

WHERE IS THE GEO IN GEOCLEF?

András Kornai
MetaCarta Inc.
kornai@metacarta.com

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In Memoriam Erik Rauch



SPECIAL THANKS TO:

- Brad Thompshon
- Karl Wright
- Doug Cutting

- ① How Geographic IR works for MetaCarta
- ② *Generic vs geo-specific tasks*
- ③ Results
- ④ Conclusions

Part I

HOW GEO IR WORKS

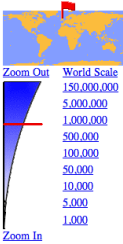
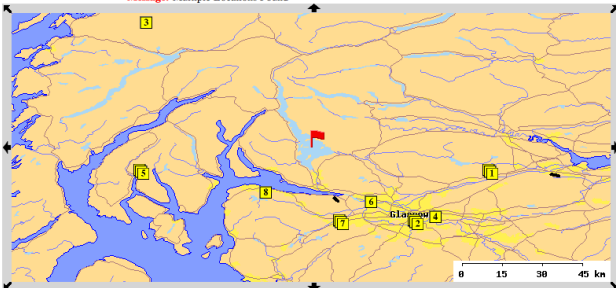
THE METACARTA SYSTEM IN ACTUAL USE

MetaCarta Location Finder: Location Icons: Single Clusters

Visit Metacarta
Street Address: *e.g. 126 Prospect St.* City: *e.g. Cambridge* State: *e.g. MA*

Place Results and Quickview Maps
--- 14 Place Results ---

Message: Multiple Locations Found



Zoom Out World Scale
150,000,000
5,000,000
1,000,000
500,000
100,000
50,000
10,000
5,000
1,000
Zoom In

Page Size: Map Center: Latitude Longitude Scale:

Document Query:

Document Icons: Single Cluster Stack

Keywords to search in Document Collection:

The map is a filter: results are for documents located in the current map view only.

Search results (8 locations from approximately 34 results in 32 documents, page 1)

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0.31 0.69 [nppg10b](#)

[Assessment (Scotland) Regulations 198 (56°0'0"N, 4°0'0"W)] [31 August 1994 (08/31/1994 | 00:00:00 Zulu)] ... Circular 4/1994; Protection of



SCRIPT-DRIVEN USE

```
./headnode-search.py 200 112.9 159.1 -9.1 -54.7  
shark attacks human >>GC001-a  
./headnode-search.py 200 -124.4 -114.1 42.0 32.5  
shark attacks human >>GC001-c  
./headnode-search.py 200 -11.0 60.0 72.00 32.00  
Vegetable exporters fresh dried frozen vegetables  
>>GC002 ./headnode-search.py 200 -118.0 -35.0  
32.0 -55.0 Amnesty International human rights  
>>GC003
```

TO GET FROM GEOCLEF TO METACARTA WE NEED

AUTO bounding box

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TO GET FROM GEOCLEF TO METACARTA WE NEED

- AUTO bounding box
- AUTO geolocation of query
- SEMI defluffing
- AUTO stopword removal
- SEMI geofluff removal
- NON stemming

TO GET FROM GEOCLEF TO METACARTA WE NEED

- AUTO bounding box
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 - SEMI geofluff removal
 - NON stemming
 - SEMI booleans

TO GET FROM GEOCLEF TO METACARTA WE NEED

- AUTO bounding box
- AUTO geolocation of query
- SEMI defluffing
- AUTO stopword removal
- SEMI geofluff removal
- NON stemming
- SEMI booleans
- NON query enrichment

TO GET FROM GEOCLEF TO METACARTA WE NEED

- AUTO bounding box
- AUTO geolocation of query
- SEMI defluffing
- AUTO stopword removal
- SEMI geofluff removal
- NON stemming
- SEMI booleans
- NON query enrichment
- NON (auto)feedback

Part II

GENERIC VS GEO-SPECIFIC TASKS

generic

defluffing

stopword removal

stemming

boolean

query enrichment

(auto)feedback

geo-specific

geofluff removal

doc geolocation

query geolocation

bounding boxes

relevance mixing

display

Part III

RESULTS

FoM	0	1	(3)	(4)	(0+3)
num_q	22	15	25	25	25
num_ret	1494	1002	820	500	1594
num_rel	895	765	1028	1028	1028
num_rel_ret	289	132	214	144	339
map	0.1700	0.1105	0.1819	0.1653	0.1959
R-prec	0.2155	0.1501	0.2328	0.2040	0.2396
bpref	0.1708	0.1148	0.1796	0.1570	0.1896
recip_rank	0.6748	0.6522	0.5453	0.5970	0.6778
ircl_prn.0.00	0.6837	0.6633	0.6064	0.6344	0.6878
ircl_prn.0.10	0.4178	0.2904	0.5096	0.4757	0.4505
ircl_prn.0.20	0.3443	0.2188	0.3748	0.3338	0.3740
ircl_prn.0.30	0.2977	0.1700	0.1622	0.1765	0.2986
ircl_prn.0.40	0.1928	0.1103	0.1161	0.1453	0.2064

FoM	0	1	(3)	(4)	1+3
ircl_prn.0.50	0.0971	0.0676	0.0976	0.1301	0.1221
ircl_prn.0.60	0.0435	0.0365	0.0687	0.0680	0.0750
ircl_prn.0.70	0.0261	0.0109	0.0687	0.0430	0.0597
ircl_prn.0.80	0.0130	0.0109	0.0663	0.0410	0.0457
ircl_prn.0.90	0.0000	0.0109	0.0513	0.0063	0.0207
ircl_prn.1.00	0.0000	0.0089	0.0394	0.0063	0.0194
P5	0.4455	0.3467	0.4240	0.4160	0.4640
P10	0.3182	0.2333	0.3680	0.3640	0.3560
P15	0.2667	0.1867	0.3627	0.3227	0.3067
P20	0.2500	0.1867	0.3300	0.2880	0.2820
P30	0.2182	0.1644	0.2360	0.1920	0.2427
P100	0.1141	0.0740	0.0856	0.0576	0.1204
P200	0.0636	0.0410	0.0428	0.0288	0.0660
P500	0.0263	0.0176	0.0171	0.0115	0.0271
P1000	0.0131	0.0088	0.0086	0.0058	0.0136

Part IV

CONCLUSIONS

PUT THE GEO IN GEOCLEF:

- Make sure geoparsing is exercised
- Make sure gazetteer is exercised
- (Make sure bounding box capability is exercised)
- Make sure stemming/booleans/query enrichment are not limiting factors