PLACING TASK

MEDIAEVAL 2013 JAMIE DAVIES









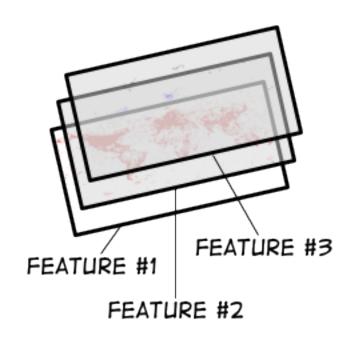


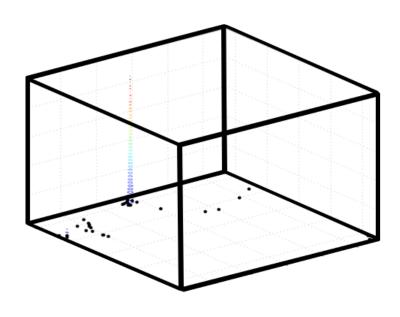




APPROACH

- MEAN-SHIFT USED TO ESTIMATE THE MOST PROBABLE LOCATION











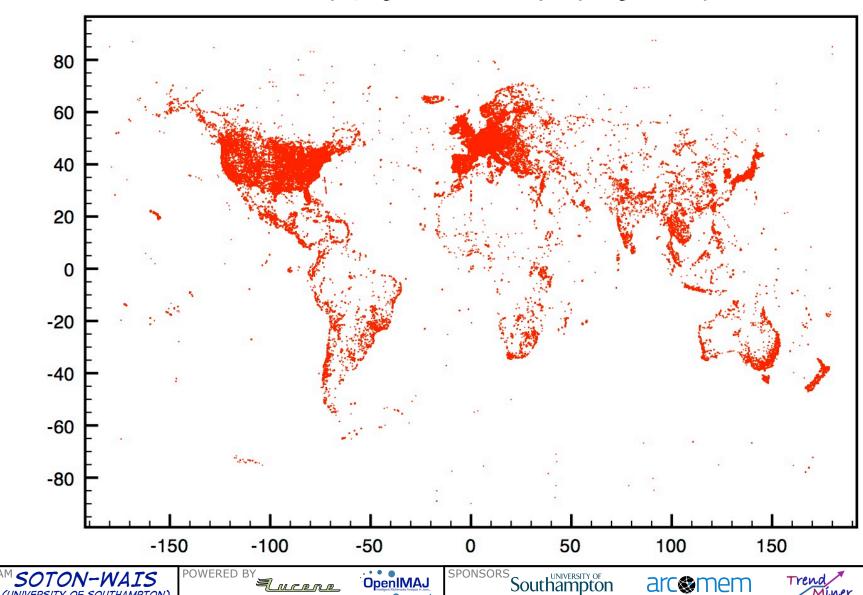








LOCATION PRIOR



arc@mem

SOTON-WAIS

(UNIVERSITY OF SOUTHAMPTON)

TAGS

- TAGS TREATED SEPARATELY
- EACH TAG RETURNS A SET OF LIKELY LOCATIONS













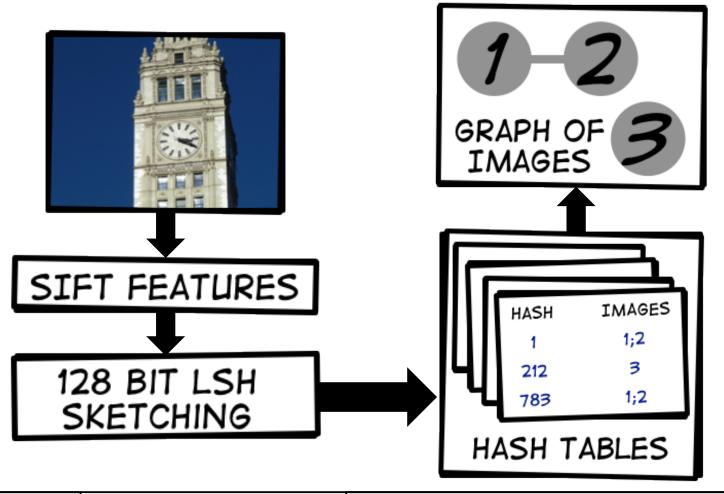






LSH-SIFT FEATURES

HIGH PRECISION / LOW RECALL











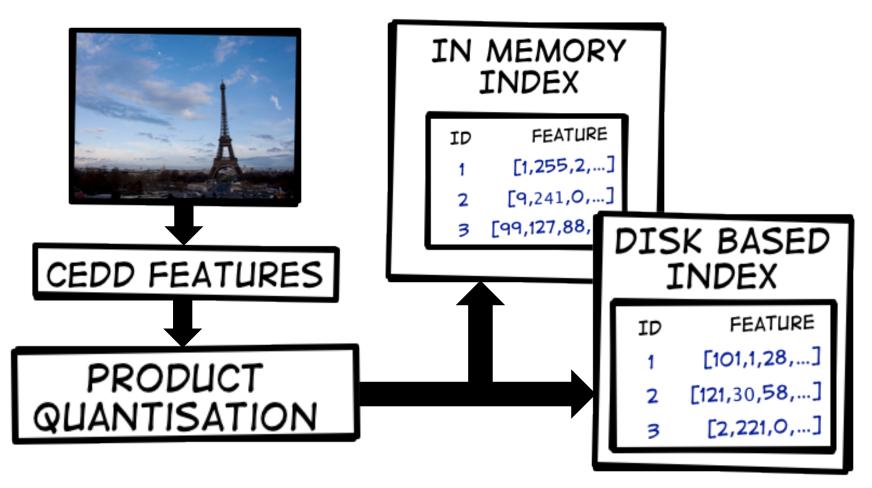






PQ-CEDD FEATURES

LOW PRECISION / HIGH RECALL

















NORMALISATION

- UNIFORM SAMPLING FOR THE PRIOR AND TAGS
- SEARCH ENGINE RANKED SAMPLING FOR THE VISUAL FEATURES

GEONAMES BOOSTING

TAGS MATCHED WITH AN ENTRY IN THE GEONAMES DATABASE DOUBLED TO PROVIDE 2000 (LAT,LNG) PAIRS.











| RUN | PRIOR | TAGS | PQ-CEDD | SIFT-LSH | GEONAMES |
|-----|----------|----------|---------|----------|----------|
| 1 | ~ | ~ | ~ | ~ | _ |
| 2 | ✓ | | ~ | ✓ | |
| 3 | ✓ | ~ | | | |
| 4* | ✓ | ✓ | | ✓ | |
| 5 | ~ | ~ | ~ | ✓ | ✓ |

| | | | RUN | | |
|---|---|--------------------------------------|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| NO. EST. WITHIN 1KM NO. EST. WITHIN 1OKM NO. EST. WITHIN 10OKM NO. EST. WITHIN 50OKM NO. EST. WITHIN 100OKM | 20.6% 31.5% 36.1% 42.0% 47.2% | 0.3% 0.6% 0.1% 3.5% 7.4% | 23.2% 37.7% 43.8% 51.0% 56.7% | 26.2% 40.9% 47.4% 53.5% 58.4% | 23.7% 38.5% 44.2% 49.9% 54.5% |
| MEDIAN ERROR IN KM LINEAR CORRELATION OF ERROR | 1352 0.16 | 6898 0.06 | 451 0.37 | 254 0.37 | 540 0.04 |















| RUN | PRIOR | TAGS | PQ-CEDD | SIFT-LSH | GEONAMES |
|-----|----------|----------|---------|----------|----------|
| 1 | ~ | V | ~ | ~ | _ |
| 2 | ✓ | | ~ | ✓ | |
| 3 | ✓ | ~ | | | |
| 4* | ✓ | ✓ | | ~ | |
| 5 | ~ | ' | ~ | ✓ | ✓ |

| | Pun | | | | | |
|--------------------------------|-------|------|--------------|--------------|---------------|--|
| | 1 | 2 | 3 | 4 | 5 | |
| NO. EST. WITHIN 1KM | 20.6% | 0.3% | 23.2% | 26.2% | 23.7% | |
| NO. EST. WITHIN 10KM | 31.5% | 0.6% | <i>37.7%</i> | 40.9% | <i>38.</i> 5% | |
| NO. EST. WITHIN 100KM | 36.1% | 0.1% | 43.8% | 47.4% | 44.2% | |
| NO. EST. WITHIN 500KM | 42.0% | 3.5% | 51.0% | <i>53.5%</i> | 49.9% | |
| NO. EST. WITHIN 1000KM | 47.2% | 7.4% | 56.7% | <i>58.4%</i> | <i>54.5%</i> | |
| MEDIAN ERROR IN KM | 1352 | 6898 | 451 | 254 | <i>540</i> | |
| LINEAR CORRELATION OF ERROR | 0.16 | 0.06 | 0.37 | 0.37 | 0.04 | |







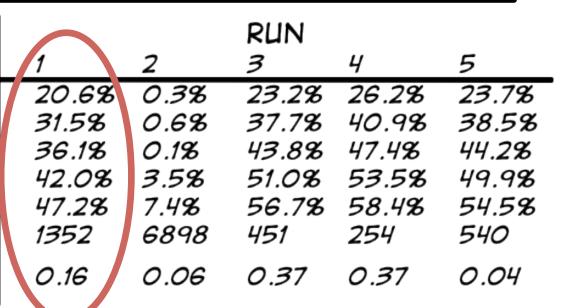






| RUN | PRIOR | TAGS | PQ-CEDD | SIFT-LSH | GEONAMES |
|-----|----------|----------|---------|----------|----------|
| 1 | ~ | V | ~ | ~ | _ |
| 2 | ✓ | | ~ | ~ | |
| 3 | ✓ | ~ | | | |
| 4* | ✓ | ✓ | | ✓ | |
| 5 | ~ | ~ | ~ | ~ | ~ |

| NO. EST. WITHIN 1KM |
|------------------------|
| NO. EST. WITHIN 10KM |
| NO. EST. WITHIN 100KM |
| NO. EST. WITHIN 500KM |
| NO. EST. WITHIN 1000KM |
| MEDIAN ERROR IN KM |
| LINEAR CORRELATION OF |
| ERROR |
| |

















| RUN | PRIOR | TAGS | PQ-CEDD | SIFT-LSH | GEONAMES |
|-----|----------|----------|---------|----------|----------|
| 1 | ~ | V | ~ | ~ | _ |
| 2 | ✓ | | ~ | ✓ | |
| 3 | ✓ | ~ | | | |
| 4* | ✓ | ✓ | | ✓ | |
| 5 | ~ | ~ | ~ | ~ | ✓ |

| | | | RUN | | |
|--------------------------------|-------------|------|---------------|--------------|--------------|
| | 1 | 2 | 3 | 4 | 5 |
| NO. EST. WITHIN 1KM | 20.6% | 0.3% | 23.2% | 26.2% | 23.7% |
| NO. EST. WITHIN 10KM | 31.5% | 0.6% | <i>3</i> 7.7% | 40.9% | <i>38.5%</i> |
| NO. EST. WITHIN 100KM | 36.1% | 0.1% | 43.8% | 47.4% | 44.2% |
| NO. EST. WITHIN 500KM | 42.0% | 3.5% | 51.0% | <i>53.5%</i> | 49.9% |
| NO. EST. WITHIN 1000KM | 47.2% | 7.4% | <i>56.7%</i> | <i>58.4%</i> | <i>54.5%</i> |
| MEDIAN ERROR IN KM | <i>1352</i> | 6898 | 451 | 254 | 540 |
| LINEAR CORRELATION OF ERROR | 0.16 | 0.06 | 0.37 | 0.37 | 0.04 |
| | 1 | | | | |













| RUN | PRIOR | TAGS | PQ-CEDD | SIFT-LSH | GEONAMES |
|-----|----------|----------|---------|----------|----------|
| 1 | ~ | V | ~ | ~ | _ |
| 2 | ✓ | | ~ | ✓ | |
| 3 | ✓ | ~ | | | |
| 4* | ✓ | ✓ | | ✓ | |
| 5 | ~ | ~ | ~ | ~ | ✓ |

| | | RUN | | |
|-------|--|---|--|--|
| 1 | 2 | 3 | 4 | 5 |
| 20.6% | 0.3% | 23.2% | 26.2% | 23.7% |
| 31.5% | 0.6% | <i>3</i> 7.7% | 40.9% | <i>38.</i> 5% |
| 36.1% | 0.1% | 43.89 | 47.4% | 44.2% |
| 42.0% | 3.5% | 51.09 | <i>53.5%</i> | 49.9% |
| 47.2% | 7.4% | 56.79 | <i>58.4%</i> | <i>54.5%</i> |
| 1352 | 6898 | 451 | 254 | 540 |
| 0.16 | 0.06 | 0.37 | 0.37 | 0.04 |
| | 31.5% 36.1% 42.0% 47.2% 1352 | 31.5% 0.6% 36.1% 0.1% 42.0% 3.5% 47.2% 7.4% 1352 6898 | 1 2 3 20.6% 0.3% 23.2% 31.5% 0.6% 37.7% 36.1% 0.1% 43.8% 42.0% 3.5% 51.0% 47.2% 7.4% 56.7% 1352 6898 451 | 1 2 3 4 20.6% 0.3% 23.2% 26.2% 31.5% 0.6% 37.7% 40.9% 36.1% 0.1% 43.8% 47.4% 42.0% 3.5% 51.0% 53.5% 47.2% 7.4% 56.7% 58.4% 1352 6898 451 254 |















FUTURE WORK

- WHY WERE VISUAL FEATURES SO BAD?
- FURTHER EXPERIMENTS USING JUST SIFT FEATURES
- EXPERIMENT WITH DIFFERENT USES OF EXTERNAL DATA, SUCH AS **GEONAMES**









QUESTIONS?













