

 POLITECNICO DI MILANO

Dipartimento di
Elettronica e Informazione

The Semantic Collaborative Environments Group @DEI-PoliMI

Marco Colombetti
colombet@elet.polimi.it

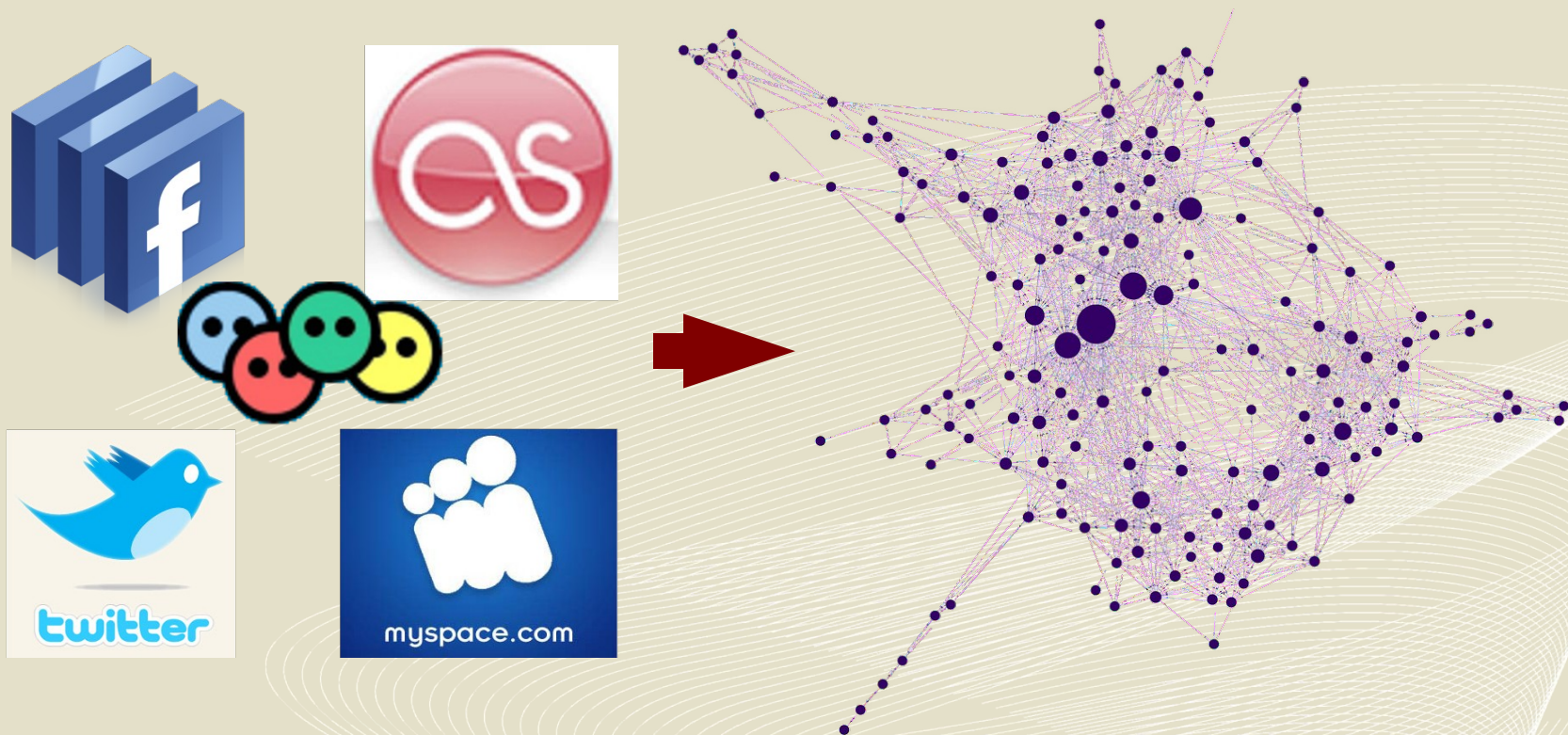
David Laniado
david.laniado@elet.polimi.it

Davide Eynard
eynard@elet.polimi.it

Riccardo Tasso
tasso@elet.polimi.it

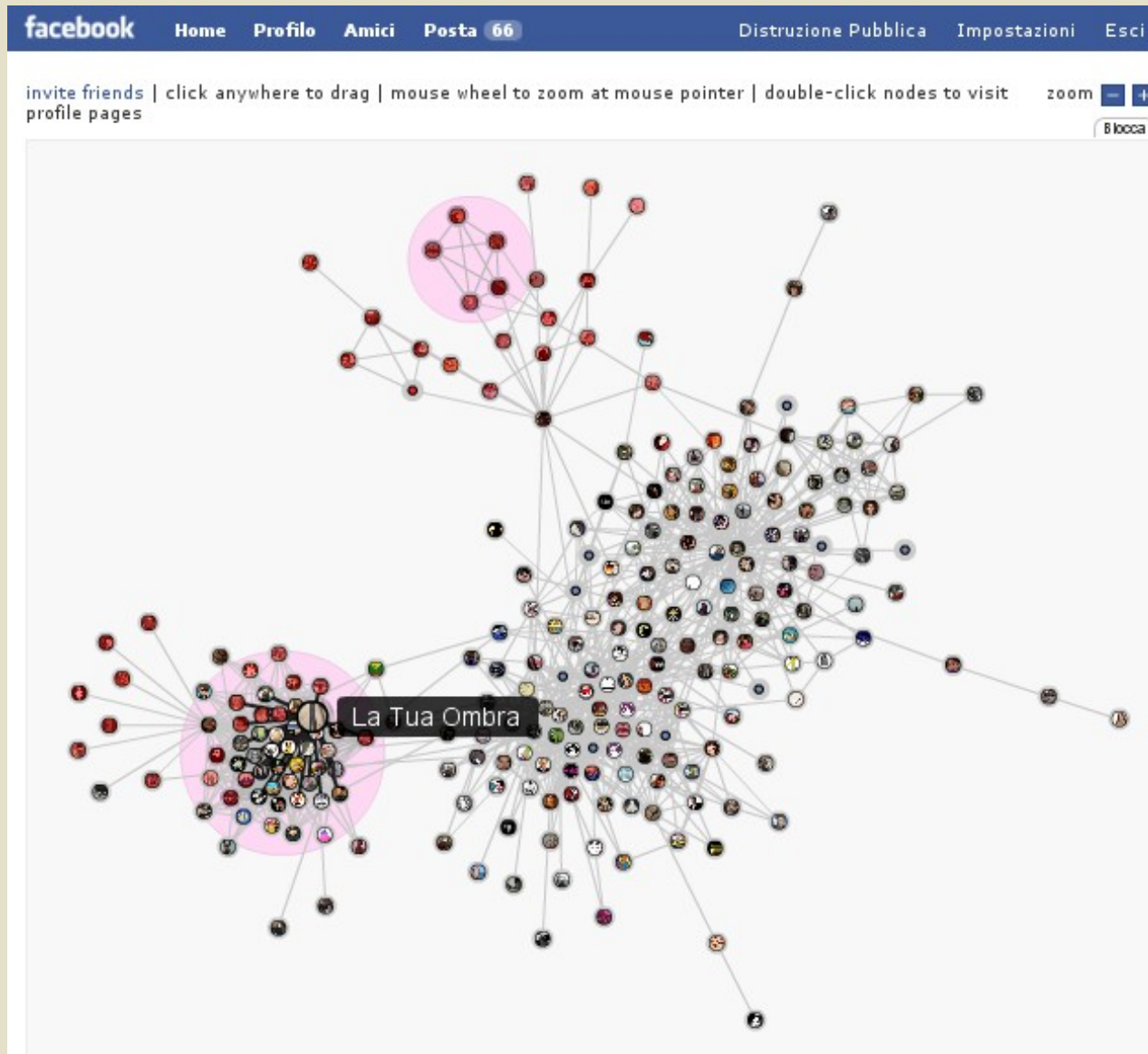
http://airwiki.elet.polimi.it/mediawiki/index.php/Social_Software_and_Semantic_Web

Social Network Data Extraction from Online Communities



- Projects and theses to:
 - extract data from the Web
 - analyze the networks
 - provide an interface for visualization
 - represent data in a semantic format

Explicit Social Network Analysis



Algorithms for:

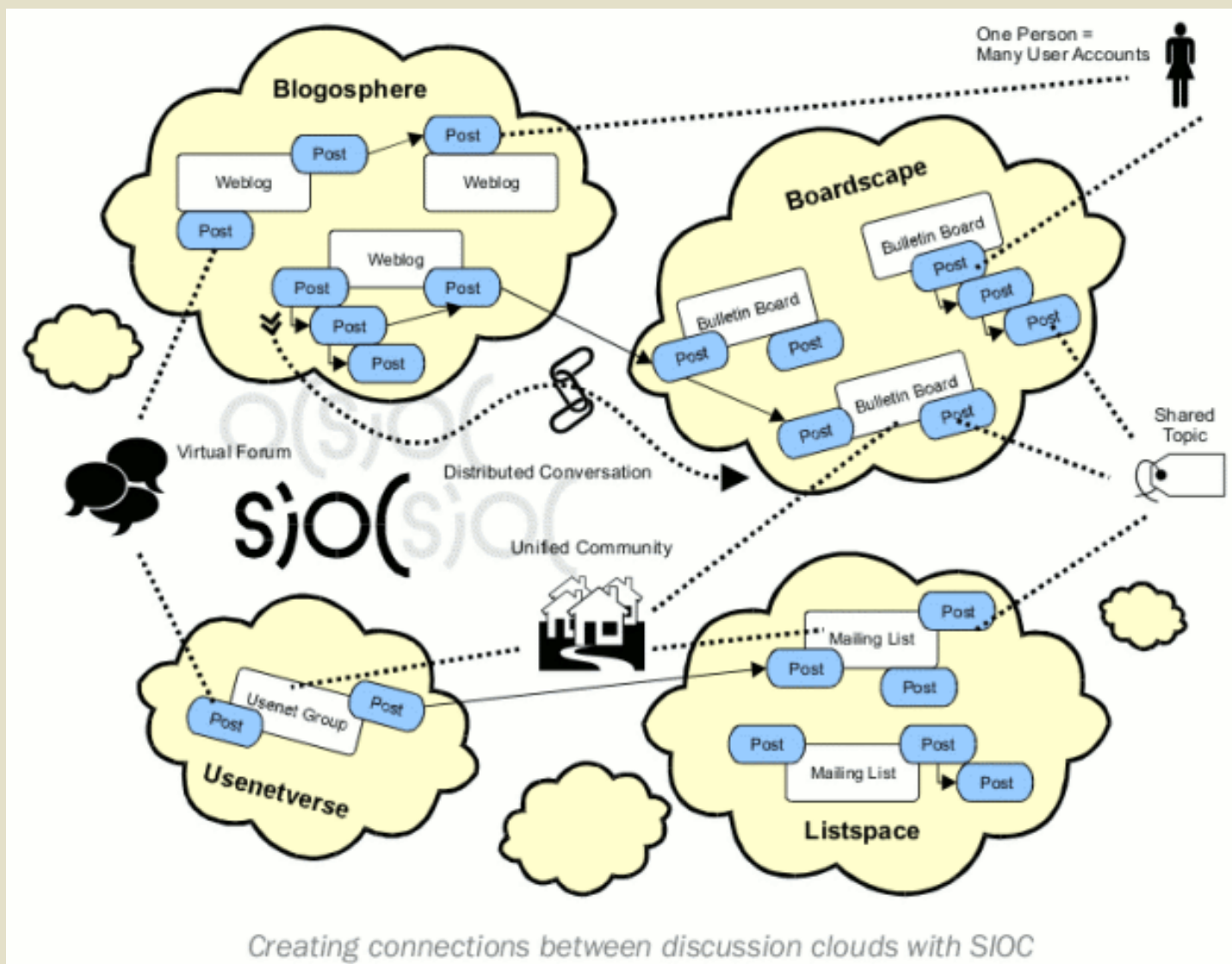
- community detection
- centrality measures
- network evolution over time
- friend suggestion
- graph visualization

for example in a Facebook application!

Implicit Social Network Analysis

- On the Web social interactions exist also if they're not declared
 - During the forum discussions
 - In blog comments
 - Accessing the same resources on the Web
 - Editing the same resources in a Wiki
- Ex: Wikipedia Social Network Analysis
 - http://airwiki.elet.polimi.it/mediawiki/index.php/Wikipedia_Social_Network
 - Define a social relationship between two users basing on how much they have been influential for the same page
 - Discover the network properties
 - Discover the “most important” users
- Applications
 - Trust Networks
 - Social search
 - Bootstrapping the Semantic Web

Semantic representation of Social Networks



Using FOAF and SIOC ontologies to study online communities

The Cathedral and the Bazaar

- The cathedral

- “experts”
- central authority
- isolation



- The bazaar

- “users-developers”
- decentralization
- information sharing
- natural selection of ideas
- “organized chaos”



Folksonomies (tag systems)

Esplora / Tag / dreams / Insieme di immagini

Vai a:



[sleep](#), [dream](#), [sleeping](#), [dreaming](#), [art](#), [blue](#),
[bed](#), [baby](#), [sweet](#), [cute](#)

→ [Visualizza altro in questo insieme di immagini...](#)



[sky](#), [abigfave](#), [nature](#), [clouds](#), [water](#), [sea](#),
[diamondclassphotographer](#), [landscape](#),
[impressedbeauty](#), [trees](#)

→ [Visualizza altro in questo insieme di immagini...](#)



[portrait](#), [woman](#), [bw](#), [selfportrait](#), [girl](#), [self](#),
[face](#), [eyes](#), [female](#), [black](#)

→ [Visualizza altro in questo insieme di immagini...](#)



[love](#), [life](#), [hope](#), [friends](#), [peace](#), [beauty](#), [heart](#),
[light](#), [red](#)

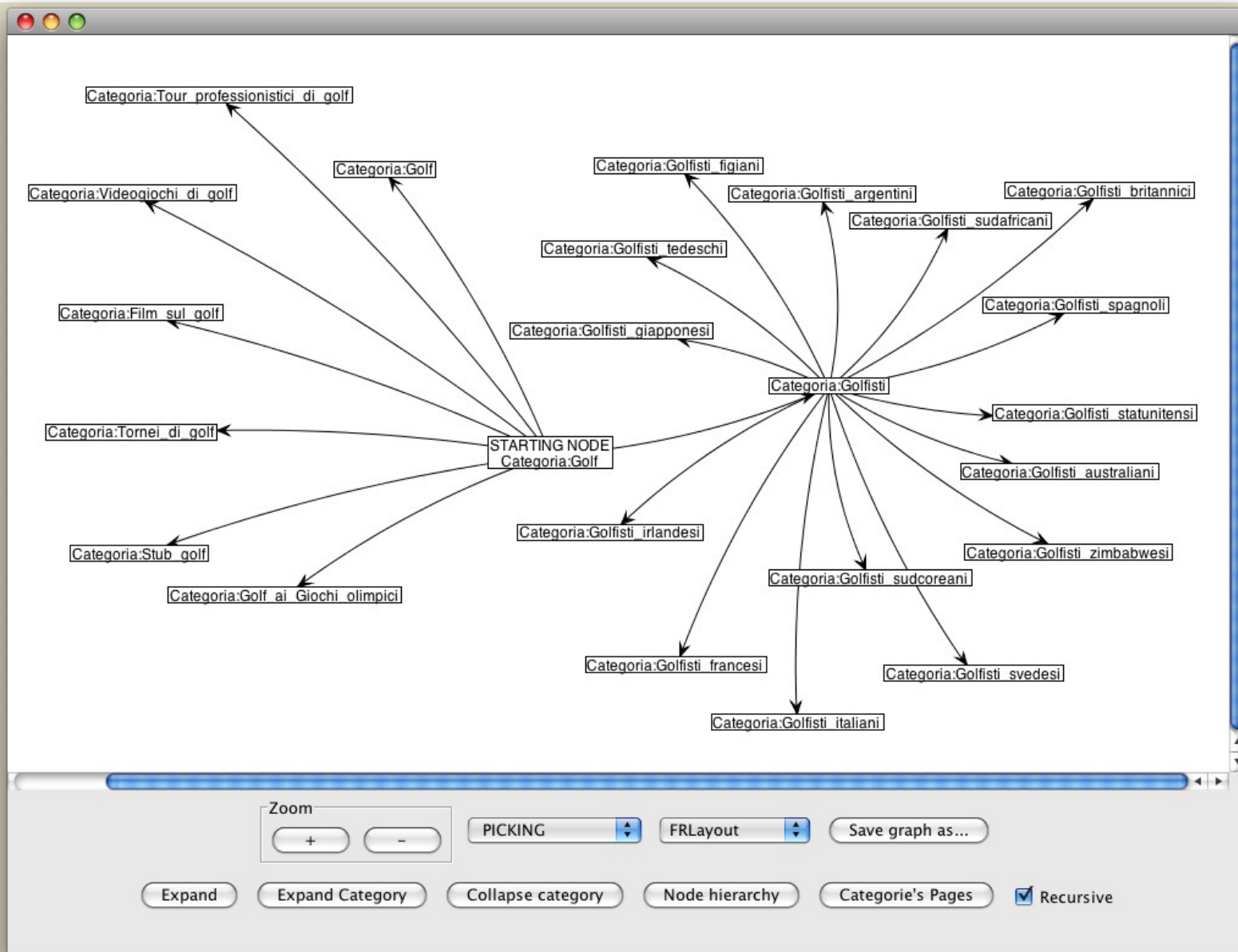
→ [Visualizza altro in questo insieme di immagini...](#)

:o) dynamic, inclusive, democratic, low cost

: '(no hierarchy, low precision and recall, gaming

Projects and theses: how to integrate tag systems with semantics?

Mining wikipedia categories



Extending a search engine with semantic information

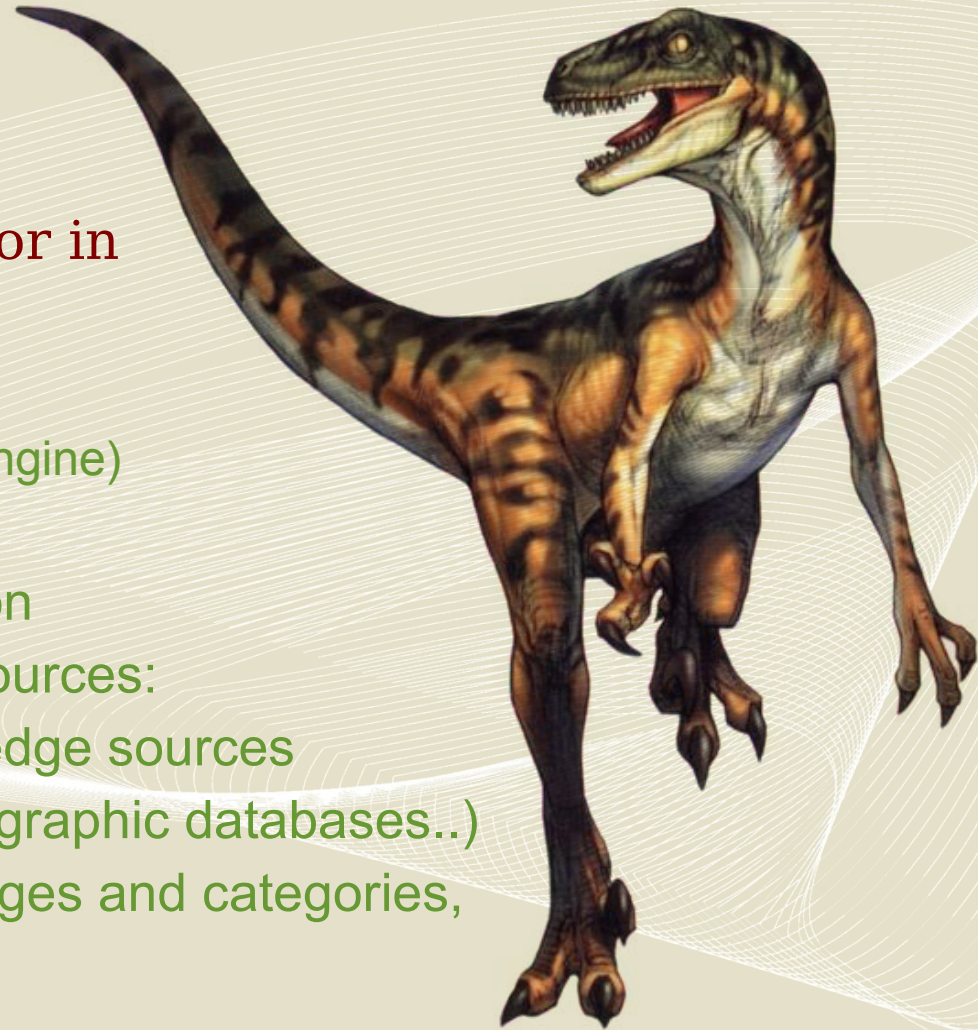
Query: “a dinosaur in a university in Lombardy”

can't match:

Document: “a velociraptor in
Politecnico di Milano”

(in a traditional search engine)

- Query and index expansion
- Semantics from various sources:
 - Existing structured knowledge sources (thesauri, ontologies, geographic databases..)
 - Social data (Wikipedia pages and categories, tags..)



Semantic Annotations

The screenshot displays a Mozilla Firefox browser window with the title "mala::home - Mozilla Firefox". The address bar shows the URL "http://davide.eynard.it/". The browser's menu bar includes "File", "Modifica", "Visualizza", "Cronologia", "Segnalibri", "Strumenti", and "Guida".

The page content features a header with the text "mala::home" and a navigation bar with links for "HOME", "ABOUT", and "RESEARCH". The main content area is titled "Posts about Vocamp Ibiza 2009" and contains the text: "Just a couple of links to other participants' feedbacks on Ibiza VoCamp:" followed by a bulleted list of links to other participants' feedbacks: "A post by Peter Mika" and "A post by Alexandre Monnin". Below this, there is a paragraph: "And now that we speak about this, here's a pic of the actual owner of our room in Ibiza: from the very first day, he followed us to the room and settled there. But we had our revenge: we gave it a new name, and now everyone calls it RDF."

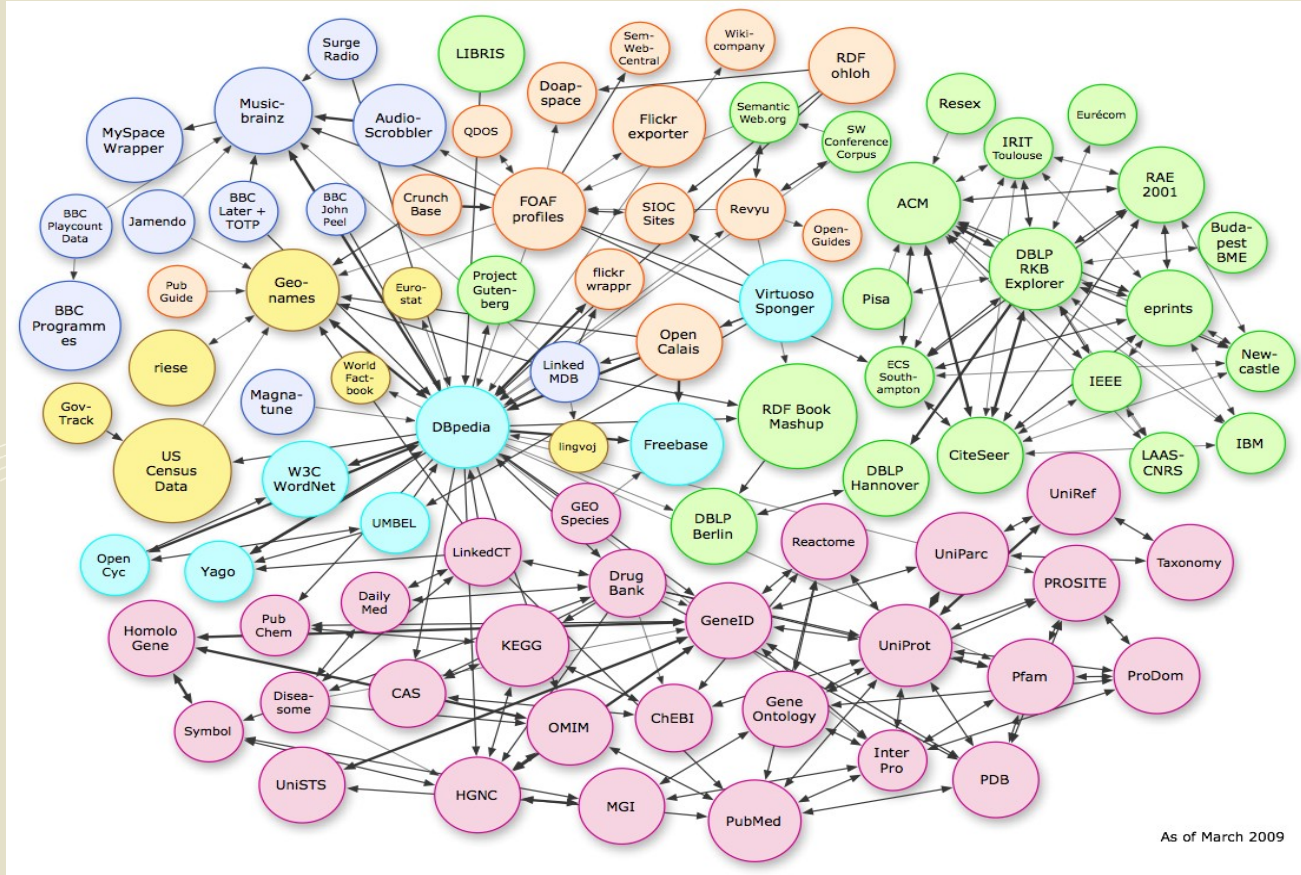
On the left side, there is a sidebar titled "elcBar" which displays semantic annotations for the URL "http://davide.eynard.it/". The annotations include:

- Rating: Average: 4.50
- Tag: Semantic Web (2), cool (1)
- SeeNext: <http://3564020356.org/>, <http://home.dei.polimi.it/eynard/>
- SeeFirst: http://davide.eynard.it/?page_id=2

Semantic annotations

- Development of a Firefox extension allowing users to:
 - annotate a Web page
 - visualize existing annotations on the current page
- Annotation aggregators from social applications
 - gather data from existing Web annotation services (ex: del.icio.us, Google Sidewiki)
 - represent them in one common semantic model
- Use case design and implementation for semantic annotations
 - choose one scenario (ex: mp3 files, photos, politics)
 - design a very simple ontology
 - implement a Web interface to update and query the ontology

Ontology Metrics



- How are ontologies used? How are they linked with others?
- Provide users with suggestions derived by statistical analyses of real-world ontologies

Logic languages

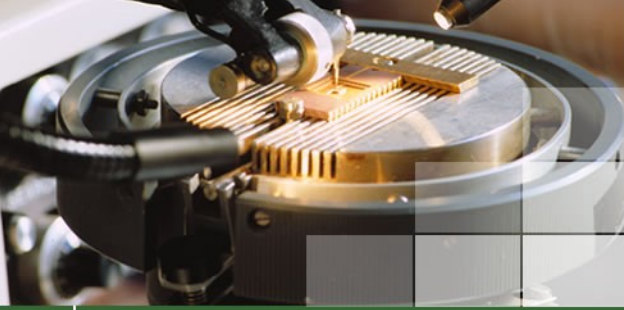
Possible extensions of OWL (Web Ontology Language):

- Probabilistic reasoning
- Temporal reasoning
- Open world - closed world
- Tractable fragments

Projects:

- Theoretical studies
- Testing existing tools
- Development of new tools





 POLITECNICO DI MILANO

Dipartimento di
Elettronica e Informazione

The Semantic Collaborative Environments Group @DEI-PoliMI

Marco Colombetti
colombet@elet.polimi.it

David Laniado
david.laniado@elet.polimi.it

Davide Eynard
eynard@elet.polimi.it

Riccardo Tasso
tasso@elet.polimi.it

http://airwiki.elet.polimi.it/mediawiki/index.php/Social_Software_and_Semantic_Web