

SOMLib Digital Library System

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SOMLib - Motivation

- Conventional Digital Library systems
 - access focuses primarily on search
 - do not present an overview of holdings
 - retrieve only documents containing keywords
- Enhance Digital Library systems
 - Complement classical full-text or metadata search
 - Provide an overview of a DL's content
 - Allow interactive, explorative search
 - Intuitive, user friendly browsing



SOMLib

- Using “Self-organizing Maps” to create maps
- Groups documents by their content
- Different visualizations, labelling of clusters
- Works for
 - text documents
 - audio documents
 - (basically: any other with metric space)
- Interface:
 - Web-based
 - Full Java UI on desktop with touch screen
 - PDA

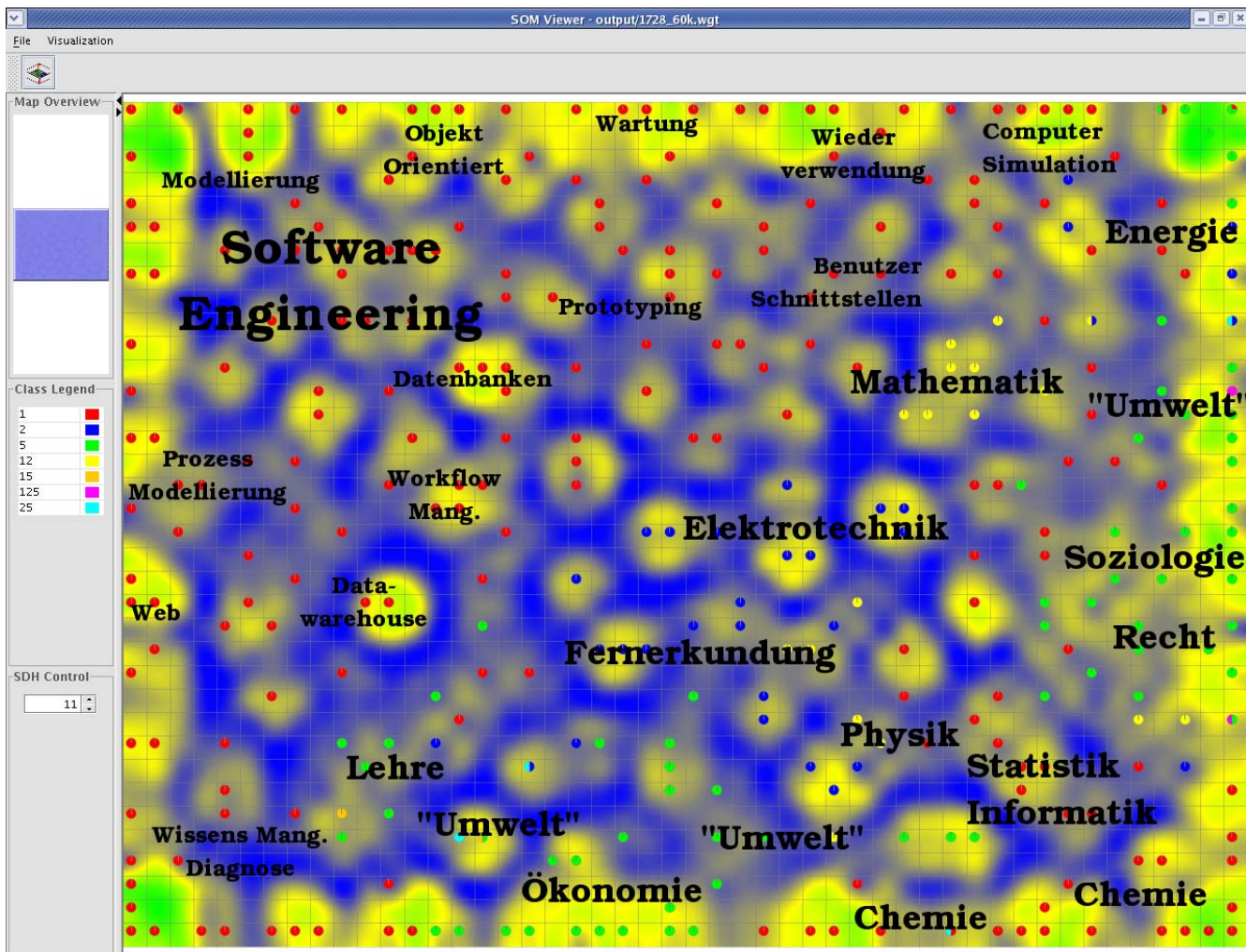


Integration with DL system

- SOMLib integration with any DL system
- Complements traditional services
- Supports novel interactions
 - Visualize search results on the map
 - Display documents from a select area in the map
 - Highlight documents that match both search & map selection
- Implementation for two DL systems
 - Greenstone
 - Austrian Research Documentation (FoDok)

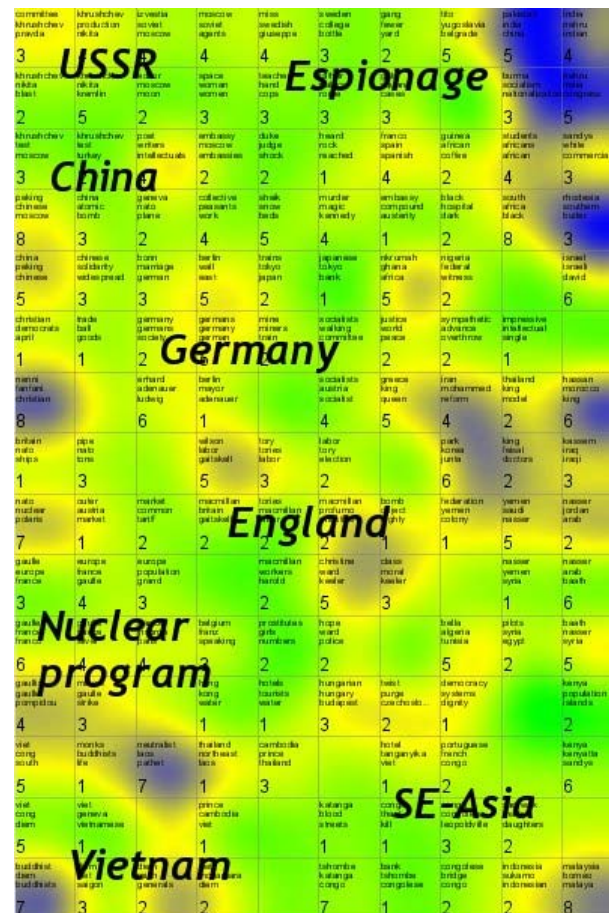


SOMLib - Map + Labels

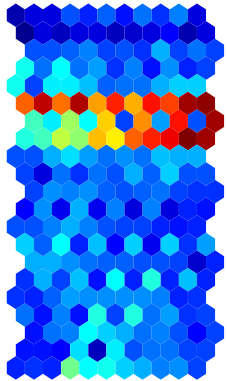


SOMLib - Labels

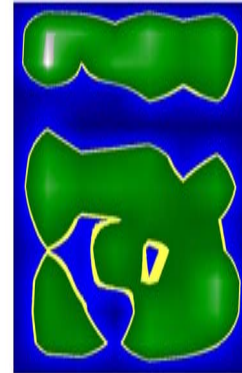
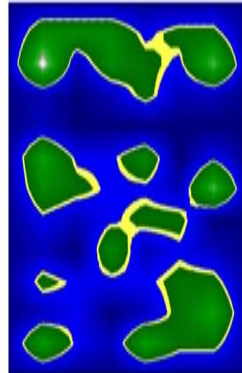
<p>LabelSOM committee khrushchev speculation pravda central</p> <p>3</p>	<p>LabelSOM khrushchev production russia nikita tons</p> <p>4</p>	<p>LabelSOM izvestia soviet comrades moscow pravda</p> <p>4</p>	<p>LabelSOM moscow soviet london agents intelligence</p> <p>4</p>
<p>LabelSOM khrushchev nikita china blast congress</p> <p>2</p>	<p>LabelSOM khrushchev nikita soviet kremlin capitalists</p> <p>5</p>	<p>LabelSOM editor moscow khrushchev moon steam</p> <p>2</p>	<p>LabelSOM space woman insurance women scientists</p> <p>3</p>
<p>LabelSOM khrushchev test chinese moscow treaty</p> <p>3</p>	<p>LabelSOM khrushchev test agreement turkey soviet</p> <p>2</p>	<p>LabelSOM poet writers khrushchev intellectuals evgeny</p> <p>4</p>	<p>LabelSOM embassy moscow peasants embassies unusual</p> <p>2</p>
<p>LabelSOM peking chinese khrushchev moscow soviet</p> <p>3</p>	<p>LabelSOM china atomic peking bomb chinese</p> <p>3</p>	<p>LabelSOM geneva nato delegates plane mcnamara</p> <p>3</p>	<p>LabelSOM collective peasants cardinal work fields</p> <p>4</p>



SOMLib - Visualizations



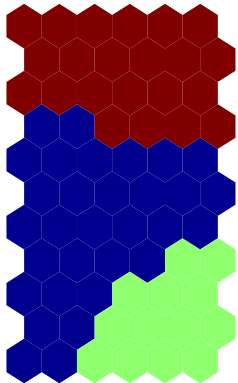
U-Matrix



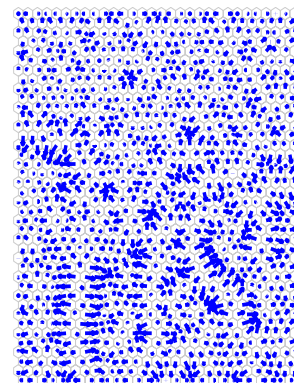
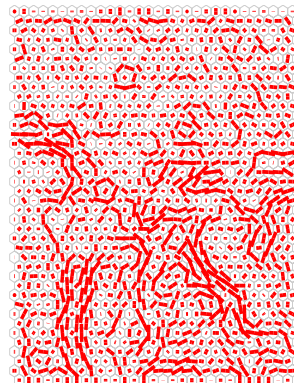
Smoothed Data Histograms



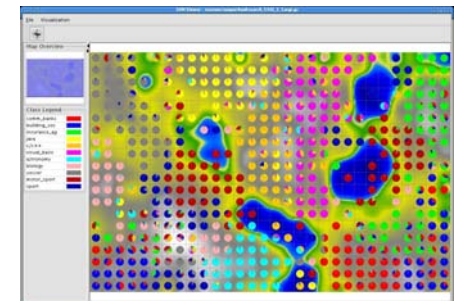
libViewer



Clustering



Flow & Borderlines



class info



SOMLib & Greenstone

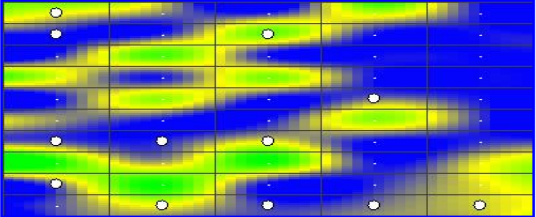
FoDok Austria - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Search

Enter your query string

SOM map



Symbol legend

Nodes

- the node is selected and contains no documents found via keyword search
- the node is selected and contains at least one document found via keyword search
- the node contains at least one document found via keyword search

Documents

- document was found via keyword search
- document was selected via map

Results

- THE ALLIES AFTER NASSAU IN DECEMBER 1960, THE U.S . FIRST PROPOSED TO HELP NATO DEVELOP ITS OWN...
- *TEXT 021 01/04/63 PAGE 022 THE CONGO ROUND 3 ? THE SOUND OF CHRISTMAS IN KATANGA PROVINCE WAS...
- *TEXT 028 01/11/63 PAGE 028 THE CONGO THE U.N . DRIVES IMPLACABLY AHEAD BELGIAN CEMENT WORKER...
- *TEXT 029 01/11/63 PAGE 029 SOUTH VIET NAM THE HELICOPTER WAR RUNS INTO TROUBLE THE HELICOPTER...
- *TEXT 043 01/18/63 PAGE 026 ITALY ADJUSTING THE APERTURA EVER SINCE PREMIER AMINTORE FANFANI...
- *TEXT 045 01/18/63 PAGE 026 FRANCE MONSIEUR NO PRESIDENT CHARLES DE GAULLE'S PRESS CONFERENCES...
- *TEXT 057 01/25/63 PAGE 027 TOGO DEATH AT THE GATE FOR SYLVANUS OLYMPIO, 60, PRESIDENT OF TOGO,...
- *TEXT 062 02/01/63 PAGE 021 COLD WAR OF BASES & BOMBS AT FIRST GLIMPSE, IT CERTAINLY BORE ALL...
- *TEXT 067 02/01/63 PAGE 024 ALGERIA THE HIGH COST OF INDEPENDENCE NOT LONG AGO, THE WEST WAS...
- *TEXT 070 02/01/63 PAGE 028 INDIA BUYING TIME AFTER TWO DAYS OF BITTER DEBATE IN NEW DELHI'S LOK...
- EUROPE A NEW & OBSCURE DESTINATION IN AN ALLIANCE IN WHICH PARTNERS HAD BECOME INCREASINGLY ...
- *TEXT 105 02/22/63 PAGE 029 GREAT BRITAIN 2-12 THE OTHER HAROLD THE LABOR PARTY LAST WEEK CHOSE...

Visualising
search
results



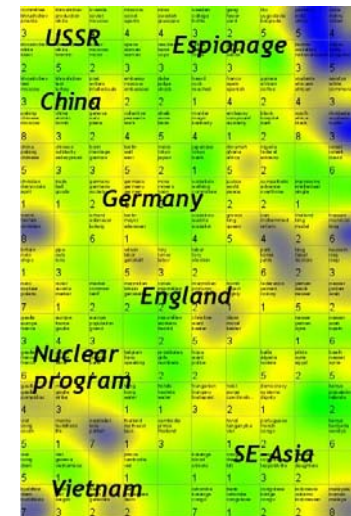
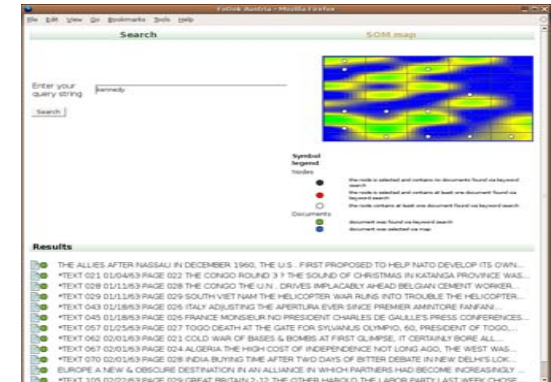
Demos

- Greenstone integration
- Austrian research documentation (FODOK)
- Music Collections
- Pocket-PC version



Conclusions

- SOMLib add-on to DL's
- Provides new, exciting services
- Overview of collection
- New forms of interaction
- Fancy & useful



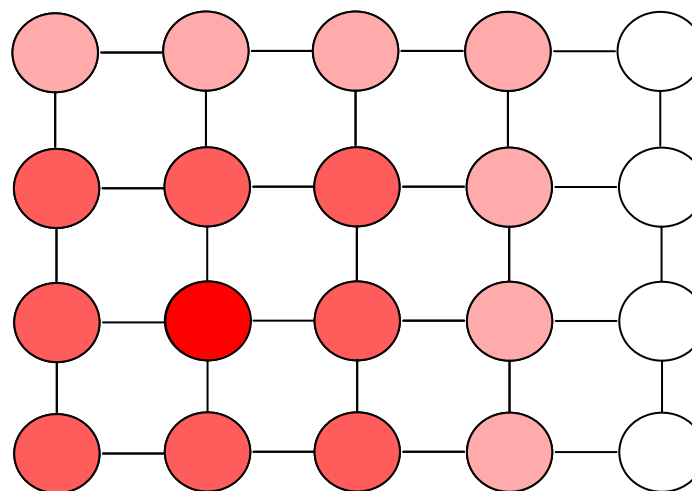
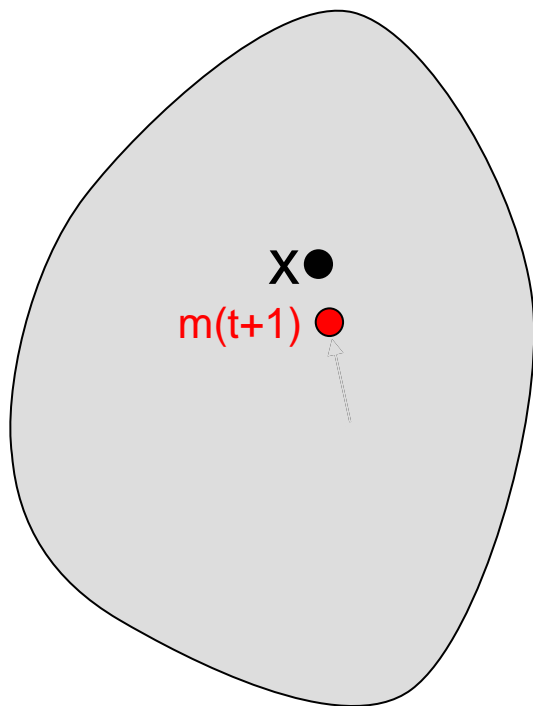
DELOS

NETWORK OF
EXCELLENCE ON
DIGITAL
LIBRARIES



Information Society

SOM Training

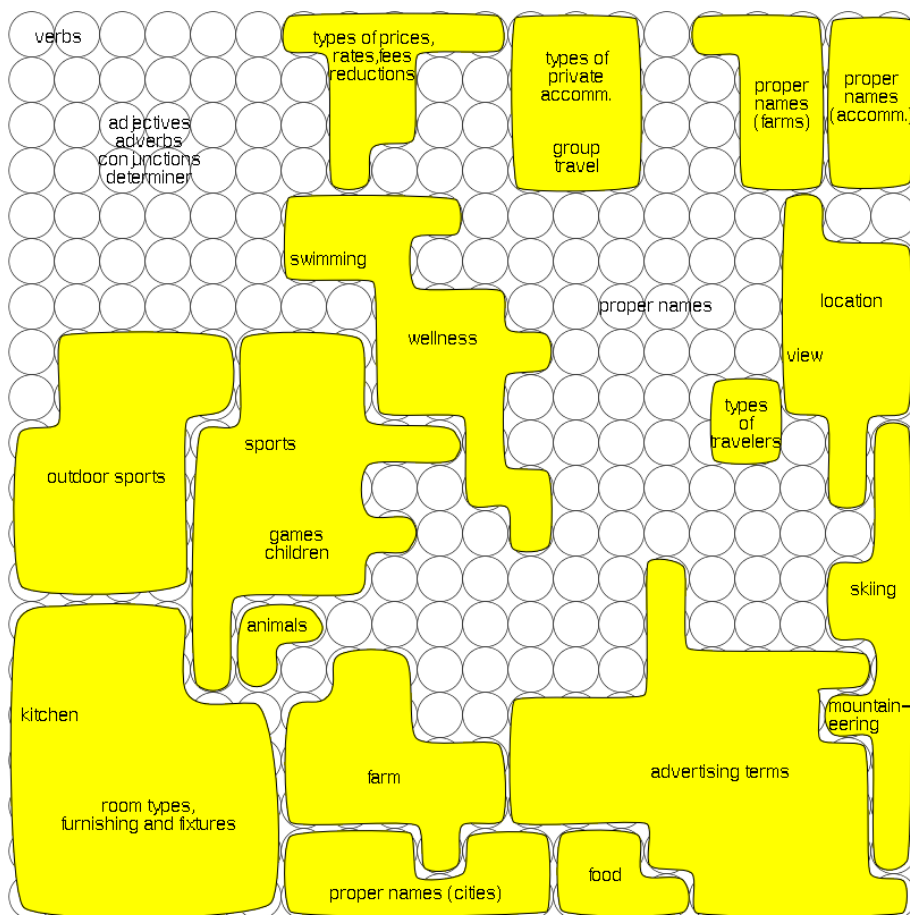


SOMLib audio indexing

- **Feature extraction from audio files:**
 - **frequency spectra analysis**
 - **complex representations of rhythmical characteristics**
 - **combined with other feature sets**
 - energy
 - roughness
 - zero-crossings



Case Study TisCover



<p> kochnische wanne sofa badewanne waschraum doppelbett schlafmoeglichkeit en hotelzimmer essraum kochecke duschen kinderzimmer schlafraum </p>	<p> bad stockbett doppelzimmern dusche schlafraeume zimmerausstattung dreibettzimmer wohnschlafraum schlafzimmer zimmer fliesswasser einbettzimmer komfortzimmer </p>
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wohnschlafzimmer
 badezimmer

