Spatial Search in Maps Collection

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Tel Aviv University Library
The Department of Geography and The Human Environment
Introduction

- The Department of Geography in Tel Aviv University have a vast collection of over 30,000 new and historic maps.

- A new web application was developed in order to make this collection available to the public.
Introduction

- In order to provide accurate search results a new approach was introduced – **Spatial Search**
Map Search

- Retrieving maps by a standard lexical search can lead to partial or inaccurate results due to the following reasons:
  - Place names can change over the years
  - Spelling variations
  - Usually not all the places in the map appear in the metadata
  - Local place names were not recorded on the maps
  - The place boundaries can change over time
Our Approach

- In order to get to a large group of users the map collection must be available on the internet.

- In order to utilize resources we used the existing ALEPH catalog to store the maps metadata.

- A new Google Map based user interface was integrated to the catalog for intuitive search and easy maintenance.

* The project was implemented as part of a masters degree thesis in GIS and spatial search ranking methods.
Search term definition
Demonstration
Demonstration

Online Maps Catalog
Welcome to Department of geography maps library.
Drag the rectangle to specify the geographic region and click "Find Maps".
Demonstration
<table>
<thead>
<tr>
<th>Map</th>
<th>Location</th>
<th>Year</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jaffa Tel Aviv</td>
<td>1950</td>
<td>1:10,000</td>
</tr>
<tr>
<td>2</td>
<td>תל-אביב</td>
<td>1949</td>
<td>1:10,000</td>
</tr>
<tr>
<td>3</td>
<td>Urban area of Jaffa-Tel Aviv</td>
<td>1928</td>
<td>1:10,000</td>
</tr>
<tr>
<td>4</td>
<td>Jaffa-Tel Aviv</td>
<td>1930</td>
<td>1:10,000</td>
</tr>
<tr>
<td>5</td>
<td>Urban area of Jaffa-Tel Aviv</td>
<td>1932</td>
<td>1:10,000</td>
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<tr>
<td>6</td>
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<td>1935</td>
<td>1:10,000</td>
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<tr>
<td>7</td>
<td>Tel Aviv Jaffa</td>
<td>1950</td>
<td>1:12,500</td>
</tr>
<tr>
<td>8</td>
<td>Tel Aviv-Jaffa Holon Bat</td>
<td>1953</td>
<td>1:15,000</td>
</tr>
</tbody>
</table>

Find Maps:
- Find location
- Advanced search
- Covered regions
Demonstration
Demonstration
**Recent Search**

You searched the catalog for: **System Number= 002284837**
Sorted by: Year, then Author

Sort options: Year Author Title Call No.
Sorting and display limited to first 1000 records

Format options: **Brief View | Table View**

Click the No. to view full record 1 - 1 of 1

<table>
<thead>
<tr>
<th>Location on Shelf:</th>
<th>Geography Sub-Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Jaffa Tel Aviv [cartographic material]</td>
</tr>
<tr>
<td>Electronic Format:</td>
<td>For image click here</td>
</tr>
<tr>
<td>Published:</td>
<td>[Jaffa?] : Survey of Palestine, 1950</td>
</tr>
<tr>
<td>System Number:</td>
<td>002284828</td>
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</tbody>
</table>

Modify  Limit  Select All  Deselect  View Selected  Create Subset

Add to My Basket  Rank Set  SDI Request  Save/Email  Print

Library Info  Tutorial  Preferences  Feedback  Expert Search

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## Demonstration

### GIS in Urban Planning

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This GIS demonstration includes maps of Jaffa and Tel Aviv, showcasing urban development over time. The maps are interactive and can be zoomed in for detailed analysis.
# Demonstration

**Tel-Aviv University**  
**The Faculty of Humanities**  

**The Department of Geography and the Human Environment**

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**Find Maps**  
- **Find location**  
- **Advanced search**  
- **Covered regions**

**Map data ©2011 Maps of Israel**  
**Terms of Use**
Demonstration
The Process
The Process

- The Librarian Catalog the map in the ALEPH
- The map is scanned and marked
- Geo-referencing is made using Google Earth in order to place the map its geographic location.
Maps library
Step 1 – ALEPH Catalog
Step 2 – Scanning
Step 3 – Geo-referencing
Using 0341 Attributes
Ranking
Spatial Search Ranking

- One of the most important feature in every search engine is its ranking method.
- The maps that returned from a given query should be ranked by their relevancy.
- More general – How to rank spatial object?
Spatial Ranking
Spatial Ranking

Several spatial parameters should be taken into account:
- Area of overlap
- Area of non-overlap
- Shape similarity
Future Developments

- Implementing the selected spatial ranking method
- Add advanced search feature
- Integration to Primo
Thank You!
davidtal@post.tau.ac.il
http://geography.tau.ac.il/en/

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