DELOS
Network of Excellence on Digital Libraries

SOMLib Digital Library System

Andreas Rauber, Rudolf Mayer, Thomas Lidy,
Georg Pölzlbauer, Robert Neumayer

Vienna University of Technology

Vienna, Austria

Information Society

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

DELOS
Network of Excellence on Digital Libraries

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

Information Society

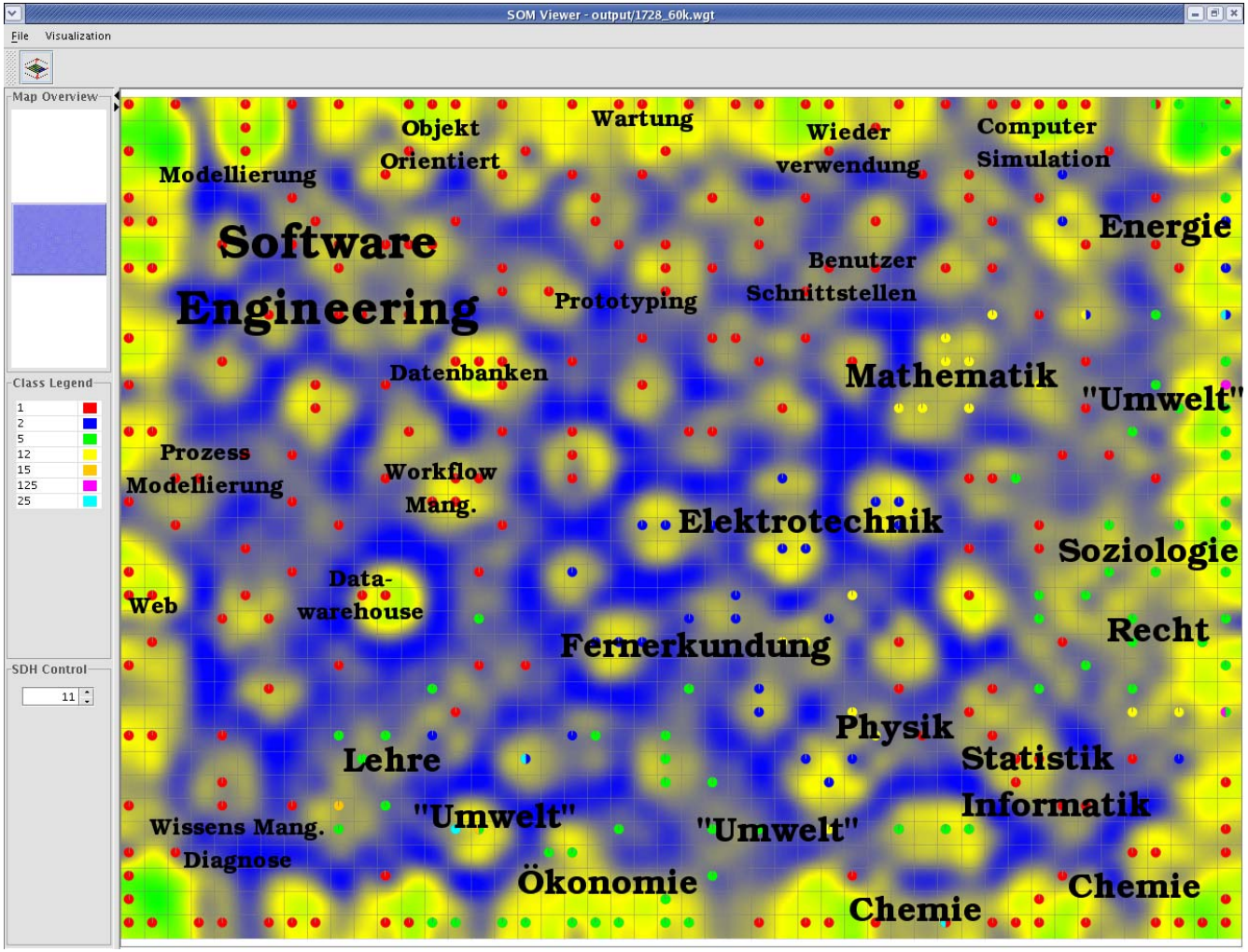
DELOS
Network of Excellence on Digital Libraries

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)

Information Society

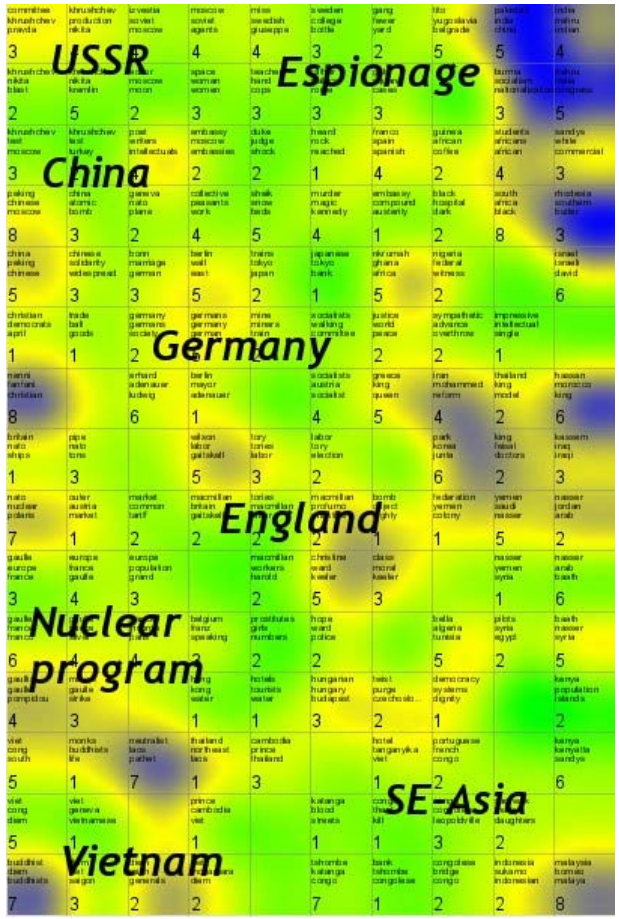
SOMLib – Map + Labels



DELOS
NETWORK OF EXCELLENCE ON DIGITAL LIBRARIES

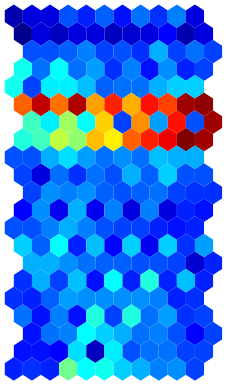
SOMLib – Labels

LabelSOM committee khrushchev speculation pravda central 3	LabelSOM khrushchev production russia nikita tons 4	LabelSOM izvestia soviet comrades moscow pravda 4	LabelSOM moscow soviet london agents intelligence 4
LabelSOM khrushchev nikita china blast congress 2	LabelSOM khrushchev nikita soviet kremlin capitalists 5	LabelSOM editor moscow khrushchev moon steam 2	LabelSOM space woman insurance women scientists 3
LabelSOM khrushchev test chinese moscow treaty 3	LabelSOM khrushchev test agreement turkey soviet 2	LabelSOM poet writers khrushchev intellectuals evgeny 4	LabelSOM embassy moscow peasants embassies unusual 2
LabelSOM peking chinese khrushchev moscow soviet 8	LabelSOM china atomic peking bomb chinese 2	LabelSOM geneva nato delegates plane mcnamara 2	LabelSOM collective peasants cardinal work fields 4

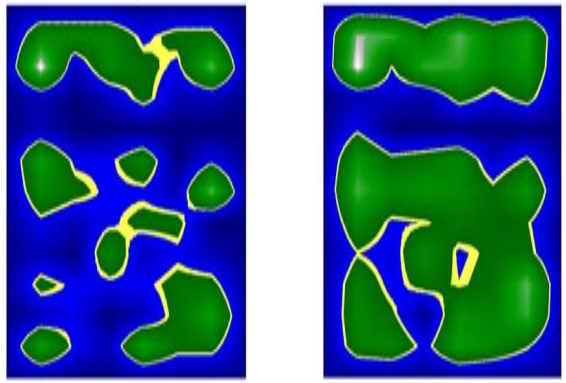


Information Society

SOMLib –Visualizations

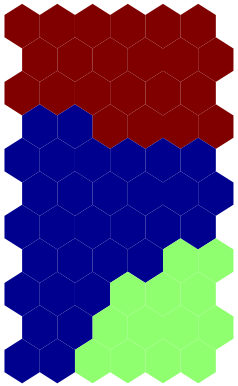


U-Matrix

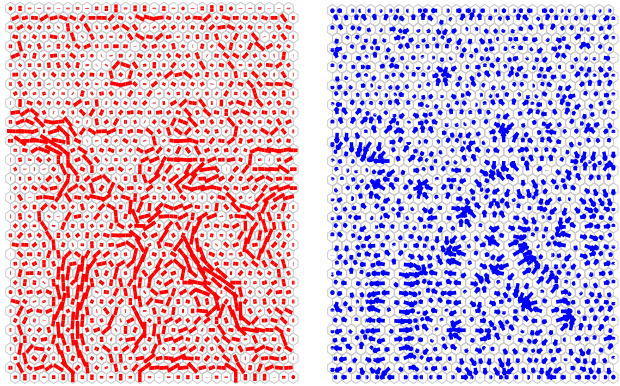


Smoothed Data Histograms

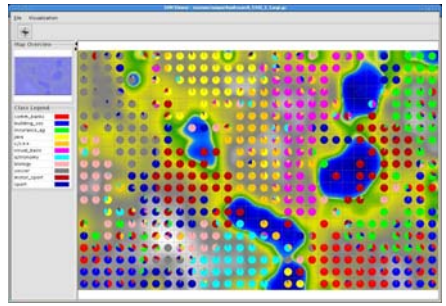
libViewer



Clustering

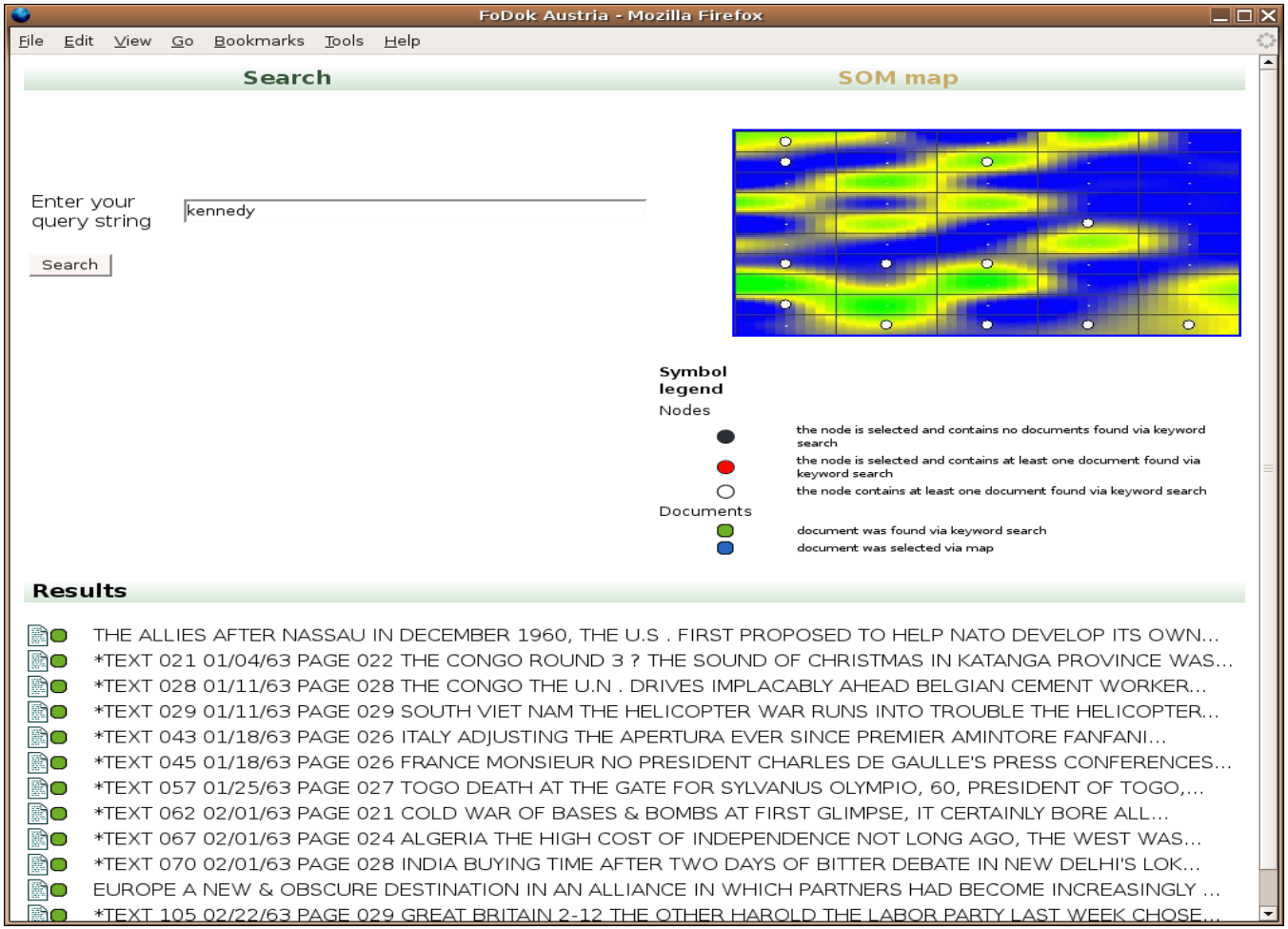


Flow & Borderlines



class info

SOMLib & Greenstone



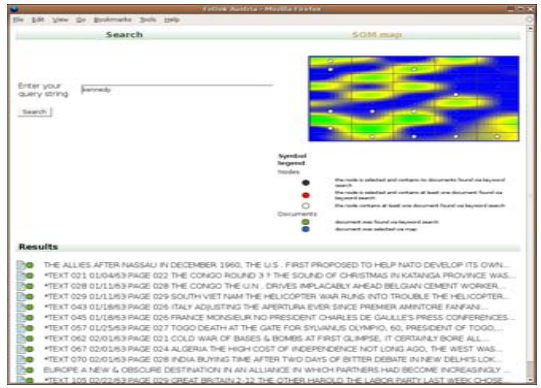
Visualising search results

Demos

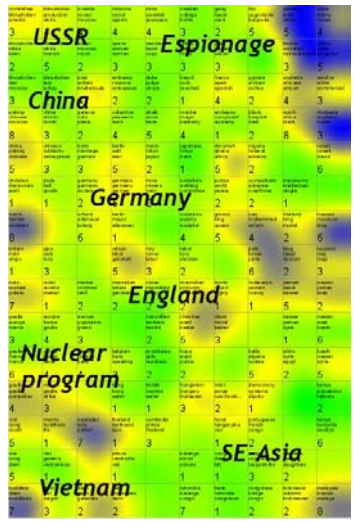
- Greenstone integration
- Austrian research documentation (FODOK)
- Music Collections
- Pocket-PC version

DELOS
Network of Excellence on Digital Libraries

Conclusions

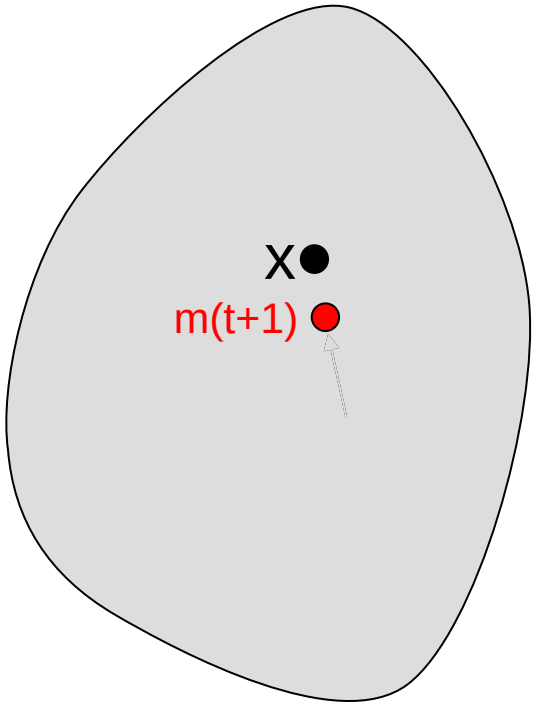


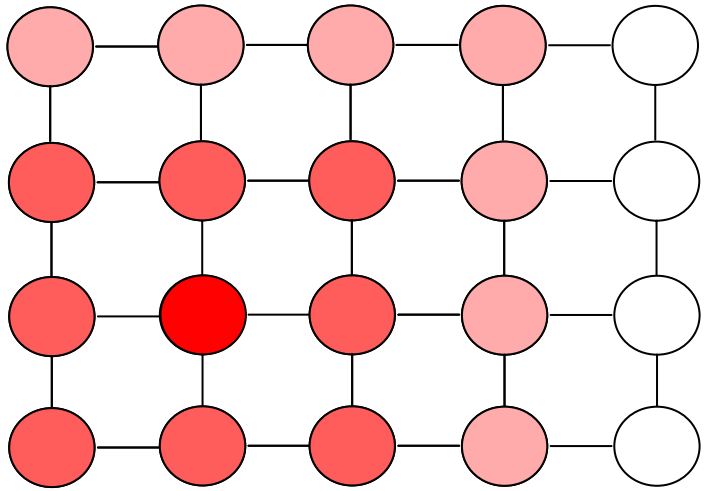
- SOMLib add-on to DL's
- Provides new, exciting services
- Overview of collection
- New forms of interaction
- Fancy & useful



Information Society

SOM Training



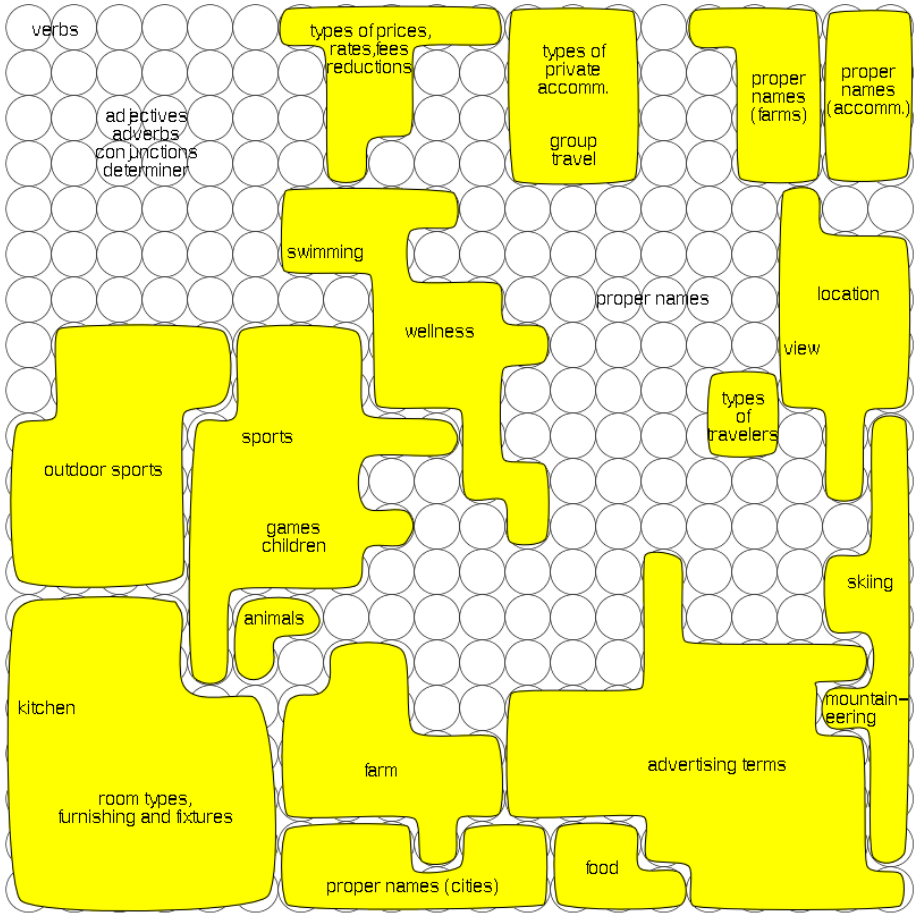


SOMLib audio indexing

- **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



kochnische	bad
wanne	stockbett
sofa	doppelzimmern
badewanne	dusche
waschraum	schlafraeume
doppelbett	zimmerausstattung
schlafmoeglichkeiten	dreibettzimmer
hotelzimmer	wohnschlafraum
essraum	schlafzimmer
kochecke	zimmer
duschen	fliesswasser
kinderzimmer	einbettzimmer
schlafraum	komfortzimmer
wohnschlafzimmer	doppelschlafzimmer