How good is good enough?

understanding granularity in location-aware computing

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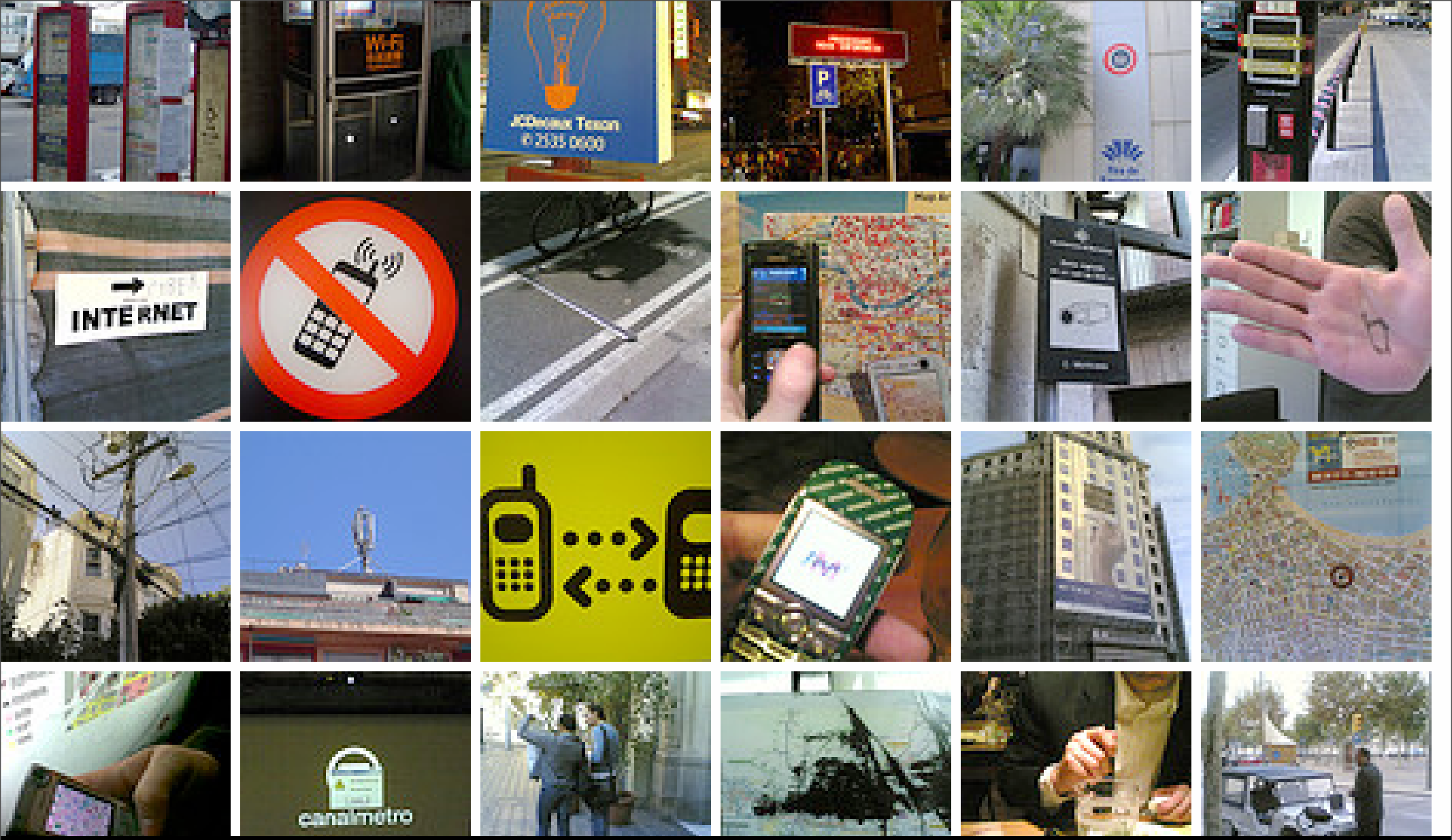
my profile

- PhD candidate at the Universitat Pompeu Fabra, Barcelona.
- affiliated to the MIT SENSEable City Lab
- software engineering
- human-computer interaction
- urban planning (pretentious!)



urban computing

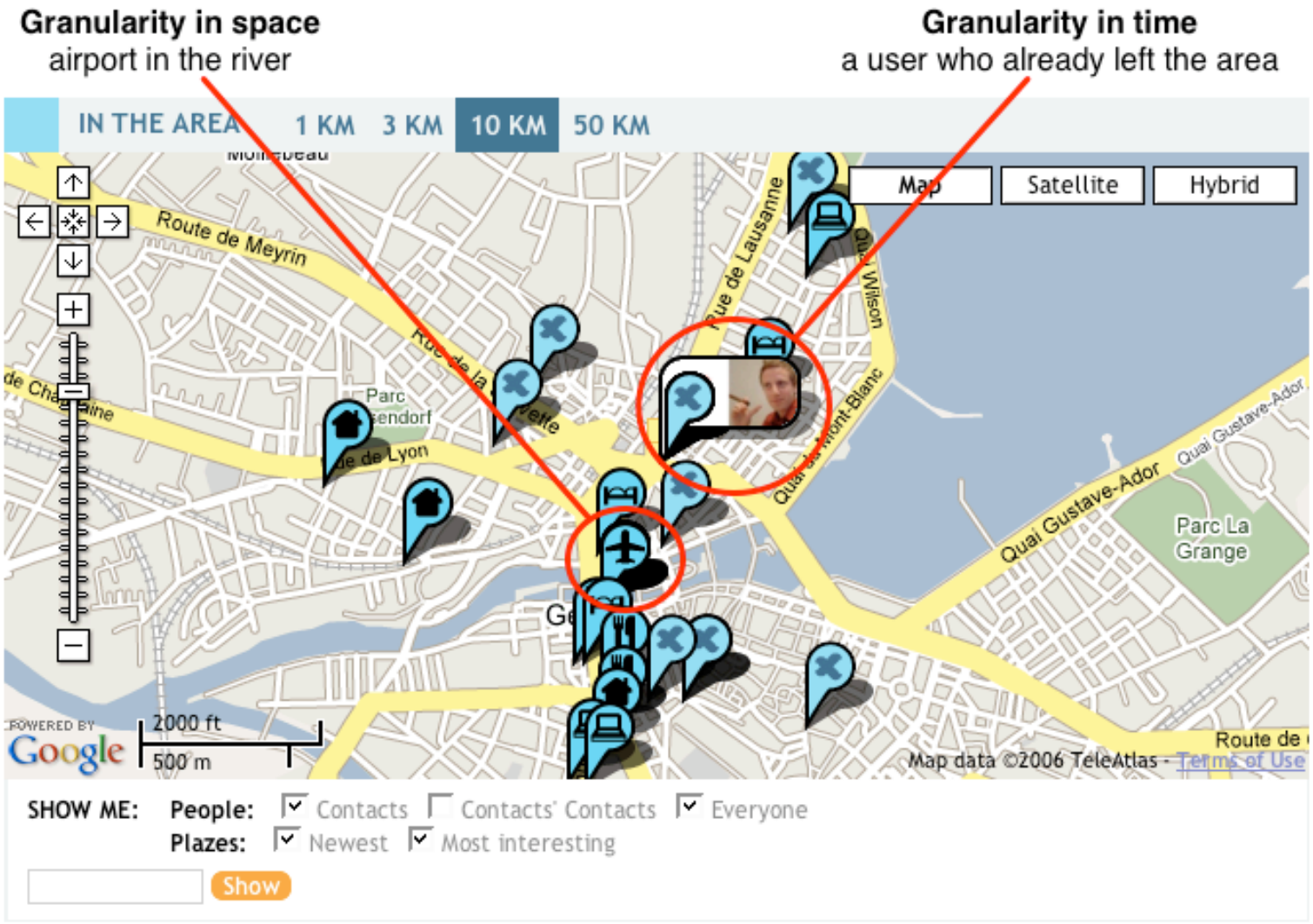
ubicomp, people, city

location-aware computing

issues

- **quality**: sensors (accuracy, noise, gaps)
- **timeliness**: network (latency, connectivity) location update protocol, decay function
- **representation** (quality of geographic data, metaphors)

socio-technical gap



don't throw the technology at the problem!

“Let’s do smart things with stupid technology today, rather than wait and do stupid things with smart technology tomorrow?”

William Buxton

building evidences

ECOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

CatchBob!

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Center for Research and Support of training and its technologies (CRAFT)
Swiss Federal Institute of Technologies Lausanne (EPFL)

Images : Ecole des Arts Décoratifs de Genève

CatchBob! outcomes

- various players reactions to uncertainty: Believing, not understanding, overcoming
- the affordance of the space (e.g. weather, topology)
- players without a location awareness tool took better advantage of the annotation feature
- automatic location-awareness $\neq$ Giving a location (act of communication carrying intentions)

some outcomes

- influence of the experience on the appropriation, novices experience uncertainty, seniors increased tranquility

- multiplicity of the sources of information (satnav, “guia”, customers, radio, mobile phone), access depending on the complexity of the space and points of reference.

- location information trunking during wayfinding (importance of granularity)

key evidences from CatchBob! and Taxi drivers

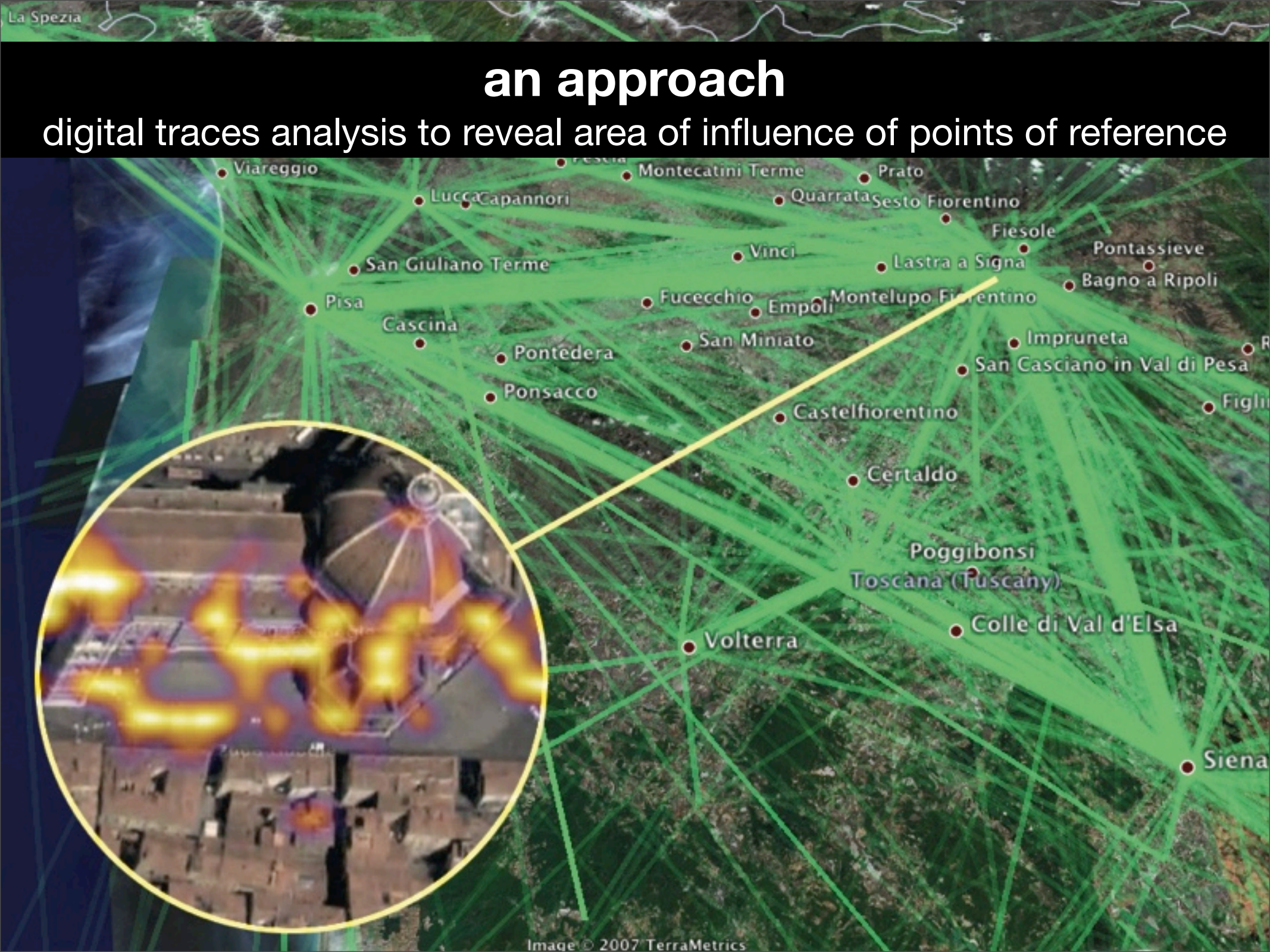
- **experience with the technology** allows to predict the places and situations it won't deliver the expected location information. (see Leif's work)

- **knowledge of the environment** help to overcome the shortcomings of location technology (e.g. use of the "guia" in case of points of reference, strategy planning in CatchBob!) (-> support this knowledge)

- positive effects of **manual location disclosure** (e.g. the importance of the act of communication in CatchBob! the informal knowledge taxi drivers build with their customers) (-> take advantage of people's description of the space)

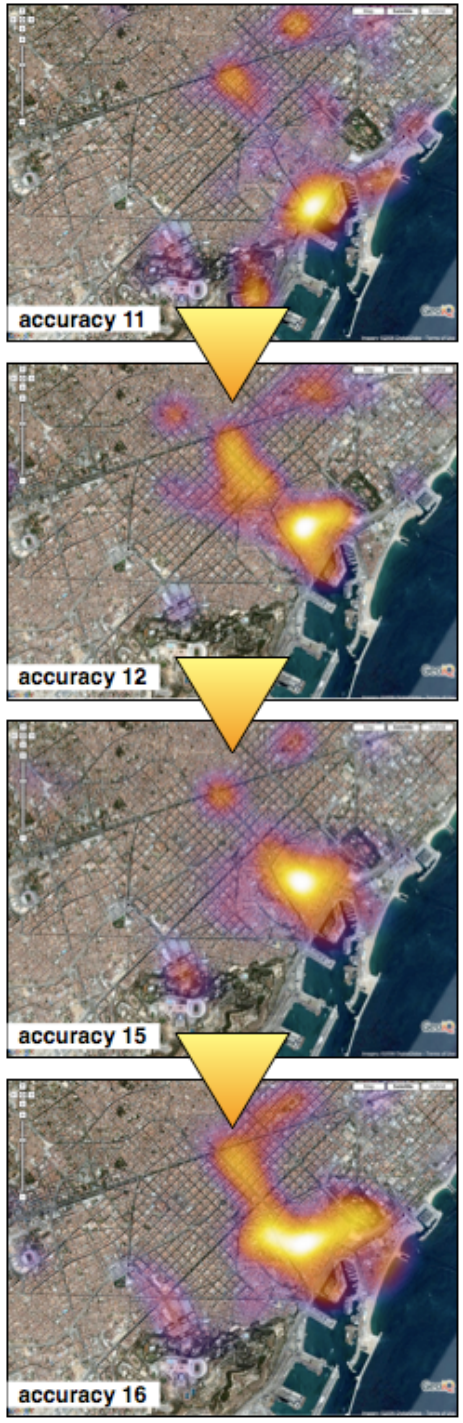
an approach

digital traces analysis to reveal area of influence of points of reference

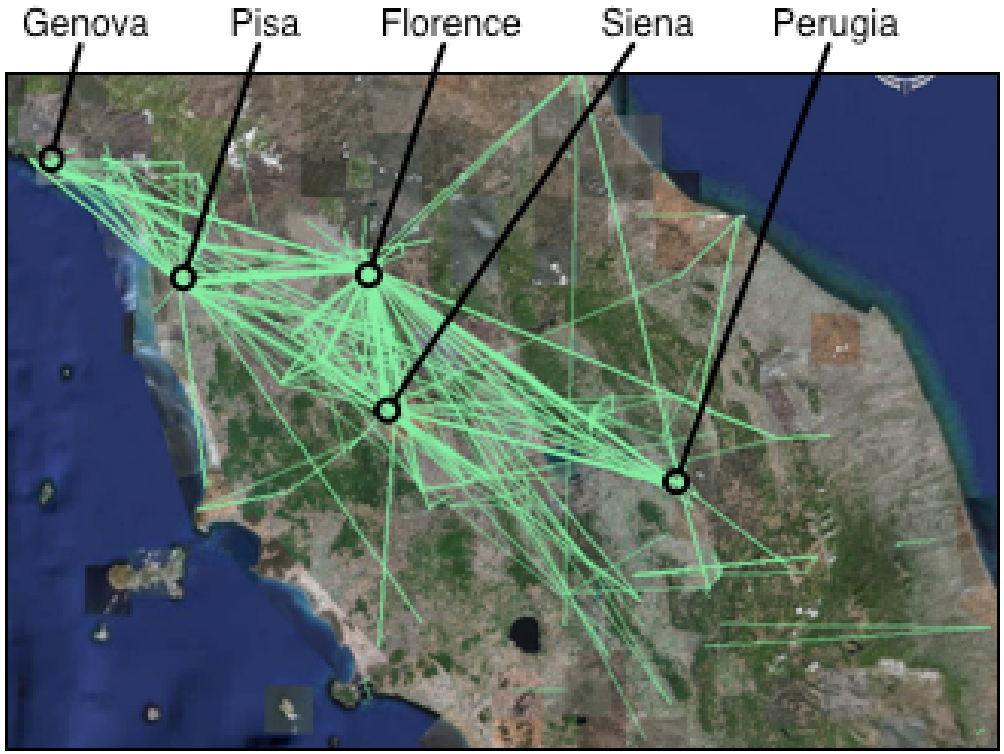


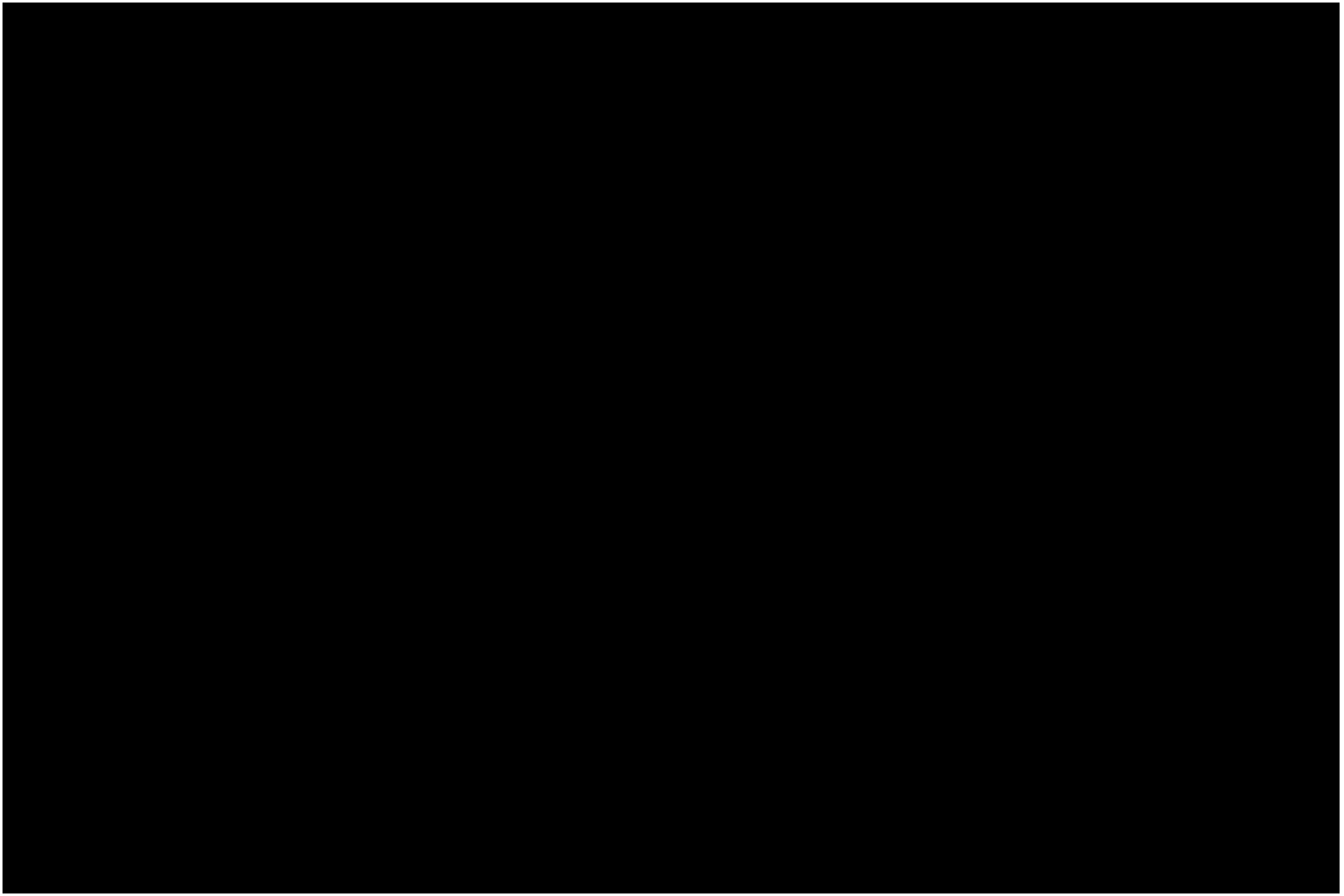
leverage digital footprints

- ongoing study of Flickr georeferenced photos
- study the use of granularity in geotagging
- semantic description (e.g. multiple spaces)
- revealing mobility and activity



geographic relevance





evaluation

WikiCity and Wireless City
enhance the resident and tourist experience

thank you

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