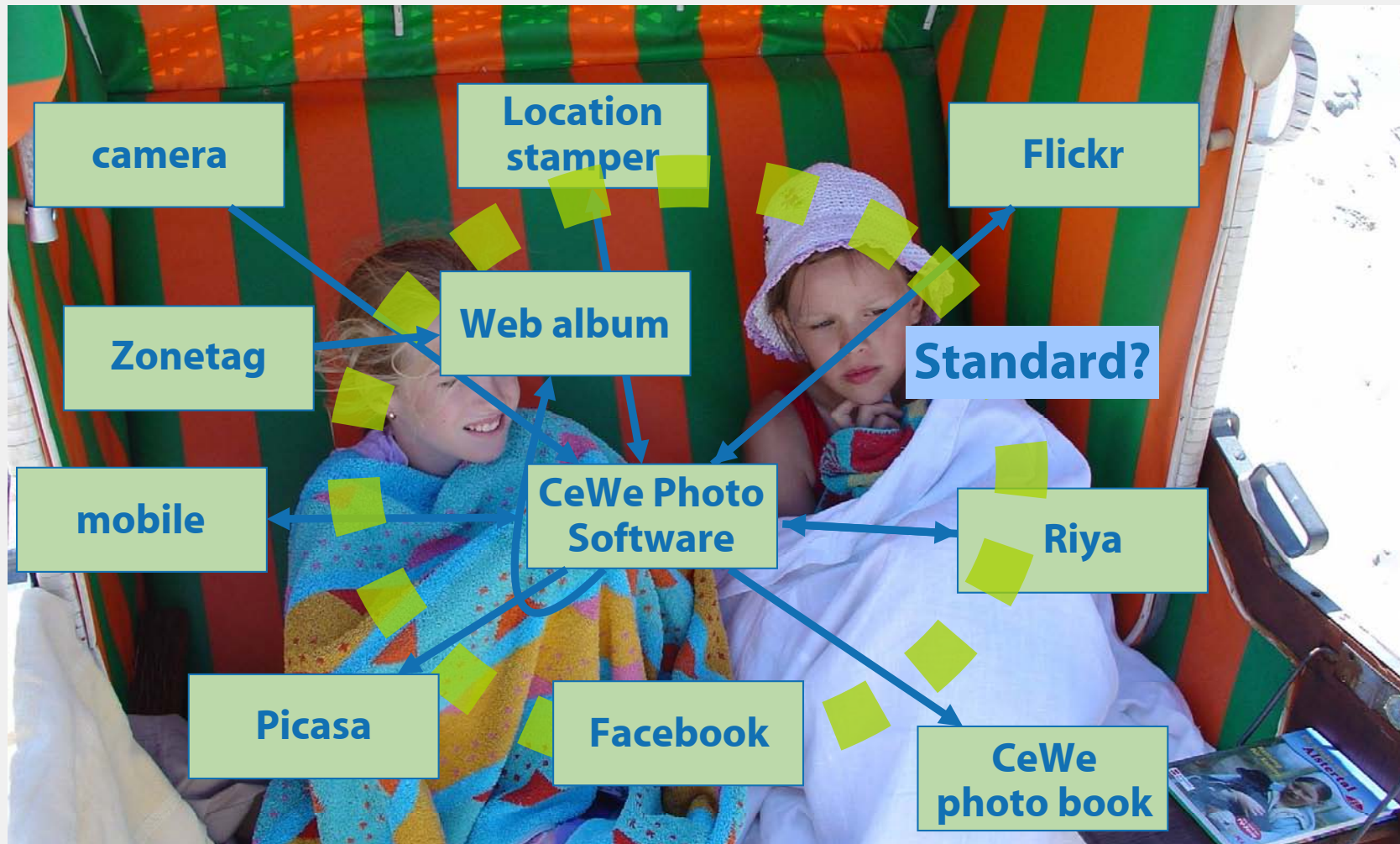
Automatic, color-based background selection

The problem of the social life of our personal photos

- ▶ **Capturing:** one or more persons capture and event, with one or different cameras with different capabilities and characteristics
- ▶ **Storing:** one or more persons store the photos with different tools on different systems
- ▶ **Processing:** post-editing with different tools that change the quality and maybe the metadata
- ▶ **Uploading:** some persons make their photos available on Web (2.0) sites (Flickr); different sites offer different kinds of value-added services to the photos (Riya)
- ▶ **Sharing:** photos are given away or are given access to via email, Web sites, print, ...
- ▶ **Receiving:** photos from others are received via MMS, email, download, ...
- ▶ **Combining:** Photos from own and different sources are selected and reused for services like T-Shirt, Mugs, mouse pads, photo albums, collages, ...

One problem is metadata interoperability

The interoperability problem (not only) in Web 2.0



[Employing a photo's life cycle for multimedia retrieval, Philipp Sandhaus, Susanne Boll, Rainer Fageth. Proceedings of the ACM Workshop on The Many Faces of Multimedia Semantics 2008, Vancouver, Canada, October 27 – November 1, 2008.]

Standards today

- ▶ EXIF
 - Technical metadata for photos
- ▶ IPTC (International Press Telecommunications Council)
 - Core vocabulary for photography on a descriptive level; Copy right, authors, keywords
- ▶ XMP
 - Extensible Metadata Platform; Embedding RDF in binary files, basic schemes
- ▶ DIG 35
 - XML schema based comprehensive photo description standards
- ▶ PhotoRDF
 - Limited set of “labels”
- ▶ FOAF - DC
 - Technical schema (EXIF) and small content schema
- ▶ MPEG-7
 - Multimedia Content Description Interface; Description Schemes, mostly low level features
- ▶ ...

Integration, Harmonization?

W3C XG Multimedia Semantics Incubator Group

W3C Multimedia Semantics Incubator Group

W3C Activities

- Incubator Activity
 - **Multimedia Semantics XG**
 - Participants
 - Public Mailing List
 - Member Mailing List (administrative)
 - Member-only Multimedia Semantics XG Home Page
 - Charter

Search Incubator Activity

Go

Incubator Activity > W3C Multimedia Semantics Incubator Group

- [News](#)
- [Wiki pages](#)
- [Deliverables](#)
- [Talks](#)
- [Meetings](#)
- [Minutes](#)
- [About the Multimedia Semantics XG](#)

W3C Advisory Committee Representatives may [join this XG](#) on behalf of their organizations by completing this [online form](#). Non-Members may [join W3C](#) or ask the Chair of an Incubator Group to participate as an [Invited Expert](#), subject to W3C's [policy for approval of Invited Experts](#).

Participants are automatically subscribed to the [Member list](#) when they join the group. All participants should also subscribe to the [Public list](#). Non-Participants may also subscribe. Please read more about W3C [mailing list and archive usage](#).

XG

- ▶ Multimedia Semantics Incubator Group
- ▶ Invited Expert

„my“ Topic

- ▶ Metadata - photo use case
- ▶ Harmonization of different standards
- ▶ Interoperability

Tasks and goals

- ▶ Definition of “use cases”
- ▶ Discuss interoperability problems
- ▶ Develop a solution sketch
- ▶ Cooperation -> later Working Group

Discussion

When we go to the social media Web we share our media, but what about our metadata.

How do we get our metadata back?

- ▶ how are metadata and content linked?
- ▶ who is the owner of the metadata?
- ▶ where is the metadata stored?
- ▶ what is the exchange format?

Harvesting social media for my collection



Me

and (my) social media

Enriching

- ▶ Select content that enriches the personal media collection



Find related content

- * missing, complementary photos
- * wikipedia travel articles,

PhotoBookr | my socialized photo book

heading from Web Gazeteer

photo from Travelblog

own photo

Chichen Itza

own photo

photo from Flickr



text from Wikipedia

map from Google Maps



ticket image from Wikipedia

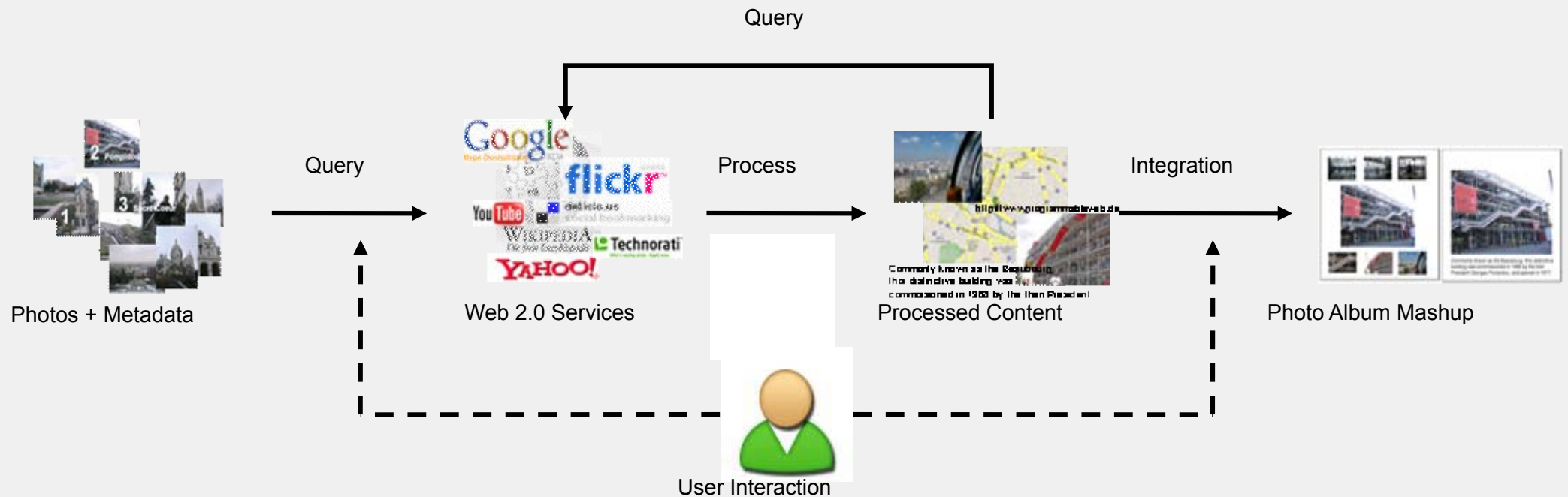


Chichen Itza (from Yucatec Maya: chich'en itza', "At the mouth of the well of the Itza") is a large pre-Columbian archaeological site built by the Maya civilization located in the northern center of the Yucatán Peninsula, present-day Mexico.

PhotoBookr

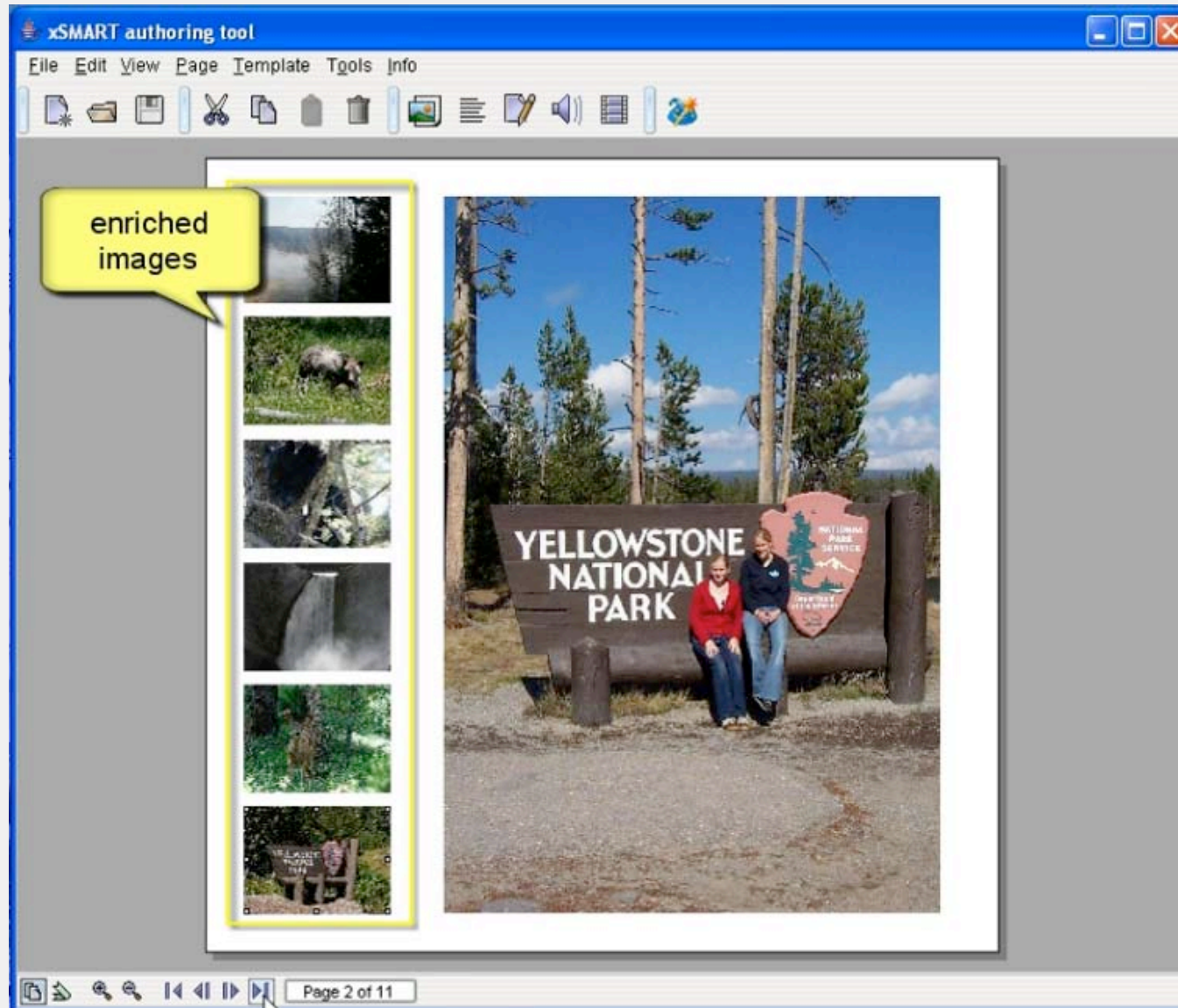
Approach

- ▶ Employ Web 2.0 Services to augment photo book with content
- ▶ Definition of augmentation rules
- ▶ Employ derived metadata from photos & photo book
- ▶ Optional user interaction



[Semantics, Content, and Structure of Many for the Creation of Personal Photo Albums. Susanne Boll, Philipp Sandhaus, Ansgar Scherp, Utz Westermann. ACM Multimedia 2007, Augsburg, Germany 2007]

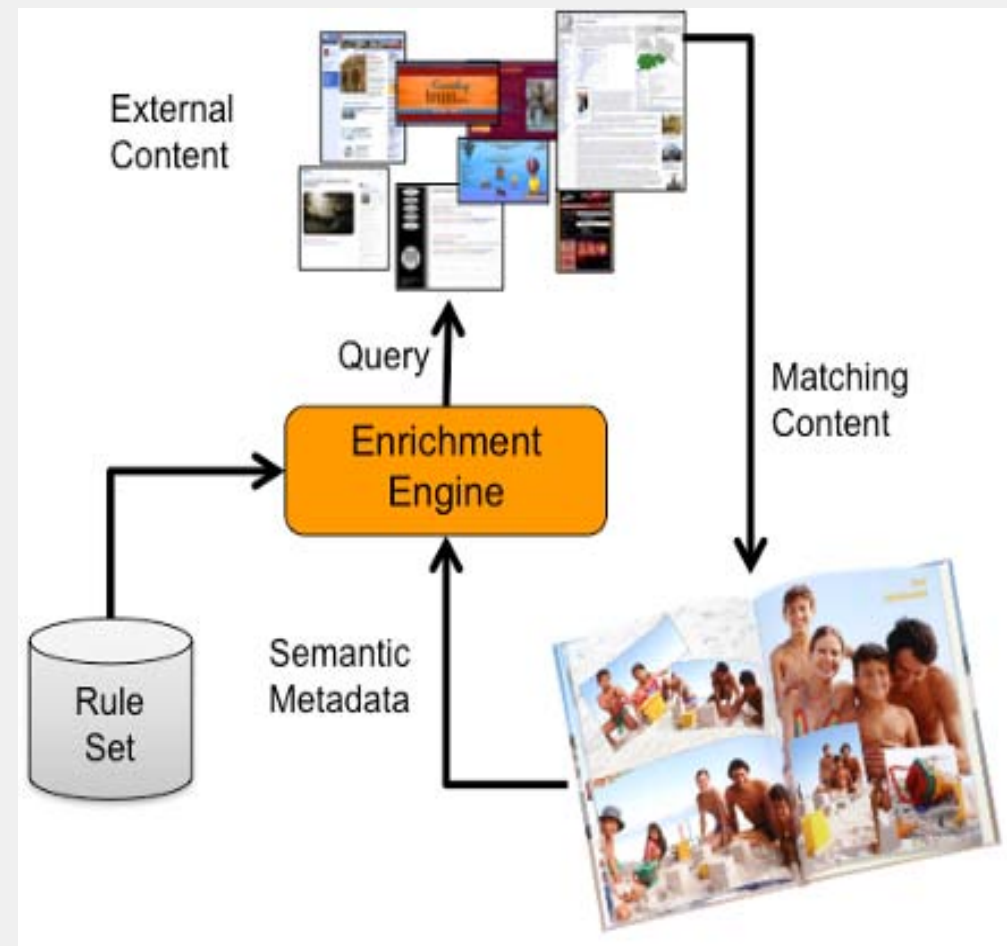
PhotoBookr



Include their content into your collection

- ▶ Semi-automatic enrichment of your content with content from social media
- ▶ rule based selection of content
- ▶ Exploitation of social media sites and Web 2.0 site such as Flickr, Wikipedia, Maps
- ▶ For example, automatic generation of a map and positioning of photos on a map.

```
context Page::evaluateMapRule()  
pre: photos -> size() < 4  
pre: photos -> size() > 0  
pre: photos -> exists(photo |  
    photo.captureLocation ->  
        notEmpty())  
body: let parameters =  
    photo.captureLocation()  
    in photos = photos@pre.union(ServiceConnector::  
        getMap(parameters).content)
```

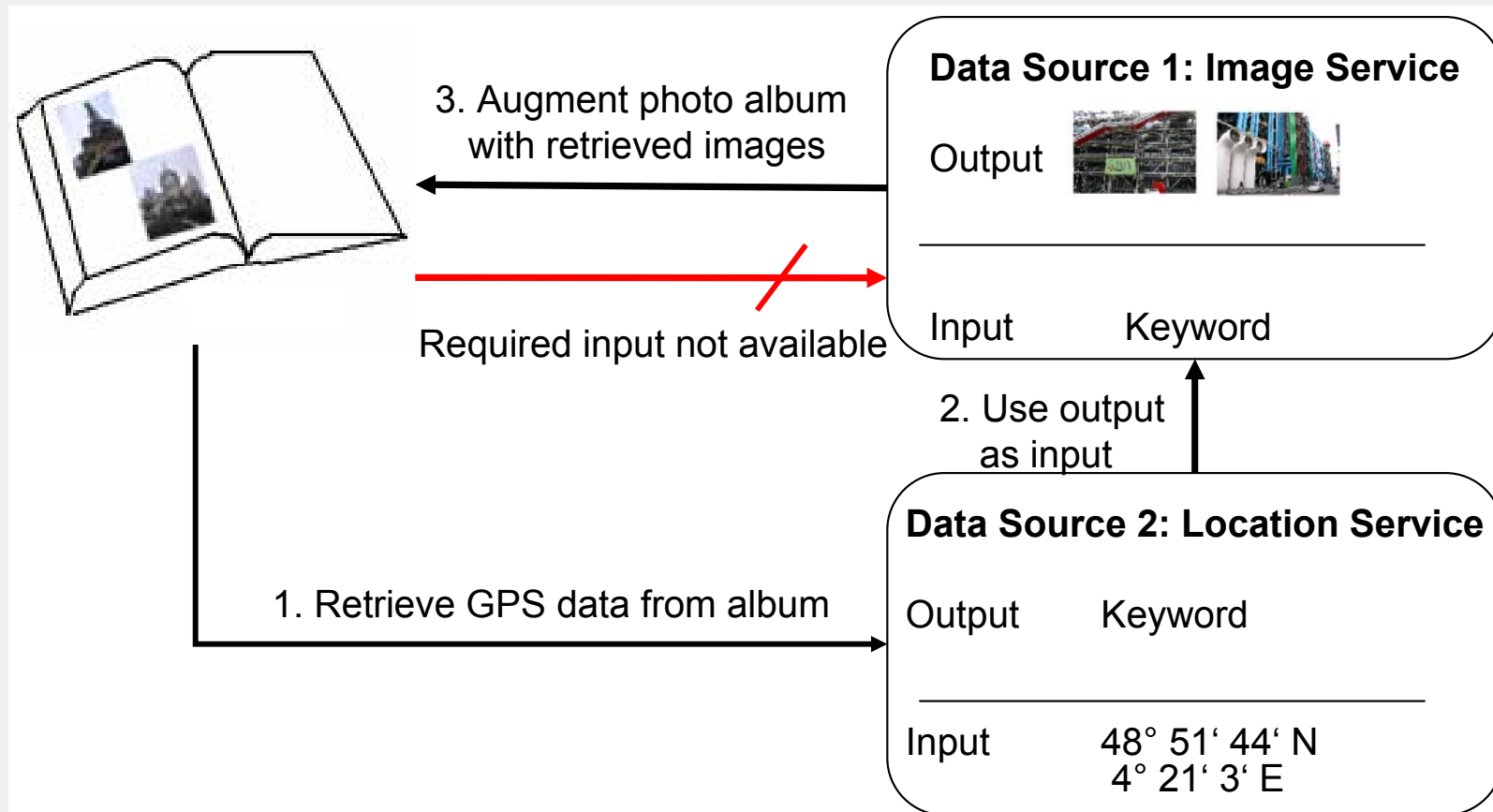


[Employing a photo's life cycle for multimedia retrieval. Philipp Sandhaus, Susanne Boll, Rainer Fageth. Proceedings of the ACM Workshop on The Many Faces of Multimedia Semantics 2008, Vancouver, Canada, October 27 – November 1, 2008.]

Rule Application

Example

- ▶ If there are only 2 or less images on a page, then augment the page with additional photos





Yellowstone Park



We can learn a lot from the social network.

Is harvesting good, right?

- ▶ using tags to refine and expand own tags?
- ▶ adding their content into yours?
- ▶ using the wisdom of others while you maybe share nothing?
- ▶

Media on the border between physical and digital

Scenario

- ▶ Capture and remember an object of interest in the real world

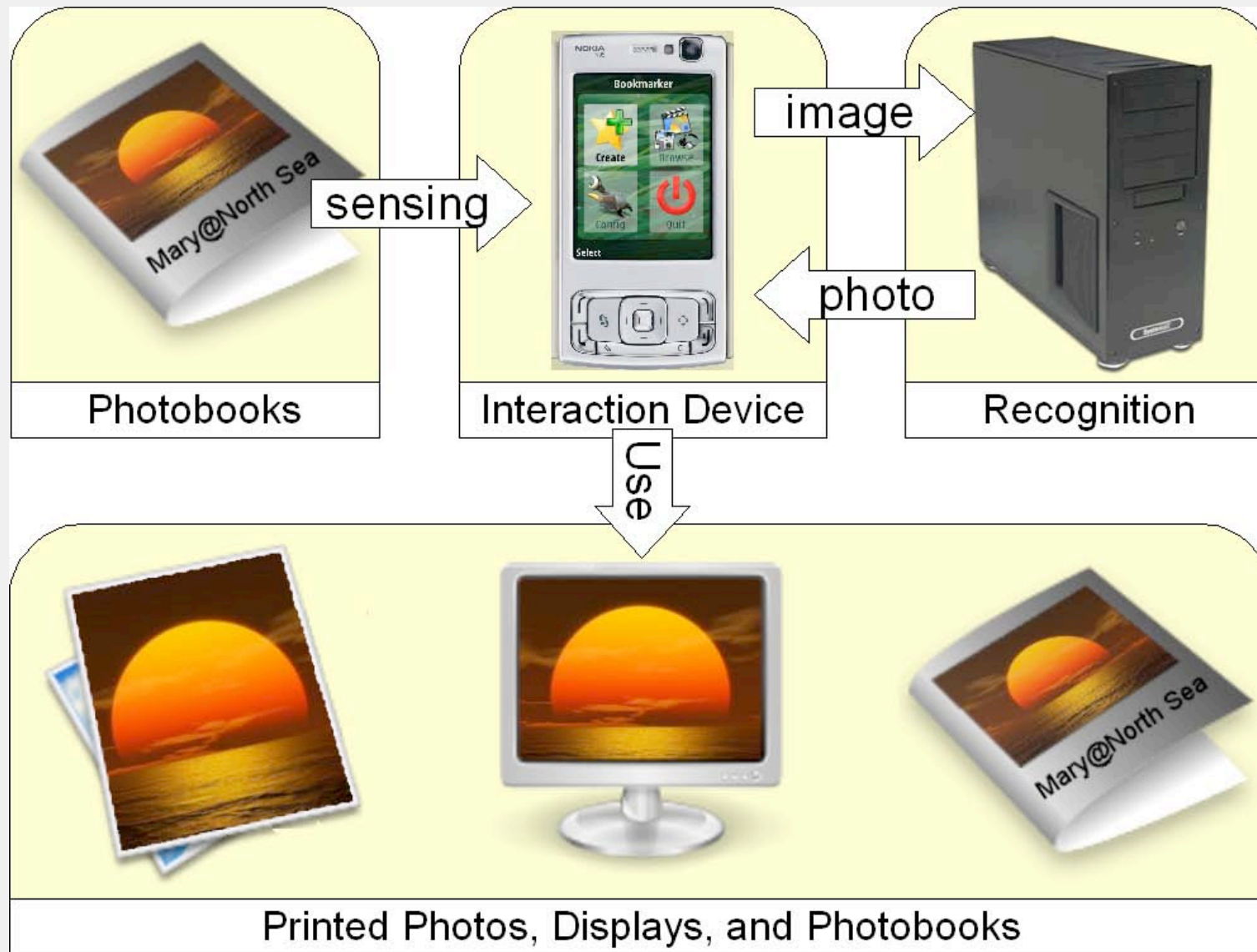
Approach

- ▶ Capture the object with your mobile camera phone: image, time, location, ...
- ▶ Represent object by these sensor data
- ▶ Convert into a contextual bookmark using multimodal analysis
- ▶ View bookmarked content while on the move; share bookmarks with friends; View the bookmark on the TV



[Henze, N., Rukzio, E., Lorenz, A., Righetti, X., and Boll, S. 2008. Physical-virtual linkage with contextual bookmarks. In Proceedings of the 10th international Conference on Human Computer interaction with Mobile Devices and Services (Amsterdam, The Netherlands, September 02 - 05, 2008). MobileHCI '08. ACM, New York, NY, 523-526.]

Snap and share your photobooks



[Snap and share your photobooks. Niels Henze, Susanne Boll. Proceedings of the ACM Multimedia 2008, Vancouver, Canada, October 27 – November 1, 2008.]

Snap and share your photobooks



Learning from many - is this social ?



Analysis

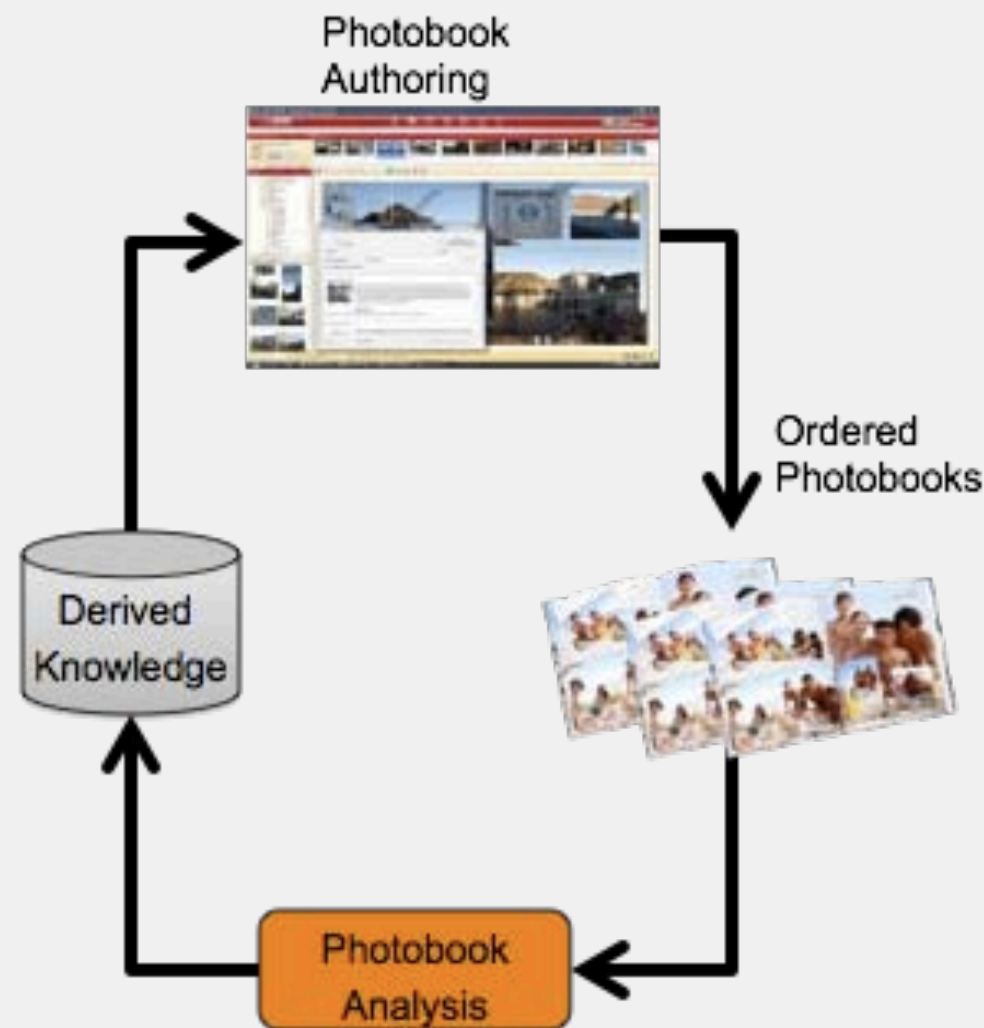
- ▶ Structure: Distribution of photos and photo book layout
- ▶ Content: Single photo characteristics
- ▶ Usage: Authoring process

Derivation

- ▶ Statistics reflecting photo book characteristics
- ▶ Classifiers for semantic annotation

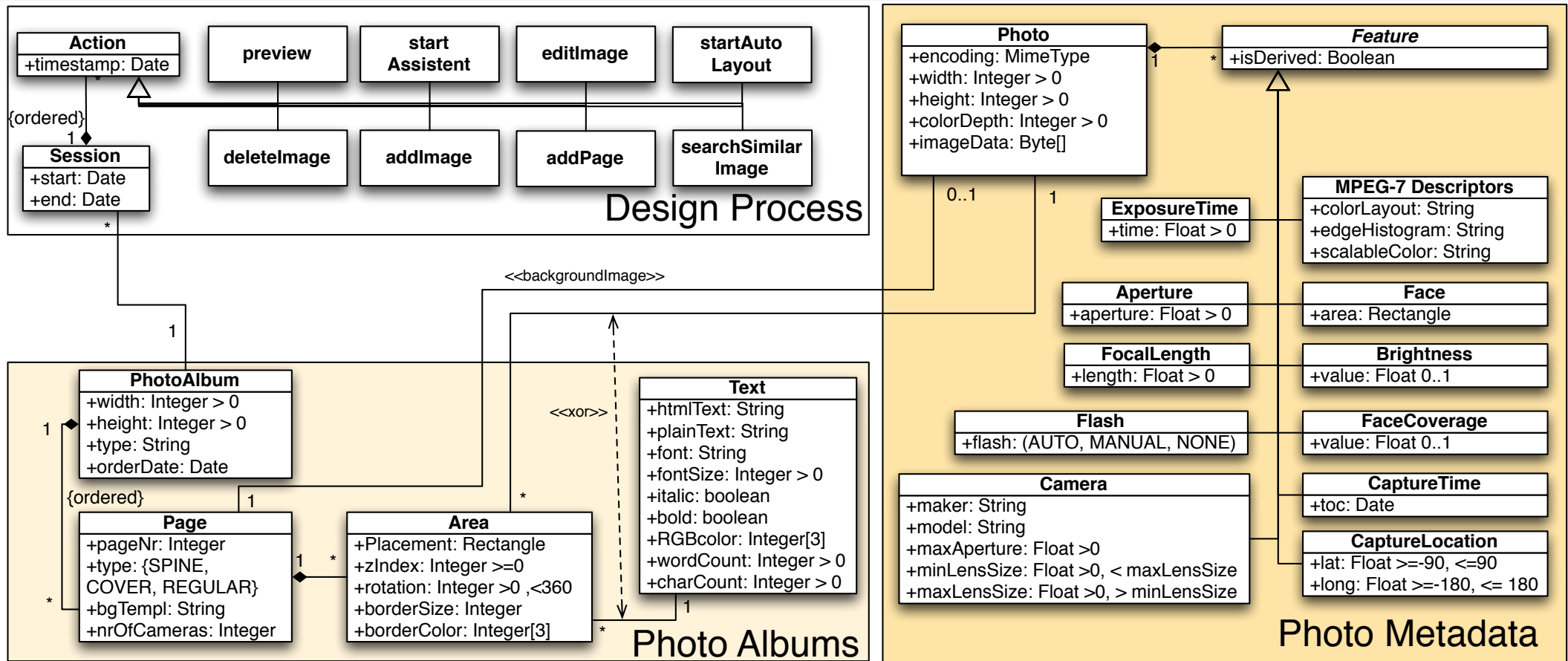
Anonymised data set from CeWe Color

- ▶ 44.000 photo books ordered over period 3/2008 to 6/2009
- ▶ Originated from all over Europe, majority from Germany
- ▶ Random selection from all orders



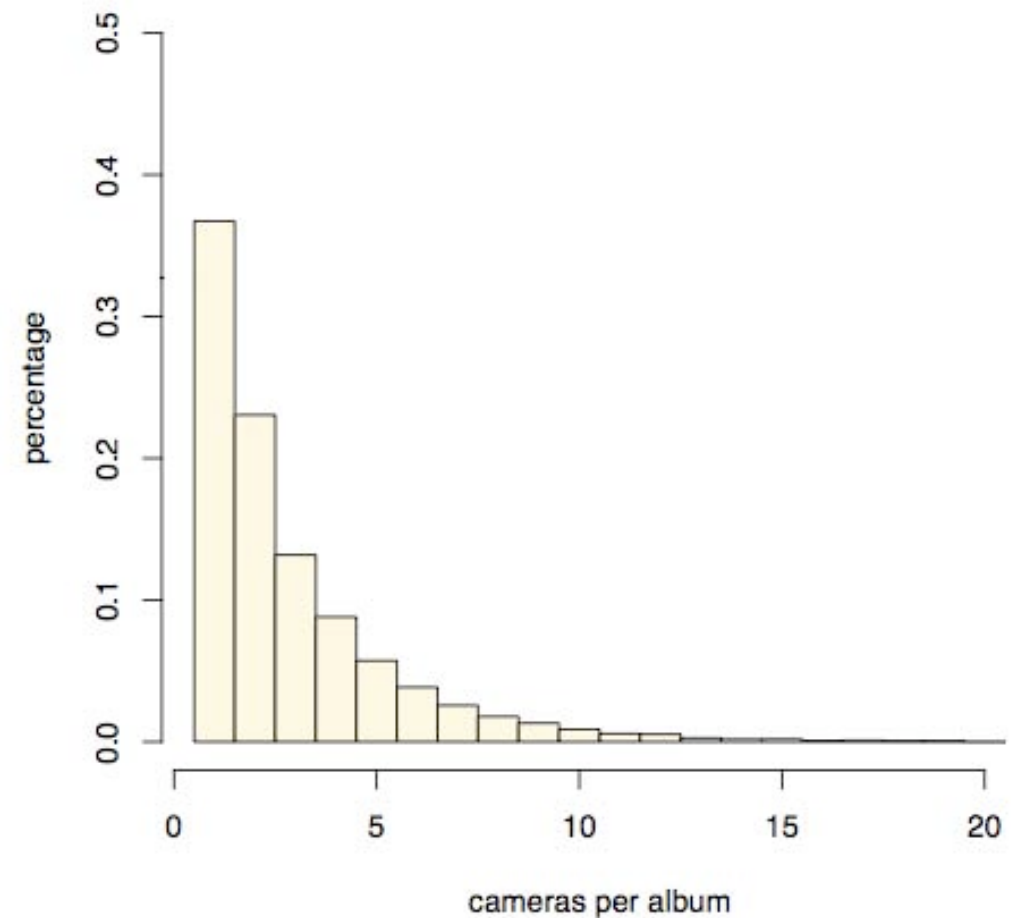
[Sandhaus, P. and Boll, S. 2009. From usage to annotation: analysis of personal photo albums for semantic photo understanding. In Proceedings of the First SIGMM Workshop on Social Media (Beijing, China, October 23 - 23, 2009). WSM '09. ACM, New York, NY, 27-34.]

Model for Digital Photo Books



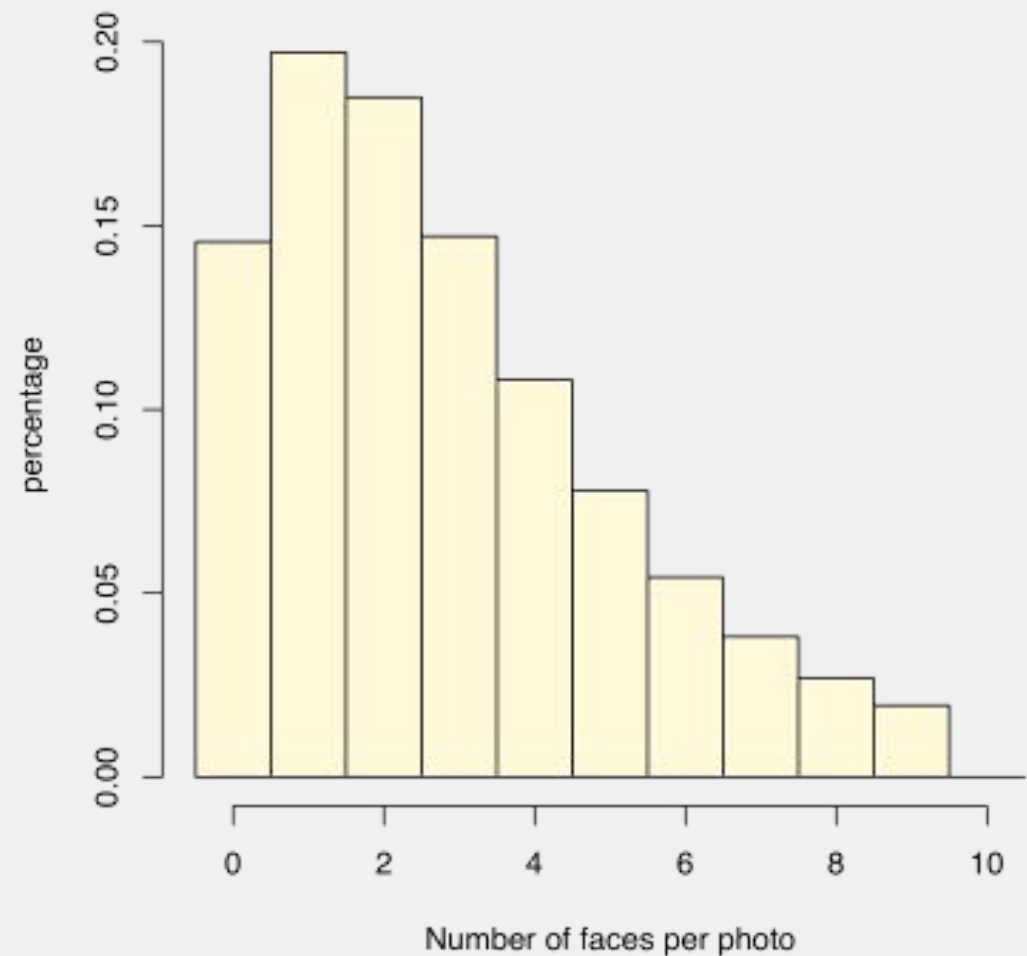
Statistical Analysis of Photo Books

- ▶ Most albums contain photos of more than one camera -> Album Design is a collaborative task



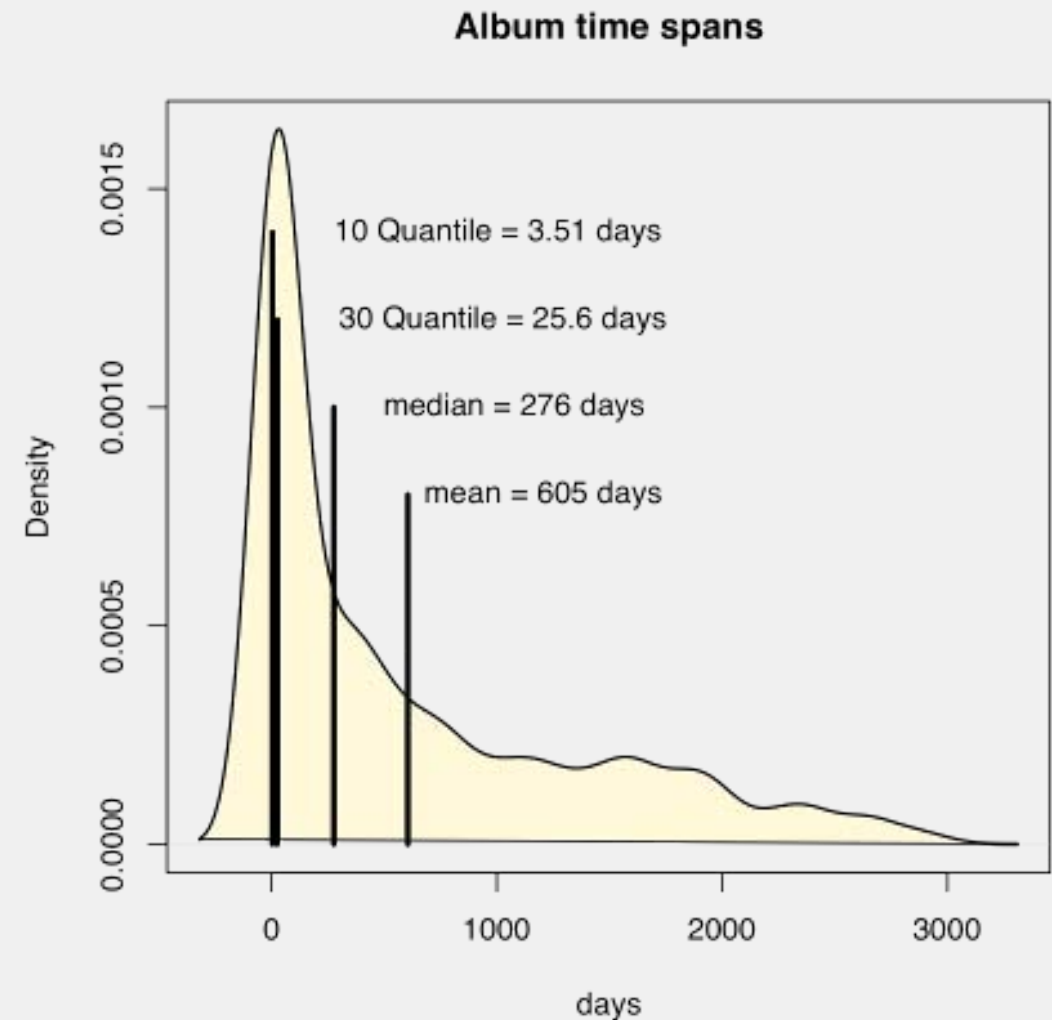
Statistical Analysis of Photo Books

- ▶ Most albums contain photos of more than one camera -> Album Design is a collaborative task
- ▶ 84 % of the photos contain faces -> Persons play an important role in photo book design



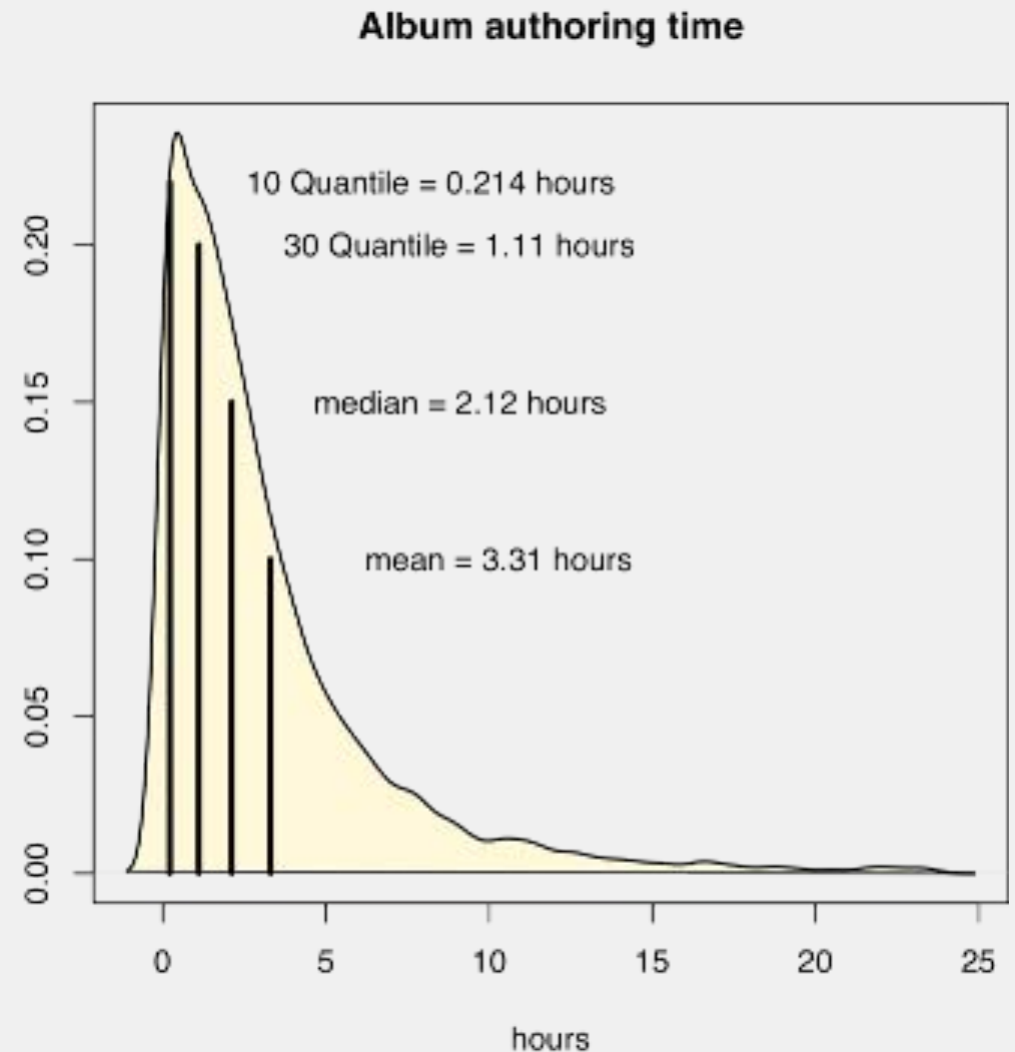
Statistical Analysis of Photo Books

- ▶ Most albums contain photos of more than one camera -> Album Design is a collaborative task
- ▶ 84 % of the photos contain faces -> Persons play an important role in photo book design
- ▶ The mean time covered in albums is 276 days, but 30 % of all albums cover up to 25 days -> typical time spans for chronicals and long-term holidays



Statistical Analysis of Photo Books

- ▶ Most albums contain photos of more than one camera -> Album Design is a collaborative task
- ▶ 84 % of the photos contain faces -> Persons play an important role in photo book design
- ▶ The mean time covered in albums is 276 days, but 30 % of all albums cover about 25 days -> typical time spans for chronicals and long-term holidays
- ▶ On average people spent 3,5 hours on album design, many much less



Semantic Classification from Photo Books

Goal

- ▶ Semantic photo book classifiers to improve
 - Automatic photo book design process
 - Statistical analysis

General Approach

- ▶ Employ CeWe photo books as source for training data
- ▶ Automatic training data labeling by intelligent filtering based on characteristic features

Classifiers developed so far

- ▶ Album type
- ▶ Sub-album detection

Semantic Label: Book Type



Semantic Label: Book Type

Prominent book types according to CeWe Color

- ▶ Travel, Wedding, Birthday

Usage for semantic classifier book type

- ▶ Adjust automatic layout regarding to page templates, color, ...
- ▶ Offer matching additional content, e.g. maps for travel book
- ▶ Improved statistic photo book analysis

Training Data Determination

- ▶ Assumption:
 - Typical keywords in album title have a high probability of belonging to a certain book type (in German)
 - Travel: Reise, Urlaub, Ferien
 - Wedding: Hochzeit, Brautpaar, Trauung
 - Birthday: Geburtstag, Happy Birthday
- ▶ Only consider books with valid time stamps on all photos

Book Type: Feature Determination

Hypothesis

- ▶ The mentioned book types significantly differ in following characteristics
 - Amount of text and images
 - -> Average Nr of Words and Images per page
 - Effort for authoring
 - -> Authoring Time from Log Files
 - Covered time period
 - -> Distance of time stamps of first and last photo
 - Presence of persons
 - -> Average Nr. of Faces per photo

Test of hypothesis by test on significant differences of derived features

Book Type: Feature Evaluation and Classifier Training

T-Test for significance evaluation

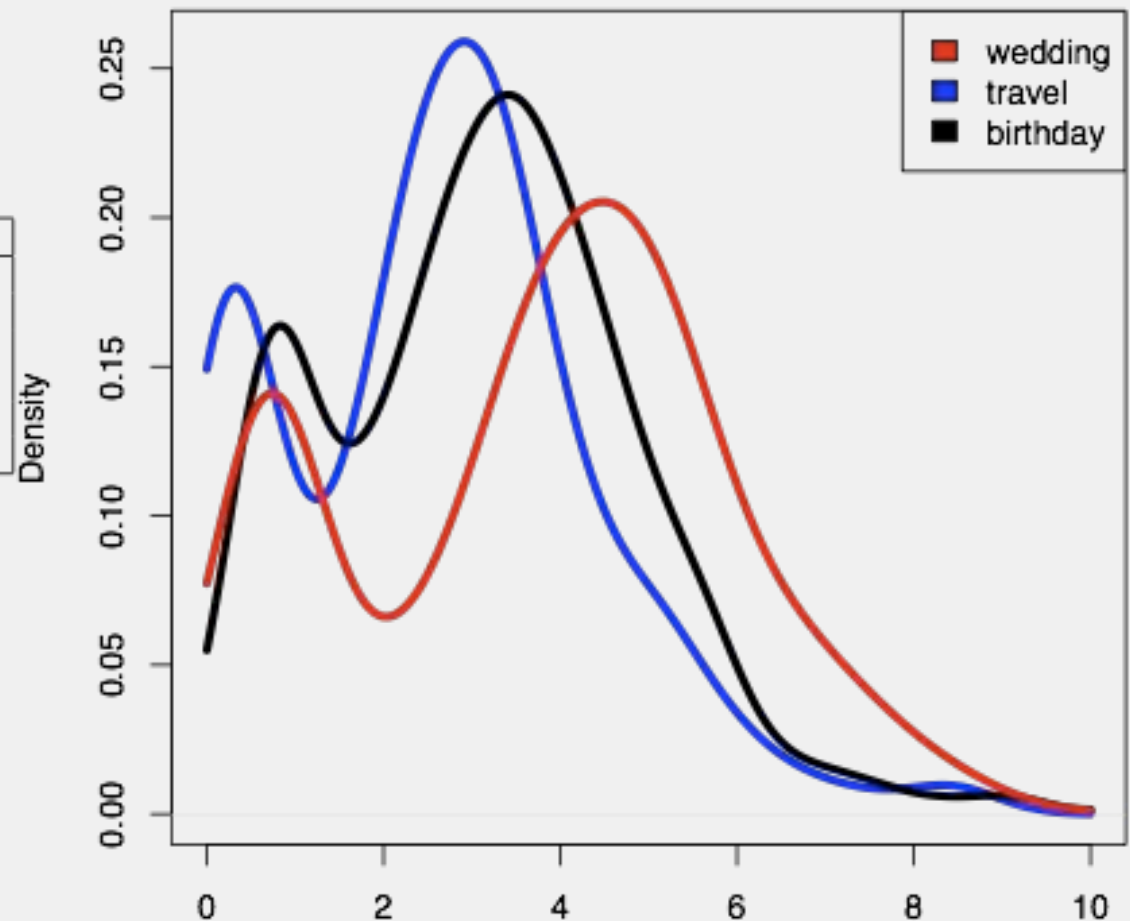
- ▶ Combination of features is discriminant for semantic label

	Wedding	Travel	Birthday
#Words	0.12	< 0.0001	0.09
#Images	0.004	< 0.0001	0.1445
Authoring time	0.94	0.002	0.007
Time Span	0.28	< 0.0001	0.9
#Faces	< 0.0001	< 0.0001	0.0007

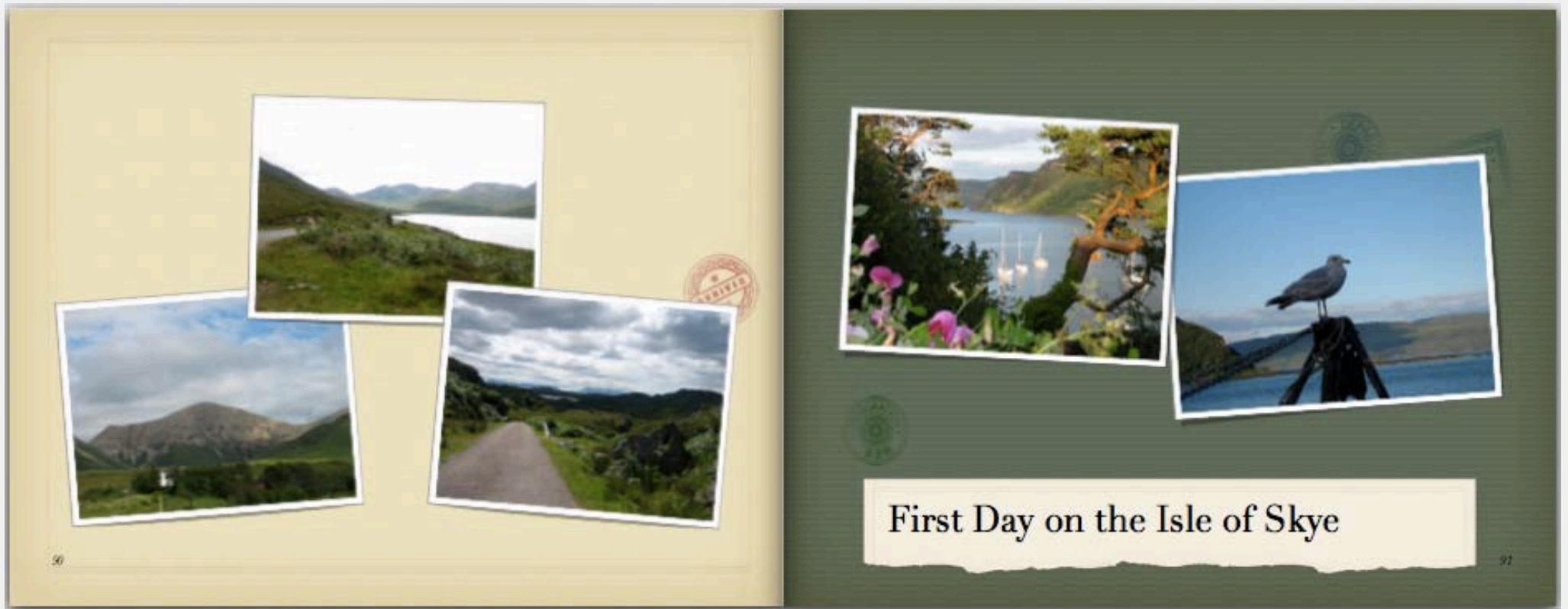
Classifier training

- ▶ Multiclass Naive Bayes
- ▶ Accuracy: 79,46 %

Nr of faces per photo



Semantic Label: Sub Album



Semantic Label: Sub Album

Applications

- ▶ Improved statistical analysis
 - Determine the number of sub albums and analyze differences
- ▶ Improved automatic album authoring
 - Generate table of contents
 - Visually separate sub albums (background, sub album title, ...)

Training data determination

- ▶ Assumption
 - Significant/clear time cluster designate a semantic unit
- ▶ Select photo books as training data with
 - Photos with valid time stamps in ascending order
 - Coverage of a time span of at least 2 months to ensure clear event boundaries
 - At least 60 photos, 5 text blocks and 38 pages
 - Cluster boundaries coincide with page boundaries

Sub Album: Feature Derivation

Hypothesis and potential features

- ▶ Sub albums differ (despite time) in the following characteristics
 - The first page of a sub album differs regarding the number of words and photos
 - -> Number of words and images on the page
 - Photos of a sub album are visually similar
 - -> Visual distance to images of preceding page
 - Color Layout
 - Edge Direction Histogram
 - Scalable Color

Test of hypothesis by test on significant differences of derived features

Sub Album: Feature Evaluation and Classifier Training

T-Test for Significance Evaluation

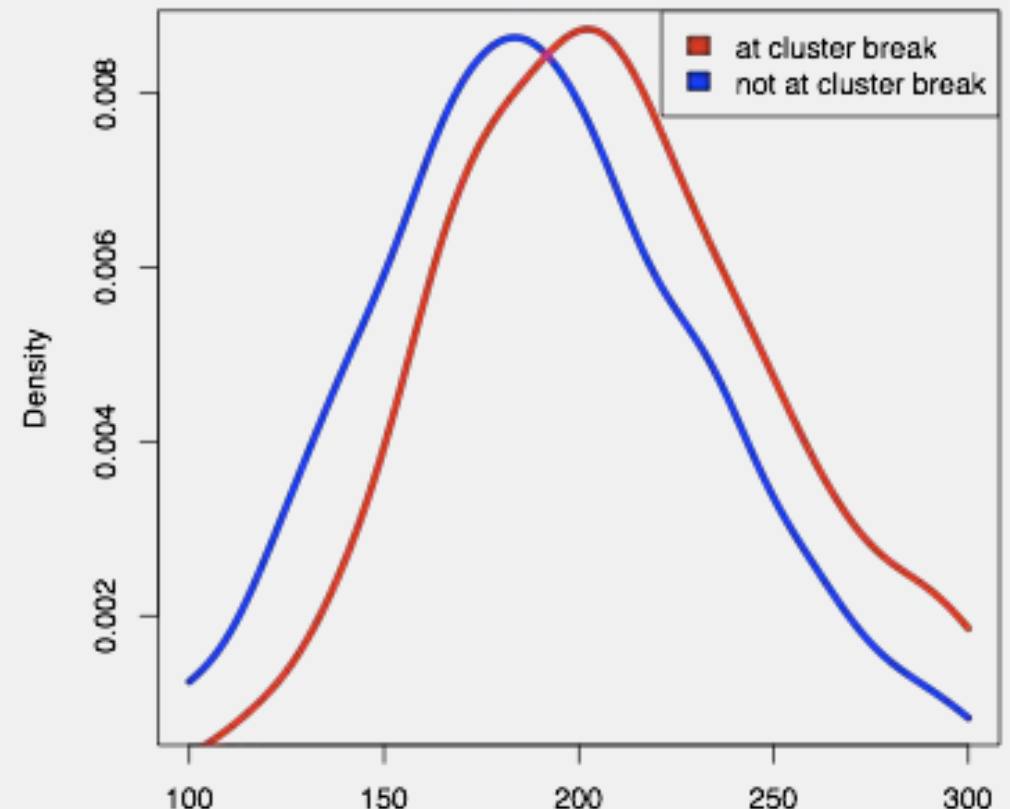
- ▶ Only Nr. of images show no significant difference

	sub-album break	other pages	p-value
#words	5.99	3.3	< 0.0001
#images	3.65	3.8	0.08406
Color Layout	50.83	41.6	< 0.0001
Edge Histogram	211.17	187	< 0.0001
Scalable Color	208.55	163.1	< 0.0001

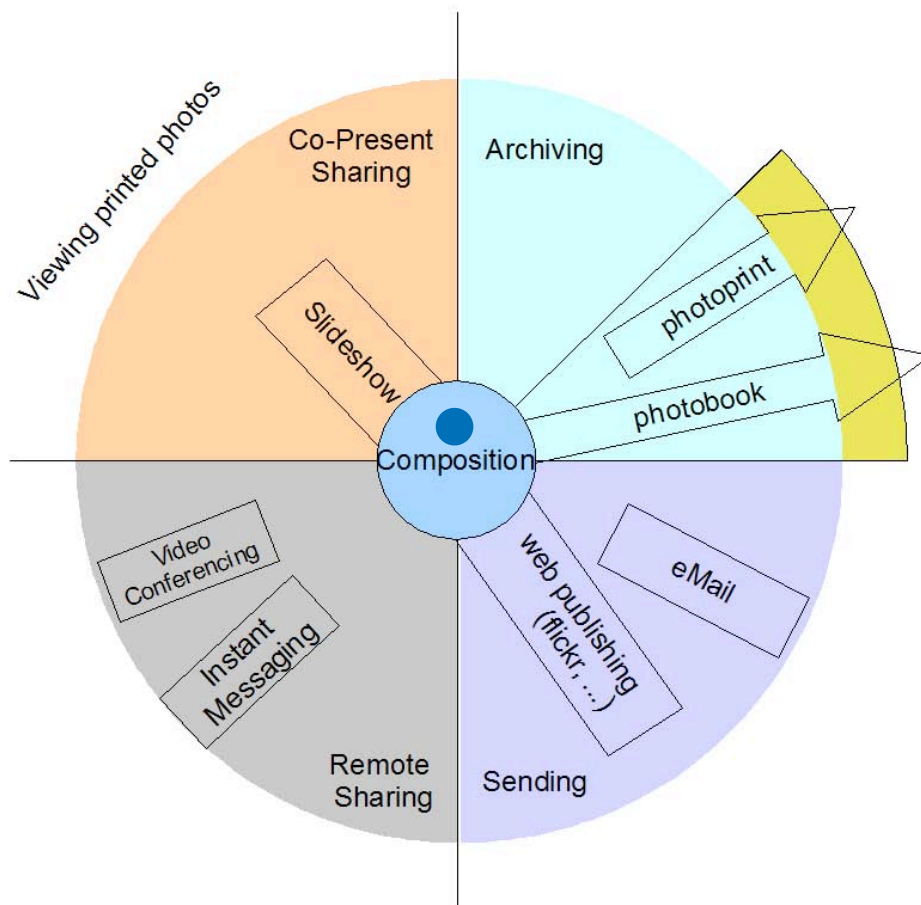
Classifier Training

- ▶ Support Vector Machine
- ▶ Accuracy: 82,45 %

Dissimilarity MPEG-7 Edge Histogram



Learning from usage - exploiting the entire personal



- ▶ Herunterladen der Bilder
- ▶ Speicherung in Ordnern
- ▶ Betrachten der Slideshow
 - Erfassung und Speicherung der Betrachtungszeiten
 - Erkennung und Annotation „interessanter“ Fotos
- ▶ Erstellen eines Fotobuchs
 - Priorisierung der „interessanten“ Fotos bei der Auswahl für das Fotobuch

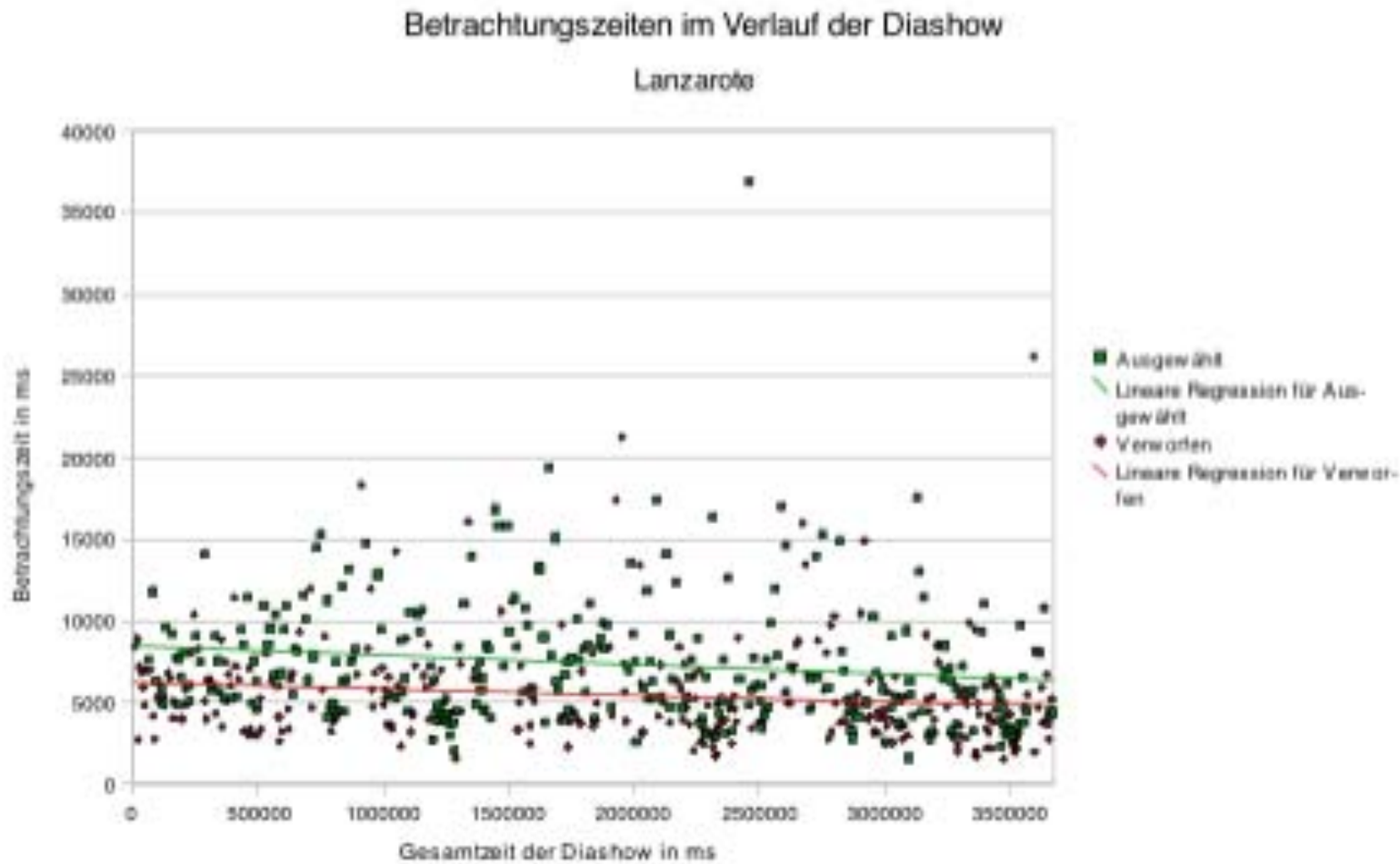
Usage hypotheses

Relation between usage and later selection

- ▶ There is a relation between the viewing behaviour of photo collections and the later selection of photos for a photo book
- ▶ We can design an application that captures the usage behaviour and derives models for selection criteria for photo albums



Analysis of the viewing behaviour



Yes, usage mining helps!

Clear correlation

- ▶ selected photos have been watched longer
- ▶ clustering emphasizes this effect
- ▶ Significance tests
- ▶ U-Test (Mann-Whitney)
- ▶ exact Test with Fisher

Usage data have a lot of potential

Lanzarote		Originalauswahl		Clusterauswahl	
		BZ	REG	BZ	REG
Median	ausgewählt	6098	-316	6410	249
	verworfen	4921	-1389	4687	-1579
Mittelwert	ausgewählt	6964	599	7389	1018
	verworfen	5798	-532	5420	-905
Kreta		Angaben in ms			
Median	ausgewählt	5975	-387	6727	373
	verworfen	5287	-1162	4808	-1565
Mittelwert	ausgewählt	6983	572	8020	1606
	verworfen	6135	-261	5662	-732

Datensatz „Lanzarote“, 578 Fotos in der Slideshow, 272 Fotos im Fotoalbum (n1: 306, n2: 272)

		U-Test			Fisher-Test				
		U	z	p	FP	KN	KP	FN	p
Original	BZ	51187	4,78	1,79e-06	98	208	129	143	0,00017
	REG	51323	4,84	1,27e-06	90	216	124	148	0,00007
Cluster	BZ	57229	7,79	6,65e-15	86	220	140	132	9,54e-9
	REG	57480	7,92	2,45e-15	75	231	139	133	4,05e-11

Datensatz „Kreta“, 447 Fotos in der Slideshow, 140 Fotos im Fotoalbum (n1: 307, n2: 140)

		U-Test			Fisher-Test				
		U	z	p	FP	KN	KP	FN	p
Original	BZ	24085	2,05	0,041	112	195	65	75	0,04833
	REG	24079	2,04	0,041	109	198	63	77	0,05980
Cluster	BZ	29012	5,94	2,88e-09	102	205	75	65	0,00007
	REG	28991	5,92	3,19e-09	99	208	73	67	0,00010

Intelligently creation social media content

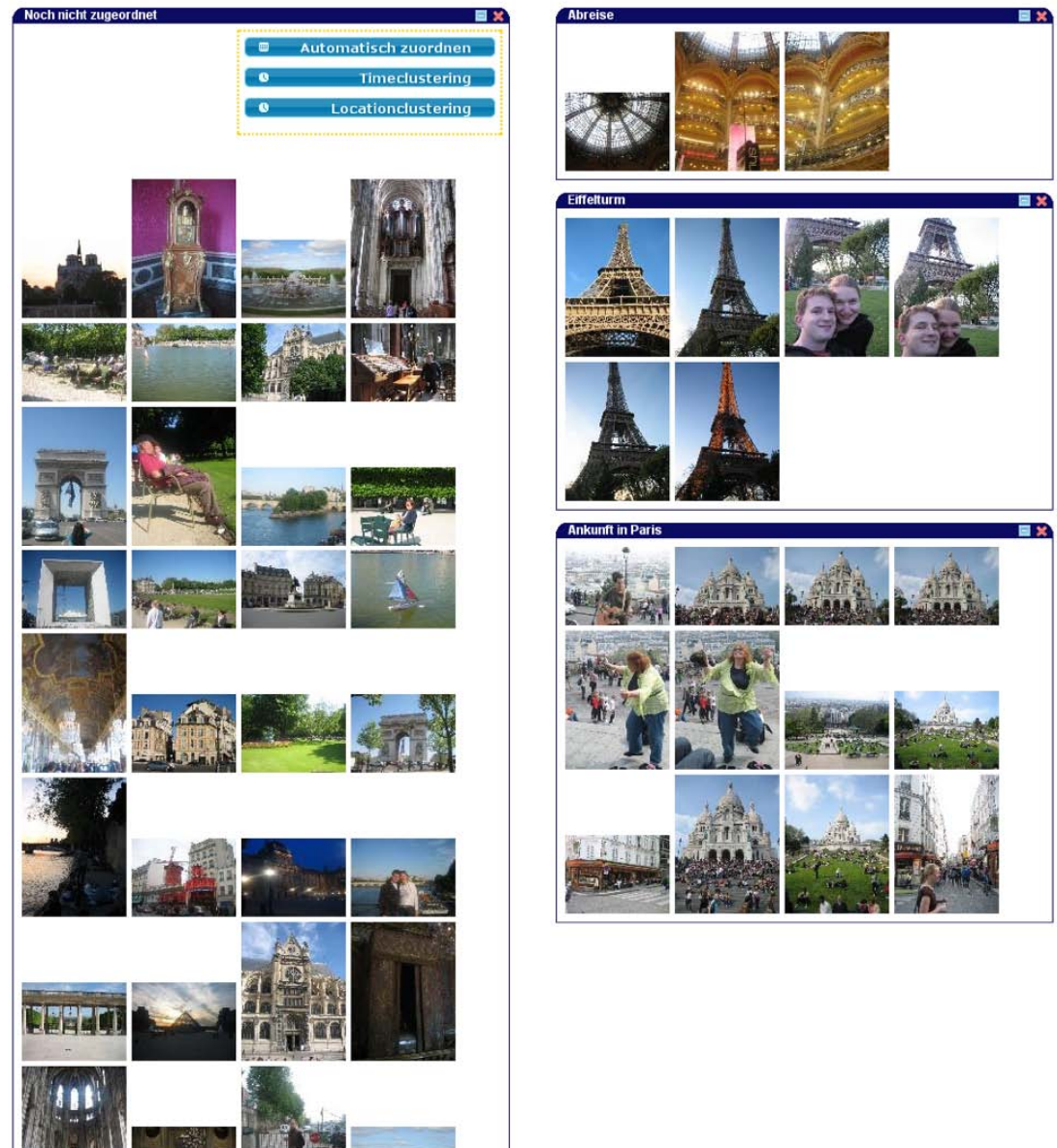
Tip: Um ein Bild einem Tagebucheintrag zuzuweisen, schiebe es in den entsprechenden Kasten. Der aktuelle Zustand wird automatisch gespeichert.

Idea

- ▶ Travel blogs are totally unstructured
- ▶ mind set of the travel blog writer is very structured
- ▶ photo context is revealing this structure
- ▶ and helps the authoring process

Approach

- ▶ upload of photos is used to intelligently drive the authoring process
- ▶ context is used to arrange, annotate and augment



Understanding social media content and context

Um einem Bild ein Datum zuzuweisen, schiebe es an die entsprechende Position in der Zeitleiste. Das Datum wird automatisch gespeichert.

Pictures without date

Timeline

'0424-142517'
 Datum: 2009-04-24T14:25:17
 Position: lat=48.87325668334961 lng=2.296560

Arrange your content and merge with wisdom of the crowd

Landkarte

Uhrzeit: Thu Apr 23 2009 11:03:44 GMT+0200 (CET)
Zurückgelegte Strecke: 18.928 km

Ankunft in Paris
Meine Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine
Ankunft. Meine Ankunft. Meine Ankunft. Meine

noch nicht gesehen!

gesehen!

Map media and blog entries to locations

Tip: Durch mehrmaliges Klicken in der Landkarte kann zu dem Tagebucheintrag eine Fläche zugeordnet werden. Mithilfe dieser gezeichneten Fläche können Bilder, die sich innerhalb der Fläche befinden, automatisch diesem Tagebucheintrag zugeordnet werden.



Get your social media back – TravelBlogBook

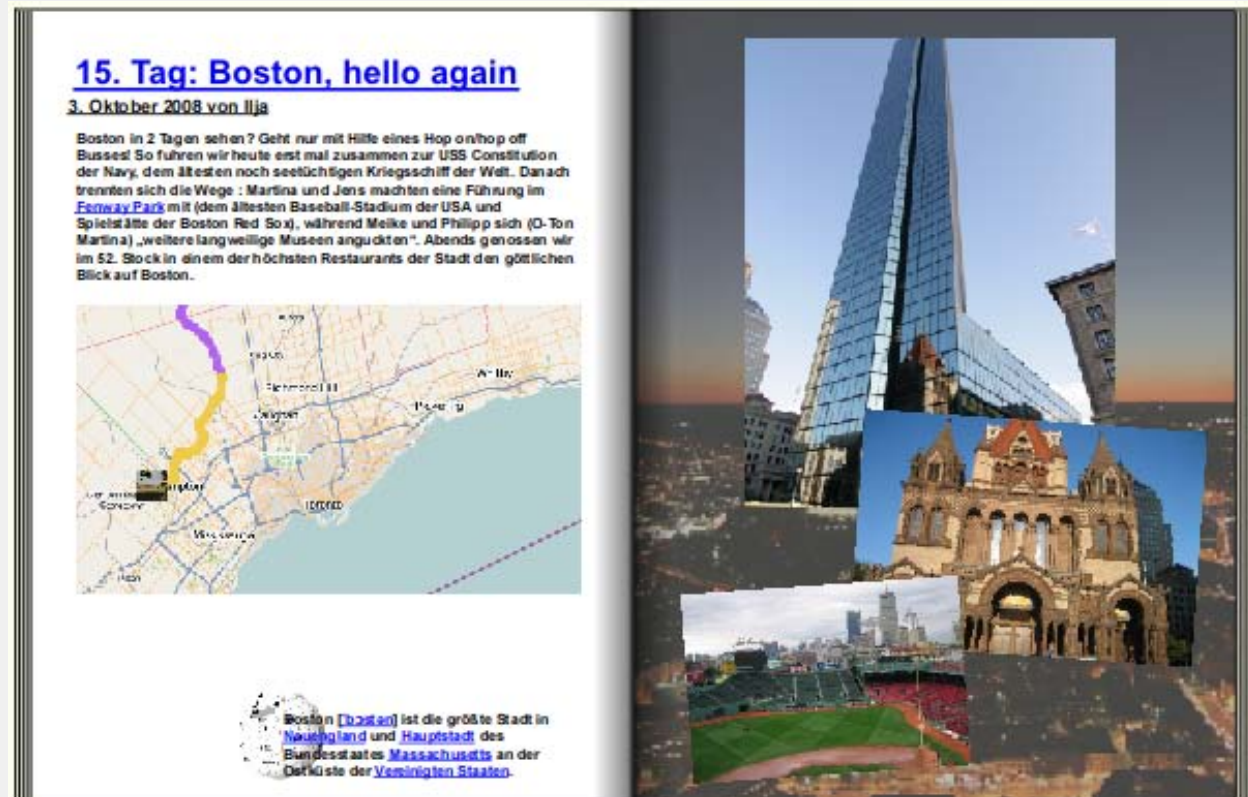
Idea

- ▶ Experiences like traveling are captured in blogs
- ▶ data follow some structure
- ▶ photo books are also a favorite documentation means
- ▶ connection between the two is missing

Approach

- ▶ transformation of a blog into a photo book
- ▶ Augmentation of content with external services
- ▶ layout algorithms
- ▶ export into printable formats

Transform a travel blog into a photo book



Summary - personal and social media



Me



and (my) social media

Potential

- ▶ understanding, sharing, harvesting, augmenting, learning

Issues

- ▶ interoperability, ownership, control

Application domains of social media

Energy

Traveling

Health

Traffic

Governance

Gaming

Social social

....

Thanks for your attention

Group and references

<http://medien.informatik.uni-oldenburg.de>

Contact

susanne.boll@uni-oldenburg.de