

The Semantic Web and Linked Data

Tutorial at International Conference on Advances and Emerging Trends in Computing Technologies

Hugh Glaser
(Ian Millard)

21st. June 2010

<http://eprints.ecs.soton.ac.uk/21280/>

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UNIVERSITY OF
Southampton
School of Electronics
and Computer Science

 **Seme4**
LINKED DATA SOLUTIONS
Seme4.com

Making the Web semantic by adding metadata

<http://www2002.org>

WWW 2002

THE ELEVENTH INTERNATIONAL
WORLD WIDE WEB CONFERENCE

Sheraton Waikiki Hotel
Honolulu, Hawaii, USA
7-11 May 2002

CONFERENCE ORGANIZERS
International World Wide
Web Conference Committee

1 LOCAL

Conference Proceedings
Call for Participation
Program
Registration Information
Hotel Accommodation
Conference Committee
Sponsorship/Exhibition Opportunities
Volunteer Information
Information about Hawaii
Previous & Future WWW Conferences

Registered participants coming from:
Australia · Canada · Chile · Denmark · France · Germany · Italy · Japan · Korea · New Zealand · The Netherlands · Norway · Singapore · Switzerland · Sweden · Taiwan · Thailand · United Kingdom · United States

On 7-11 May 2002, Honolulu, Hawaii will provide the setting for the eleventh in a prestigious series of the International World Wide Web Conferences. The conference provides a public forum for the World Wide Web community to discuss the state of the art and the future of the Web.

The conference is being organized by the International World Wide Web Conference Committee (IW3C2) and the Pacific Telecommunications Council (PTC).

Tim Berners-Lee, inventor of the World Wide Web and Director of the W3C who now holds the 3Com Founders chair at the Laboratory for Computer Science (LCS) at the Massachusetts Institute of Technology (MIT).

Ian Foster, guru of "Grid Computing", associate professor at the University of Cambridge.

John W. S. Lee, chief technology officer for Hewlett-Packard Company.

James H. Martin, MacArthur Prize Winner.

Tim Berners-Lee is an invited speaker at the event

This is a type of object event and this is its title

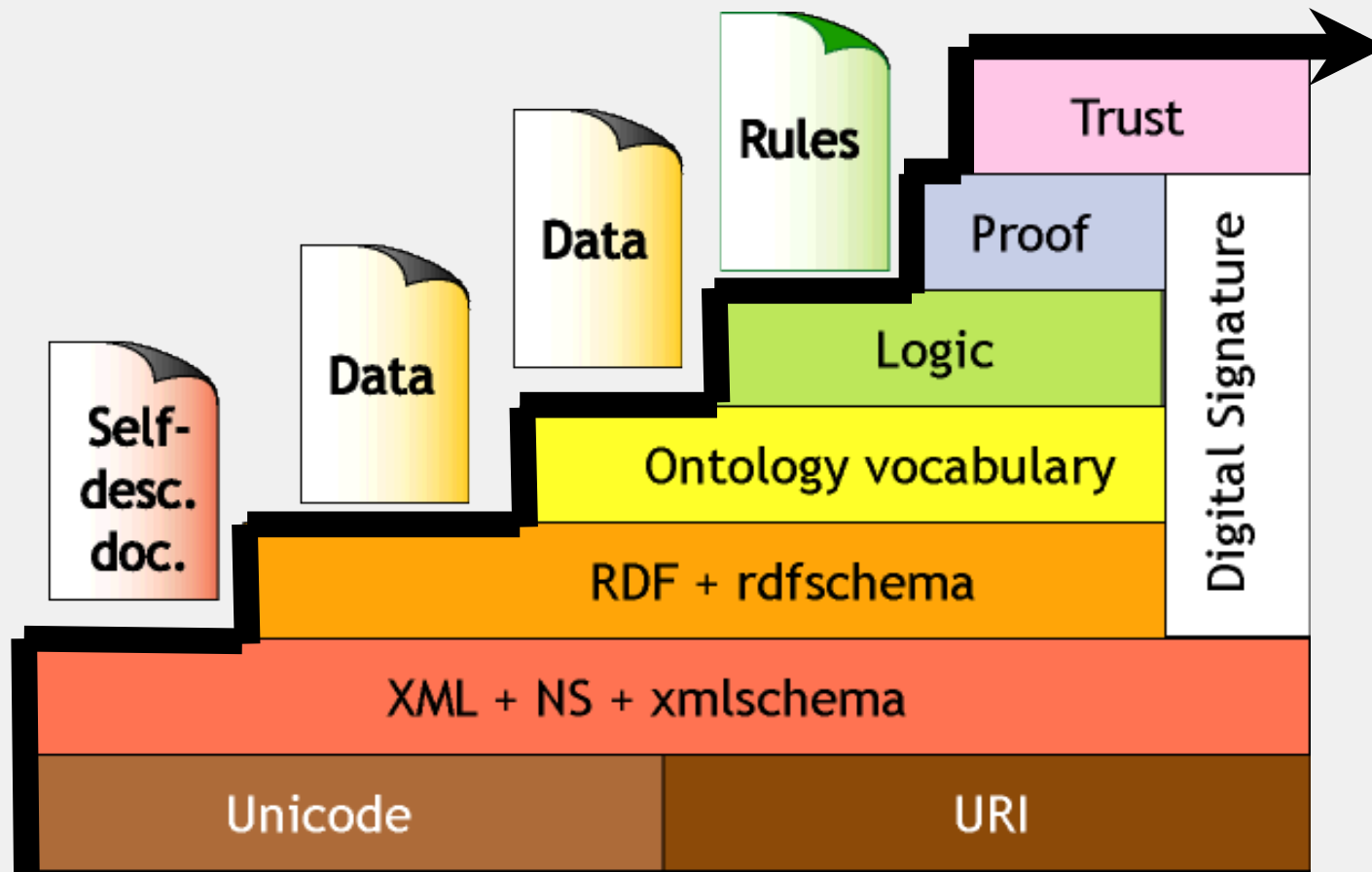
This is the URL of the web page for the event

This is a type of object photograph and the photograph is of Tim Berners-Lee

Semantic Web

- **w3.org FAQ:**
 - The **Semantic Web** provides a common framework that allows **data** to be shared and reused across application, enterprise, and community boundaries.
- **Exposing data for agents to use**
 - Including databases
- **Interoperable**
 - Naming schemes
 - Vocabularies
 - Protocols

The Semantic Web



Semantic Web LayerCake (Berners-Lee, 99; Swartz-Hendler, 2001)

Motivation

- **Publishing data becomes an imperative**
 - Freedom of Information
 - Public confidence
 - Reputation
- **Linking Data becomes an imperative**
 - Research benefits from the use of multiple datasets
 - Research benefits from datasets from different researchers
 - Connecting publications with the subject data
- **Data Fusion**
 - Breaking silos
 - Socio-political problem
 - data.gov.uk

How to Join?

- **Hypertext Style/ Cool URIs don't change.**
 - <http://www.w3.org/Provider/Style/URI>
- **Cool URIs for the Semantic Web**
 - <http://www.w3.org/TR/cooluris/>
- **Linked Data - Design Issues**
 - <http://www.w3.org/DesignIssues/LinkedData.html>
- **How to publish Linked Data on the Web**
 - <http://www4.wiwi.fu-berlin.de/bizer/pub/LinkedDataTutorial/>
- **Linked Data**
 - <http://linkeddata.org/>



ECHT'90



CERN DD/OC

Information Management: A Proposal

Tim Berners-Lee, CERN/DD

March 1989

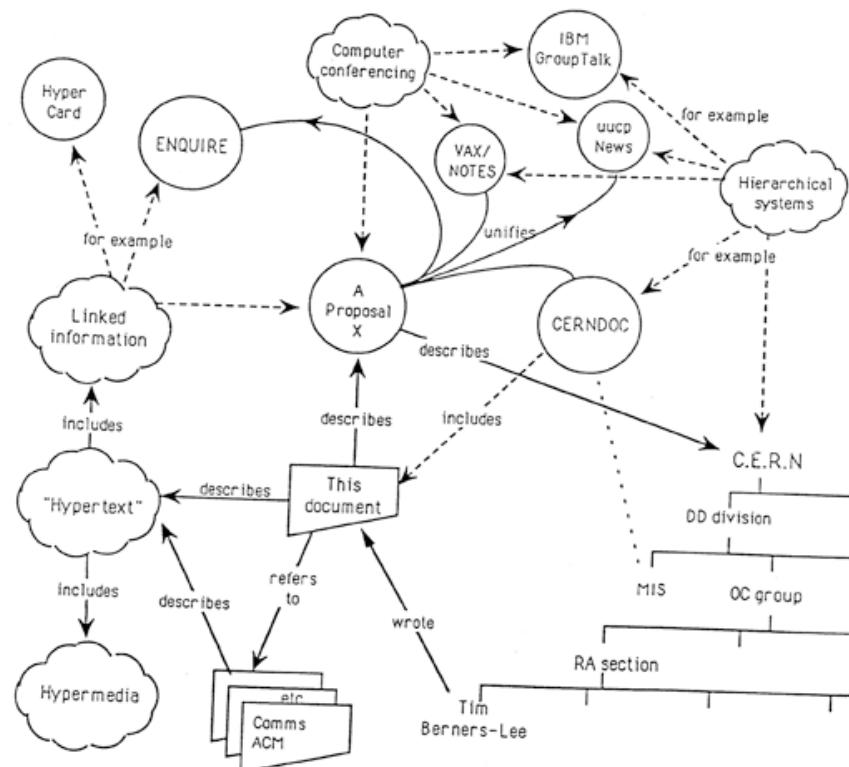
<http://www.w3.org/History/1989/proposal.html>

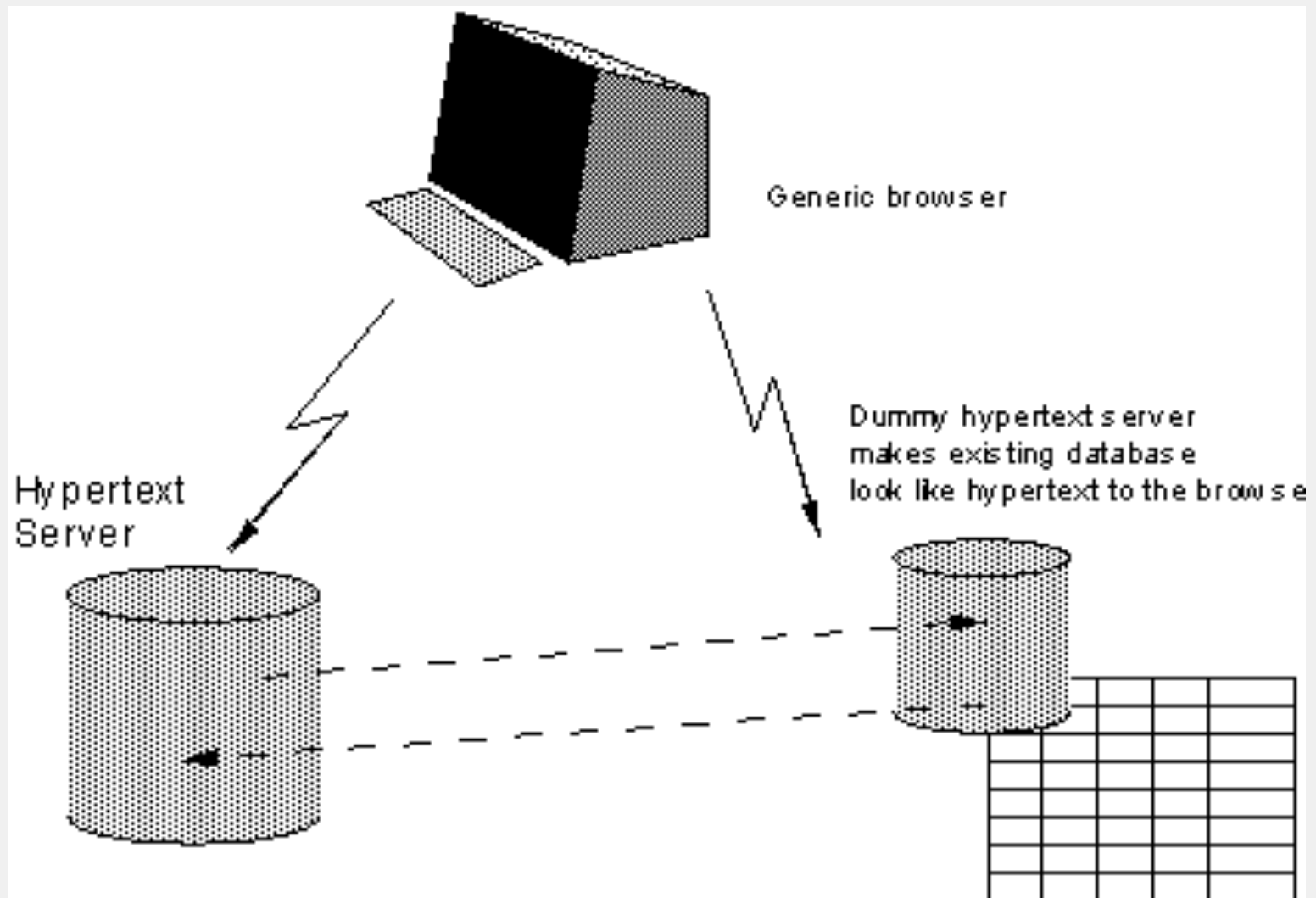
Information Management: A Proposal

Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control





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http://data.gov.uk/ RSS Wittgenstein

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HM Government data.gov.uk BETA

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Unlocking innovation
Working with UK Public
Sector information and data

Subscribe by RSS

Community
Log in / Sign up

Local Data Panel

What is the Semantic Web?
Combining different data sources has never been easy but the Semantic Web will enable data to be joined easily across boundaries.
Read more

Digital Engagement
Twitter stream

RT

Latest datasets

- 18 June Estimated government [workforce](#) including consultants
- 14 June More [COINS](#) public spending data: now covers 2005 to 2010
- 10 June Lists of [all Special Advisers](#) and [Cabinet Office staff](#)
- 4 June The [COINS database](#) of public spending

What we do

data.gov.uk is a key part of the Government's [Transparency programme](#) for the UK public sector as a whole. Working with Sir Tim Berners-Lee, Professor Nigel Shadbolt and Tom Steinberg and other members of the Cabinet Office Minister's new [Public Sector Transparency Board](#) this site seeks to give a way into the wealth of government data becoming available. It's under constant development and we want to work with you to make it better.

Search Data

Enter keyword(s) Search

Browse for Data

[Random dataset](#)

DATA.gov

http://www.data.gov/

Wittgenstein

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DATA Data.gov

An Official Web Site of the United States Government

Sunday, June 20, 2010 Text: A+ A- A Share

DATA.gov
EMPOWERING PEOPLE

HOME DATA TOOLS COMMUNITY METRICS DIALOGUE

A GLOBAL MOVEMENT TO DEMOCRATIZE DATA

VIEW MORE ▶

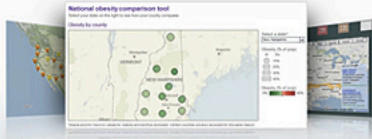
Most Popular Datasets

1. US Topo 7.5-minute map for Imperial, TX
2. U.S. Overseas Loans and Grants (Greenbook)
3. Worldwide M1+ Earthquakes, Past 7 Days
4. Latest Volumes of Foreign Relations of the...
5. MyPyramid Food Raw Data

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APPS



With so much government data to work with, developers are creating a wide variety of applications, mashups, and visualizations. From crime statistics by neighborhood to the best towns to find a job to seeing the environmental health of your community—these applications arm citizens with the information they need to make decisions every day. Enjoy these highlights of the hundreds of applications available.

COMMUNITY

Data.gov is leading the way in democratizing public sector data and driving innovation. The data is being surfaced from many locations making the Government data stores available to researchers to perform their own analysis. Developers are finding good uses for the datasets, providing interesting and useful applications that allow for new views and public analysis. This is a work in progress, but this movement is spreading to cities, states, and other countries. After just one year a community is born around open government data.

Just look at the numbers:

- 6 Other nations establishing open data
- 8 States now offering data sites
- 8 Cities in America with open data
- 236 New applications from Data.gov datasets

SEMANTIC WEB

As the Web of linked documents evolves to include the Web of linked data, we're working to maximize the potential of Semantic Web technologies to realize the promise of Linked Open Government Data.

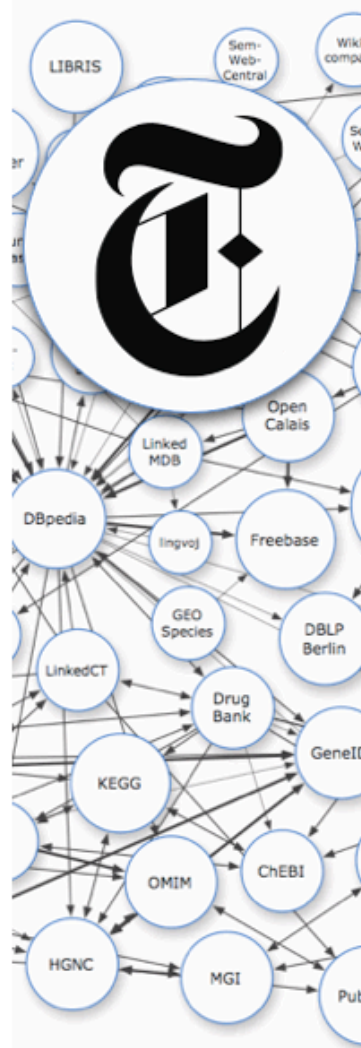


Thanks to our collaboration with the **Tetherless World Constellation** at the **Rensselaer Polytechnic Institute**, Data.gov is now hosting one of the largest open collections of RDF datasets in the world! Check out some of their semantic mashups **we're featuring** and read our blog entry to learn more about where we are, where we're going, and why we think this

The New York Times

Linked Open Data BETA

Search data.nytimes.com

**data.nytimes.com**

For the last 150 years, The New York Times [has maintained](#) one of the most [authoritative news vocabularies](#) ever developed. In 2009, we began to publish this vocabulary as linked open data.

The Data

As of 13 January 2010, The New York Times has published approximately 10,000 subject headings as [linked open data](#) under a [CC BY](#) license. We provide both [RDF](#) documents and a human-friendly [HTML](#) versions. The table below gives a breakdown of the various tag types and mapping strategies on data.nytimes.com.

Type	Manually Mapped Tags	Automatically Mapped Tags	Total
People	4,978	0	4,978
Organizations	1,489	1,592	3,081
Locations	1,910	0	1,910
			9,969

Browse individual data records:[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)**SKOS Files**

Download all of the data records as [SKOS](#) Files.

- [People](#)
- [Organizations](#)
- [Locations](#)

Using Our Linked Data

Want to learn more about the nuts and bolts of our RDF documents? [This page](#) provides technical documentation. [This blog post](#) provides step-by-step instructions for building your own NYT Linked Data Application.



Text only Help

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MUSIC BETA

GENRES ARTISTS REVIEWS NEWS BLOG

QUICK FIND Enter an artist name ...

BBC Music > Artists > Iron Maiden

Iron Maiden

Formed 1975.
English heavy metal band

PLAYED MOST ON **BBC**
RADIO

Robert Knight/Redferns

Biography

Iron Maiden are an English heavy metal band from Leyton in East London, formed in 1975. The band is directed by founder, bassist and songwriter Steve Harris. Since their inception, the group has released a collective total of thirty albums: fourteen studio albums, seven live albums, four EPs and five compilations.

Pioneers of the New Wave of British Heavy Metal, with such an original sound they achieved success during the early 1980s and after several lineup changes, went on to release a series of platinum and gold albums. These include the US platinum-selling landmarks *The Number of the*

Now On The BBC

Bruce Dickinson's Friday Rock Show

Bruce plays brand new and classic metal with an array of top flight guests on 6 Music



Latest Tracks Played On The BBC

Run To The Hills

BBC 6 Music | [Lauren Laverne 08/04/2010](#)

Run To The Hills (Live at Maida Vale)

BBC Radio 1 | [Dev 02/04/2010](#)

Aces High

BBC 6 Music | [Jon Holmes 27/02/2010](#)

British Museum – Search object details

http://www.britishmuseum.org/research/search_the_collection_database/search_object_details.aspx?objectId=11763 Reader Google

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British Museum – Search object ...



AN16456004

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Gallery Side: right Side: left

Department: Ancient Egypt & Sudan

Registration number: .24

BM/Big number: 24

Additional IDs
BS.24

Location:
G4/CSE

[Commission photography](#)

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Excavated/Findspot: Fort Saint Julien ([all objects](#))

Date
196BC

Period/Culture
Ptolemaic ([scope note](#) | [all objects](#))

Description
Part of grey and pink granodiorite stela bearing priestly decree concerning Ptolemy V in three blocks of text: Hieroglyphic (14 lines), Demotic (32 lines) and Greek (53 lines).

Inscriptions
Inscription Type: inscription
Inscription Language: Greek

Inscription Type: inscription
Inscription Script: hieroglyphic
Inscription Language:
Inscription Comment: The inscription is a decree passed by a council of priests, one of a series that affirm the royal cult of the 13 year-old Ptolemy V on the first anniversary of his coronation.

Inscription Type: inscription
Inscription Script: demotic
Inscription Language:

Dimensions
Length: 112.3 centimetres (max)
Width: 75.7 centimetres
Thickness: 28.4 centimetres

[More about object](#) **Conservation**

[April 2010 – Temporary Exhibition](#) +

[April 1992 – Examination](#) +

[About these records](#)

◀ Previous 4 of 26 Next ▶

One error in opening the page. For more information, choose Window > Activity.

Linked Data

Tim Berners-Lee speaks on Linked Data

This slide set was presented at the TED 2009 conference, "The Great Unveiling" in Long Beach, CA. USA, 4, Feb 2009.

- **Tim Berners-Lee**

- <http://www.w3.org/2009/Talks/0204-ted-tbl/>
- “the Semantic Web done right, and the Web done right”





The Calais initiative is about enabling semantic applications by providing a metadata generation web service, sample applications using that service to jumpstart development efforts, and support for developers.

Guardian opens APIs and 'Data Store'

The Guardian launched its Open Platform with APIs for all of its content and a sets of data collected by its editors.

BBC: <http://www.bbc.co.uk/music/artists/d4d17620-fd97-4574-92a8-a2cb7e72ce42.rdf>

web scale

- REST (ROA, WOA)
 - Web page = Web Service
 - XHTML+RDFa markup for people and machines
 - *resource* as *public record*
 - global visibility and persistence of URI's
- Atom as RESTful API
 - introspection service for feed resource *discovery*
 - HTTP *uniform interface*
 - CRUD analog - PUT/GET/POST/DELETE
 - <entry> as *recordset* </entry> resource state event
- atom+xml and xhtml+xml *representations*
 - Caching, Crawling and indexing
- Web = DB
 - Linked Open Data SPARQL endpoints, XHTML+RDFa

Bi2RDF.org

Semantic web atlas of postgenomic knowledge

UniProt protein, uniprot:P26838

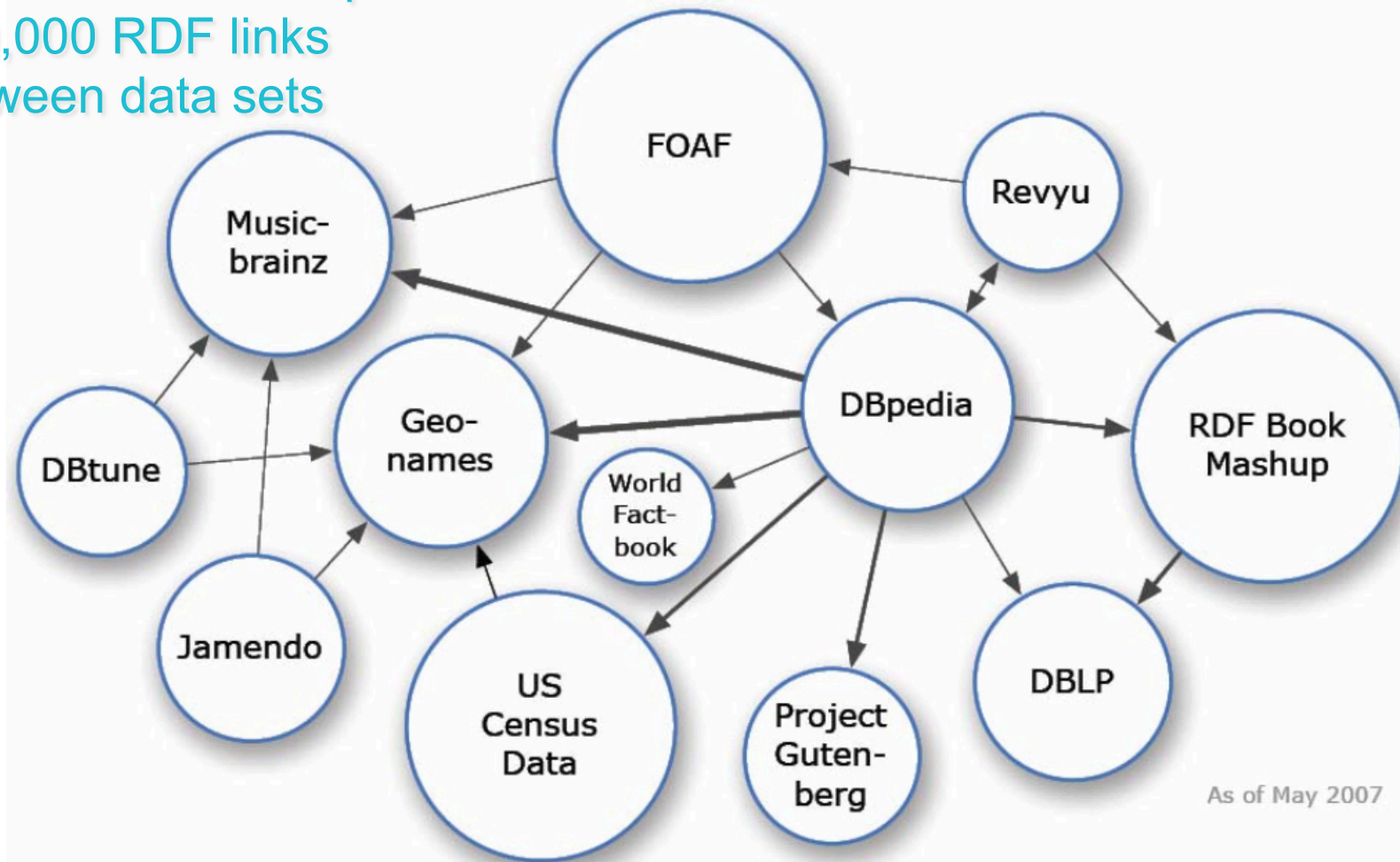
George Thomas
U.S. government's recovery.gov

Linked (Open) Data

- **The “practical side” of the Semantic Web**
- **Move from a Web of Text to a Web of Data, where the meaning is specified using metadata (RDF)**
- **Machine to machine communication**
 - “Silent revolution” (Tom Ilube @ G20 IdeasLab)
- **Facilitates fusion of data sources**
 - Maintaining distribution of the data at the providers and others
- **Can provide powerful knowledge processing**

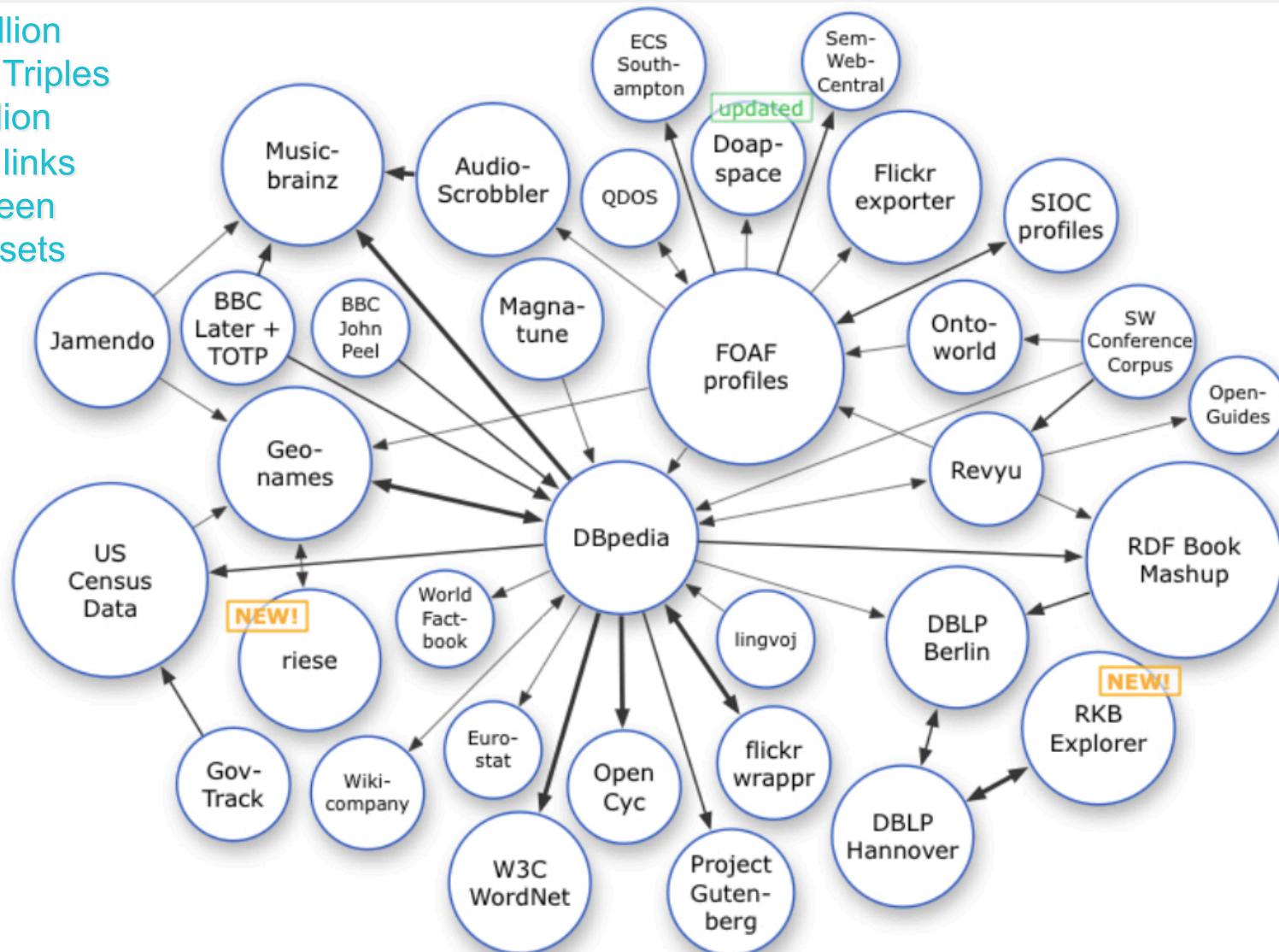
Linked Data on the Web: May 2007

500 Million RDF Triples
120,000 RDF links
between data sets

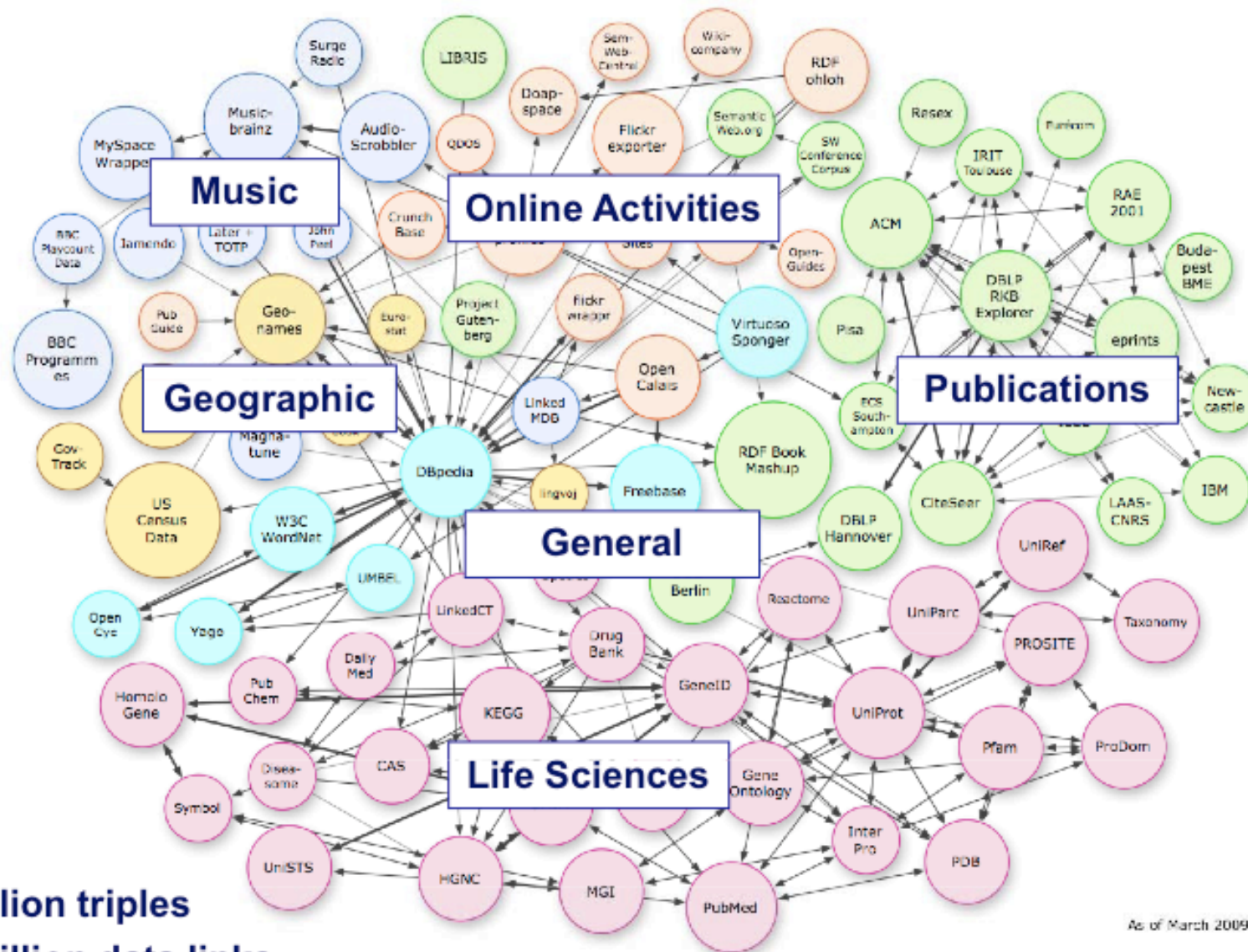


Linked Data on the Web: April 2008

23 billion
RDF Triples
3 million
RDF links
between
data sets



LOD Datasets on the Web: March 2009



4.5 billion triples
180 million data links

As of March 2009

Linked Data Principles

Tim Berners-Lee

Date: 2006-07-27, last change: \$Date: 2007/05/02 14:30:56 \$

Status: personal view only. Editing status: imperfect but published.

- <http://www.w3.org/DesignIssues/LinkedData.html>

1. Use URIs as names for things

- **Duh!**
- **Everything**
 - If you don't name something you can't talk about it
 - Things of course
 - Workflows
 - Ideas
 - ...
- **Cool URIs**
 - Think of the consumer/customer
 - https://secure.ecs.soton.ac.uk/gizmos/person_by_username.php?username=hg
 - <https://secure.ecs.soton.ac.uk/person/username/hg>
 - Library of Congress - *Chronicling America*: Historic American Newspapers
 - <http://chroniclingamerica.loc.gov/>
 - Cool URIs – 71233 page views per week to 447992 - factor of 6.3
- **Ambiguity**
 - URIs help to avoid it, especially if you...

2. Use HTTP URIs so that people can look up those names

- HTTP URI names come with an excellent look up mechanism
- And ownership, etc.
- Make sure they are Cool

3. When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL)

- **Otherwise I don't know what you mean**
- **Deliver some human readable data**
 - html
- **Deliver some machine processable data**
 - RDF
 - JSON
 - CSV
 - text
- **Query is good**
 - SPARQL

RDF (Resource Description Framework)

“Hugh Glaser works for the University of Southampton”

person-00021

name

"Hugh Glaser"

person-00021

works-for

Southampton_University

Southampton_University

label

"The University of Southampton"

25

How to Publish Linked Data on the Web:- <http://www4.wiwiw.fu-berlin.de/bizer/pub/LinkedDataTutorial/>

RDF (Resource Description Framework)

“Hugh Glaser works for the University of Southampton”

```
<http://southampton.rkbexplorer.com/id/person-00021>  
  <http://xmlns.com/foaf/0.1/name>  
    "Hugh Glaser" .
```

```
<http://southampton.rkbexplorer.com/id/person-00021>  
  <http://aktors.org/ontology/portal#works-for>  
    <http://dbpedia.org/resource/Southampton_University> .
```

```
<http://dbpedia.org/resource/Southampton_University>  
  <http://www.w3.org/2000/01/rdf-schema#label>  
    "The University of Southampton" .
```


RDF (Resource Description Framework)

- **RDF Triples constitute a graph**
 - <subject-uri> <predicate-uri> <object-uri>
 - <subject-uri> <predicate-uri> “String”
- ***ontologies* define vocabularies, types and relationships**
- **Agreed URIs facilitate linkage between datasets**

SPARQL

PREFIX soton-rkb: <http://southampton.rkbexplorer.com/id/>

PREFIX akt: <http://www.aktors.org/ontology/portal#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

SELECT * WHERE

{ soton-rkb:person-04860 akt:works_for ?org . ?org rdfs:label ?name . }

org	name
http://southampton.rkbexplorer.com/id/UoS	University of Southampton
http://southampton.rkbexplorer.com/id/org-ecs	School of Electronics and Computer Science, University of Southampton

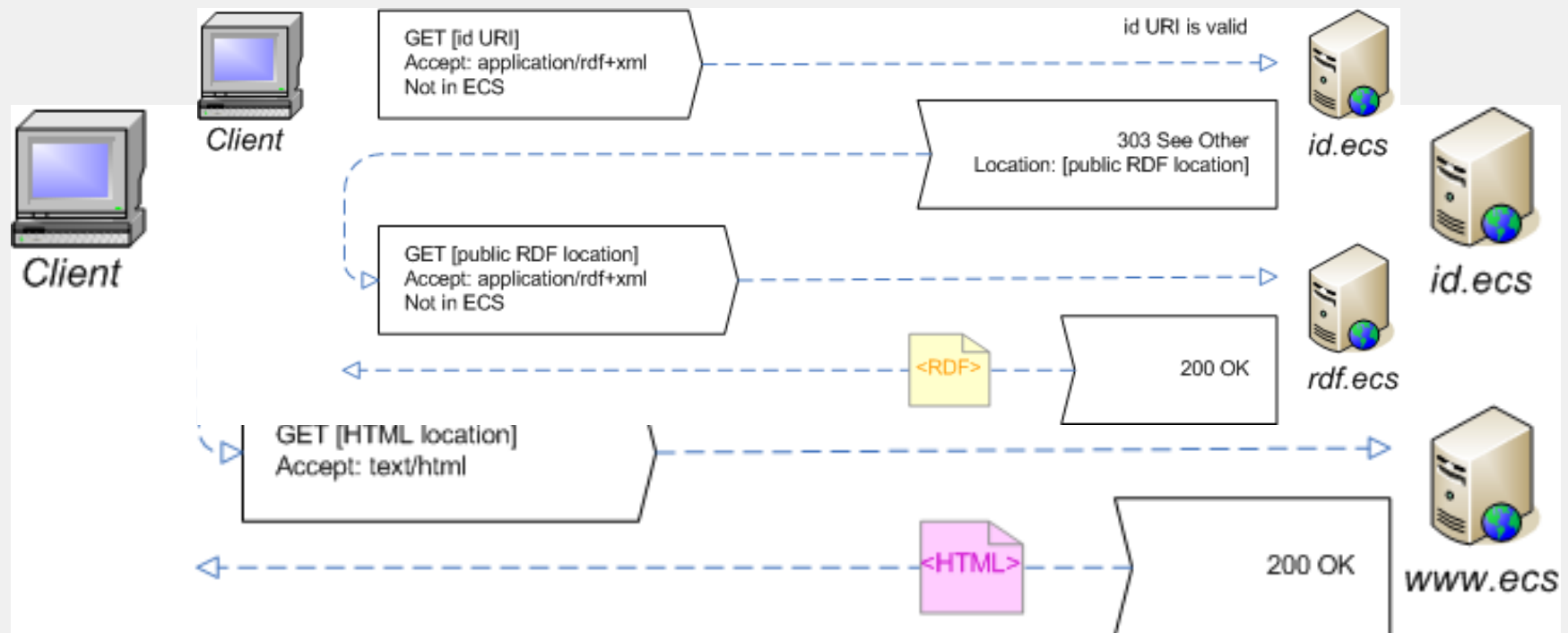
4. Include links to other URIs. so that they can discover more things

- **“Foreign” URIs**
 - `dbpedia:Southampton_University`
- **Equivalence**
 - `owl:sameAs`
 - `skos:exactMatch`
 - ...

IR & NIR

- **Information Resource**
 - Can be sent down a wire
- **Non-Information Resource**
 - Cannot be sent down a wire
- **Often “You are not your webpage”**
- **Clarity of meaning is all in language, as Wittgenstein et al. knew.**

Linked Data URI Resolution



Example: ReSIST Project Knowledge Sources

- **Partners**
- **Publications**
- **Funding Agencies**
- **Project Wiki**
- **Courseware**
- **Resilient-Explicit Computing**

- **Wide range, don't just look where you expect to find**

RKBExplorer – the ReSIST Project

RKBExplorer » Projects » ReSIST Resilience for Survivability in IST

http://www.rkbexplorer.com/explorer/#display=project-%7Bhttp%3A//wiki.rkbexplorer.com/id/resist%7D

People » Tim Berners-Lee Projects » ReSIST Resilience for S...

Search... Search

about system requirements
help data sources
contact acknowledgements

Related projects

Details

Title:
Resilience for survivability in IST

Other Names:
ReSIST Resilience for Survivability in IST

Project Overview:
ReSIST is a NoE that addresses the strategic objective "Towards a global dependability and security framework" of the Work Programme, and responds to the stated "need for resilience, self-healing, dynamic content and volatile environments". It will integrate leading researchers active in the multidisciplinary domains of Dependability, Security, and Human Factors, in order that Europe will have a well-focused coherent set of research activities aimed at ensuring that future "ubiquitous computing systems", the immense systems of ever-evolving networks of computers and mobile devices which are needed to support and provide Ambient Intelligence (AmI), have the necessary resilience and survivability, despite any residual development and physical faults, interaction mistakes, or malicious attacks and disruptions. The objectives of the Network are: 1) Integration of teams of researchers so that the fundamental topics

People

- Jean-Claude Laprie
- Aad van Moorsel
- Abdelmajid Khelil
- Achour Mostefaou
- Adnan Noon Mian
- Afraz Jaffri
- Agnan de Bonneval
- Alberto Pasquini
- Alessia Milani

Organisations

- The University of Newcastle upon Tyne
- LAAS-CNRS
- CITY UNIVERSITY LONDON
- Laboratoire d'Analyse et d'Architecture des Systèmes
- The University of Pisa
- Institut Eurecom
- Technische Universität Darmstadt
- UNIVERSITA DEGLI STUDI DI ROMA "LA SAPIENZA" - UNIVERSITY OF ROME "LA SAPIENZA"

Publications

- Malicious- and Accidental-Fault Tolerance in Internet Applications: conceptual model and architecture
- Conceptual Model and Architecture
- Conceptual model and architecture of MAFTIA
- ASSERT Automated proof based system and software engineering for real-time applications
- Malicious- and Accidental-Fault Tolerance in Internet Applications: reference model and use cases
- Revised version in Predictably dependable computing systems

Research Areas

- Testing
- Safety
- Trust
- Human Made Fault
- Symbolic Execution
- Dependability And Security Provision
- Dependability, High Confidence, Survivability
- Development Fault
- Environment

A Paper

RKBExplorer » Publications » A Web-Based Resource Model for eScience: Object Reuse & Exchange

http://www.rkbexplorer.com/explorer/#display=publication-%7Bhttp%3A//dblp.rkbexplorer.com/id/journals/corr/abs-0811-0573 Google

RKBExplorer » Publications » A Web-Based Resource Model for eScience: Object Reuse & Exchange

Search... Search

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help data sources
contact acknowledgements

Related publications

Details

Title:
A Web-Based Resource Model for eScience: Object Reuse & Exchange

Author:
[Herbert Van de Sompel](#)
[Simeon Warner](#)
[Michael Nelson](#)
[Pete Johnston](#)
[Robert Sanderson](#)
[Carl Lagoze](#)

Web Address:
<http://arxiv.org/abs/0811.0573>

Journal:

Volume:
abs/0811.0573

People

[Carl Lagoze](#)
[Herbert Van de Sompel](#)
[Michael Nelson](#)
[Pete Johnston](#)
[Robert Sanderson](#)
[Simeon Warner](#)

Organisations

[Cornell University](#)

Publications

[Object Re-Use & Exchange: A Resource-Centric Approach](#)
[Pathways: augmenting interoperability across scholarly repositories](#)
[A Practical Ontology for the Large-Scale Modeling of Scholarly Artifacts and their Usage](#)
[Access Interfaces for Open Archival Information Systems based on the OAI-PMH and the OpenURL Framework for Context-Sensitive Services](#)
[An Architecture for the Aggregation and Analysis of Scholarly Usage Data](#)

Research Areas

No results found

34

Now Look at an Author

RKBExplorer » People » Carl Lagoze

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contact acknowledgements

Related people

Details

Full Name: [Carl Lagoze](#)

Email Address: lagoze@cs.cornell.edu

Raw Linked Data:
[Resolvable URI](#)
[All Known Co-reference Data](#)

View in external viewer:
[Zitgist Data Viewer](#)
[OpenLink Data Explorer](#)
[Tabulator \(Firefox only\)](#)

People

- [Herbert Van de Sompel](#)
- [Dean Krafft](#)
- [Donna Bergmark](#)
- [James R. Davis](#)
- [John Saylor](#)
- [Pavel Dmitriev](#)
- [Simeon Warner](#)
- [Carol Terrizzi](#)
- [Diane Hillmann](#)
- [Jane Hunter](#)

Research Areas

- [H.3.7. Digital Libraries](#)
- [H.3.5. Online Information Services](#)
- [H.3.3. Information Search and Retrieval](#)
- [H.3.4. Systems and Software](#)
- [H.3.6. Library Automation](#)
- [H.5.3. Group and Organization Interfaces](#)
- [I.7. DOCUMENT AND TEXT PROCESSING](#)
- [C.2.1. Network Architecture and Protocols](#)

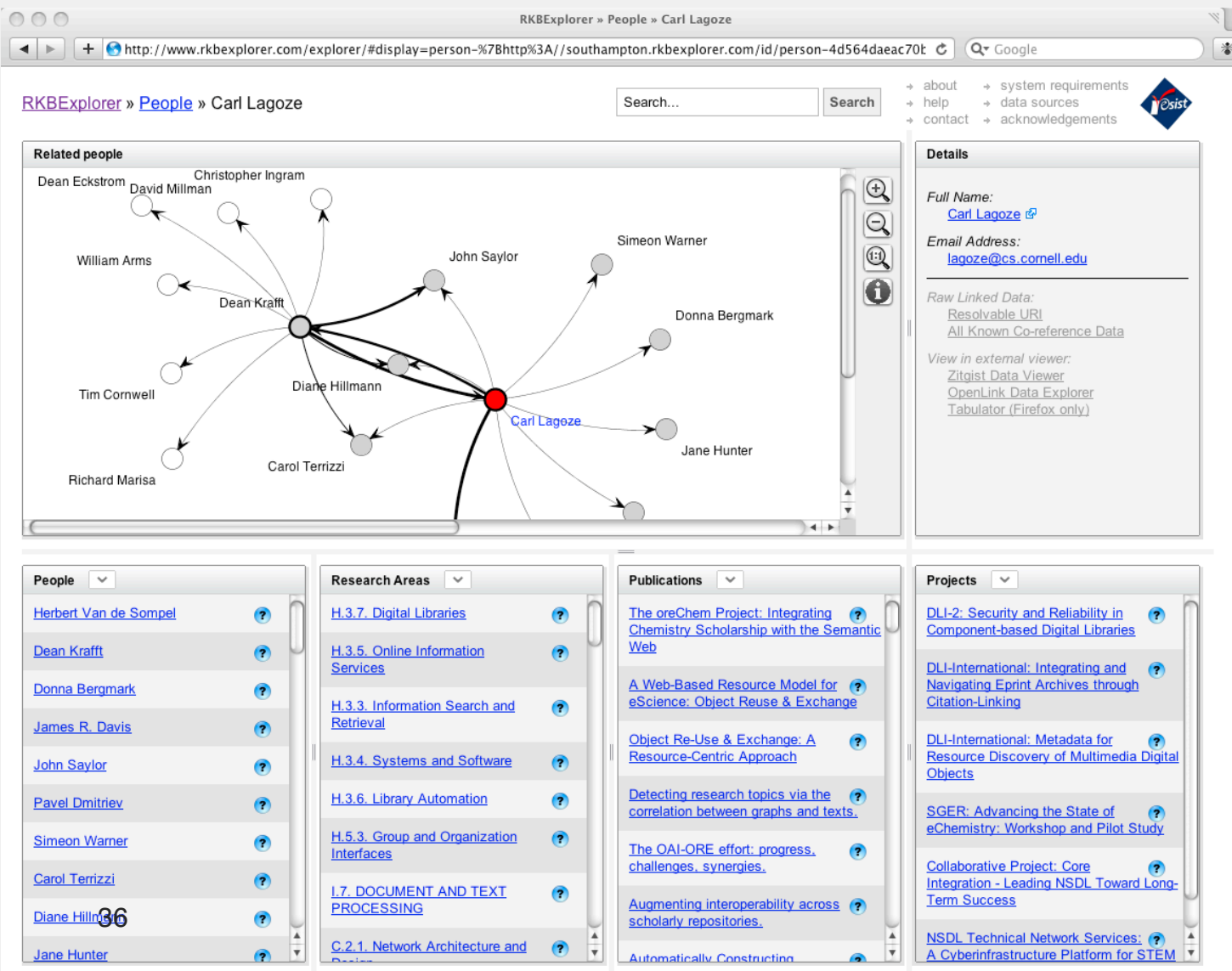
Publications

- [The oreChem Project: Integrating Chemistry Scholarship with the Semantic Web](#)
- [A Web-Based Resource Model for eScience: Object Reuse & Exchange](#)
- [Object Re-Use & Exchange: A Resource-Centric Approach](#)
- [Detecting research topics via the correlation between graphs and texts.](#)
- [The OAI-ORE effort: progress, challenges, synergies.](#)
- [Augmenting interoperability across scholarly repositories.](#)
- [Automatically Constructing](#)

Projects

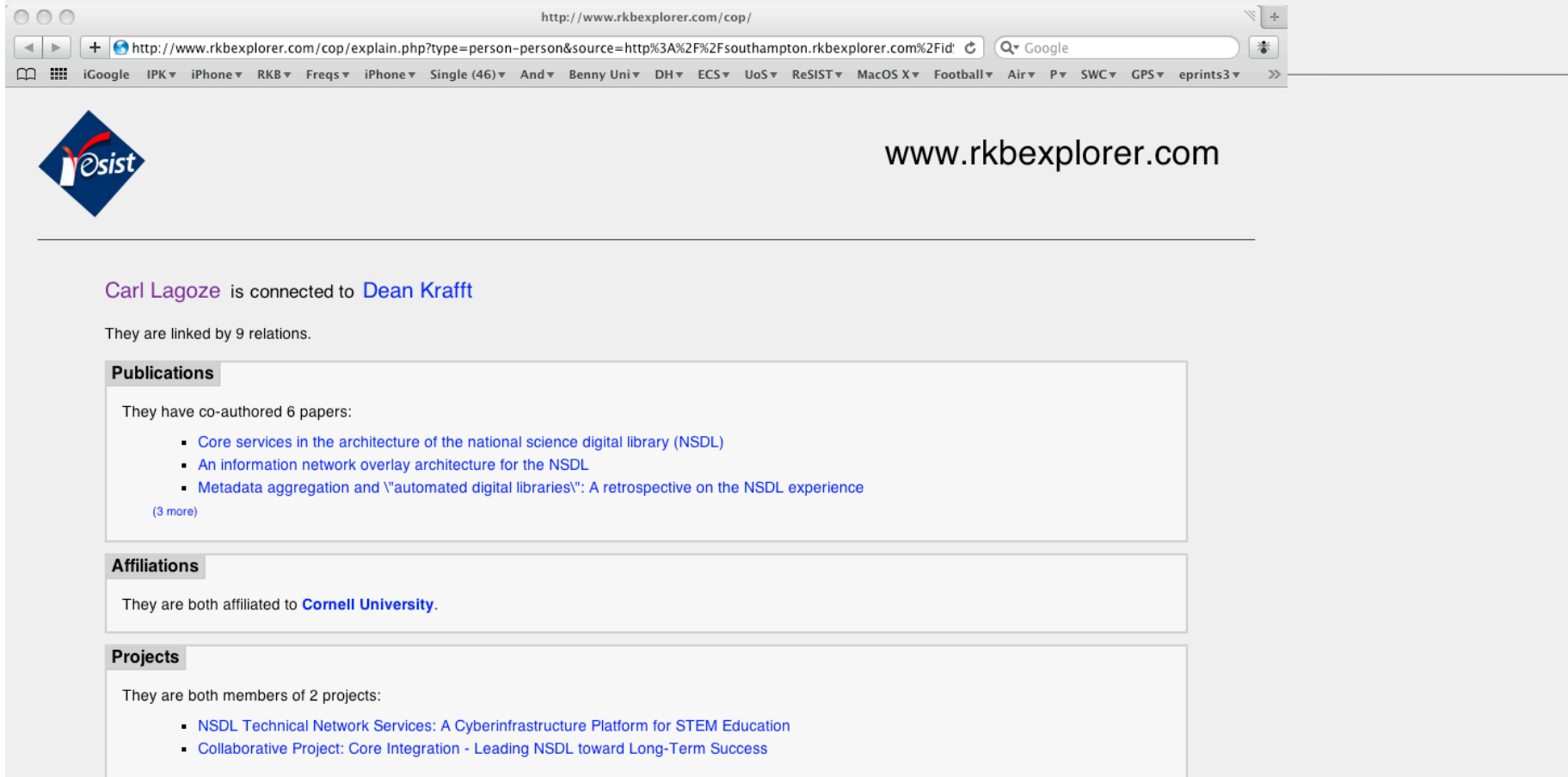
- [DLI-2: Security and Reliability in Component-based Digital Libraries](#)
- [DLI-International: Integrating and Navigating Eprint Archives through Citation-Linking](#)
- [DLI-International: Metadata for Resource Discovery of Multimedia Digital Objects](#)
- [SGER: Advancing the State of eChemistry: Workshop and Pilot Study](#)
- [Collaborative Project: Core Integration - Leading NSDL Toward Long-Term Success](#)
- [NSDL Technical Network Services: A Cyberinfrastructure Platform for STEM](#)

Or a Couple of People



And how
they are
linked

And Why they are Linked?



The screenshot shows a web browser window with the URL <http://www.rkbexplorer.com/cop/>. The browser's address bar shows a search for "http://www.rkbexplorer.com/cop/explain.php?type=person-person&source=http%3A%2F%2Fsouthampton.rkbexplorer.com%2Fid". The browser's toolbar includes links to iGoogle, IPK, iPhone, RKB, Freqs, iPhone, Single (46), And, Benny Uni, DH, ECS, UoS, ReSIST, MacOS X, Football, Air, P, SWC, GPS, eprints3, and a search bar with "Google".

The website header features the **ReSIST** logo on the left and the URL **www.rkbexplorer.com** on the right.

The main content area displays the following information:

Carl Lagoze is connected to **Dean Krafft**

They are linked by 9 relations.

Publications

They have co-authored 6 papers:

- [Core services in the architecture of the national science digital library \(NSDL\)](#)
- [An information network overlay architecture for the NSDL](#)
- [Metadata aggregation and "automated digital libraries": A retrospective on the NSDL experience](#)

(3 more)

Affiliations

They are both affiliated to [Cornell University](#).

Projects

They are both members of 2 projects:

- [NSDL Technical Network Services: A Cyberinfrastructure Platform for STEM Education](#)
- [Collaborative Project: Core Integration - Leading NSDL toward Long-Term Success](#)

Underlying Sources

acm.rkbexplorer.com

budapest.rkbexplorer.com

citeseer.rkbexplorer.com

cordis.rkbexplorer.com

courseware.rkbexplorer.com

darmstadt.rkbexplorer.com

dblp.rkbexplorer.com

dbpedia.org

deepblue.rkbexplorer.com

deploy.rkbexplorer.com

epsrc.rkbexplorer.com

eurecom.rkbexplorer.com

ft.rkbexplorer.com

ibm.rkbexplorer.com

ieee.rkbexplorer.com

irit.rkbexplorer.com

italy.rkbexplorer.com

kaunas.rkbexplorer.com

kisti.rkbexplorer.com

laas.rkbexplorer.com

lisbon.rkbexplorer.com

newcastle.rkbexplorer.com

nsf.rkbexplorer.com

pisa.rkbexplorer.com

rae2001.rkbexplorer.com

resex.rkbexplorer.com

semanticweb.org

southampton.rkbexplorer.com

ulm.rkbexplorer.com

unlocode.rkbexplorer.com

wiki.rkbexplorer.com

xxx.yyy.zzz

Range from a few 100 to more than 10,000,000 “facts”



For example

- **Statistics for repository dblp.rkbexplorer.com**
 - Last data assertion 2009-06-01 20:05:10
 - Number of triples 27186150
 - Number of symbols 7227252
 - Size of RDF dataset 2.1G

Co-Reference

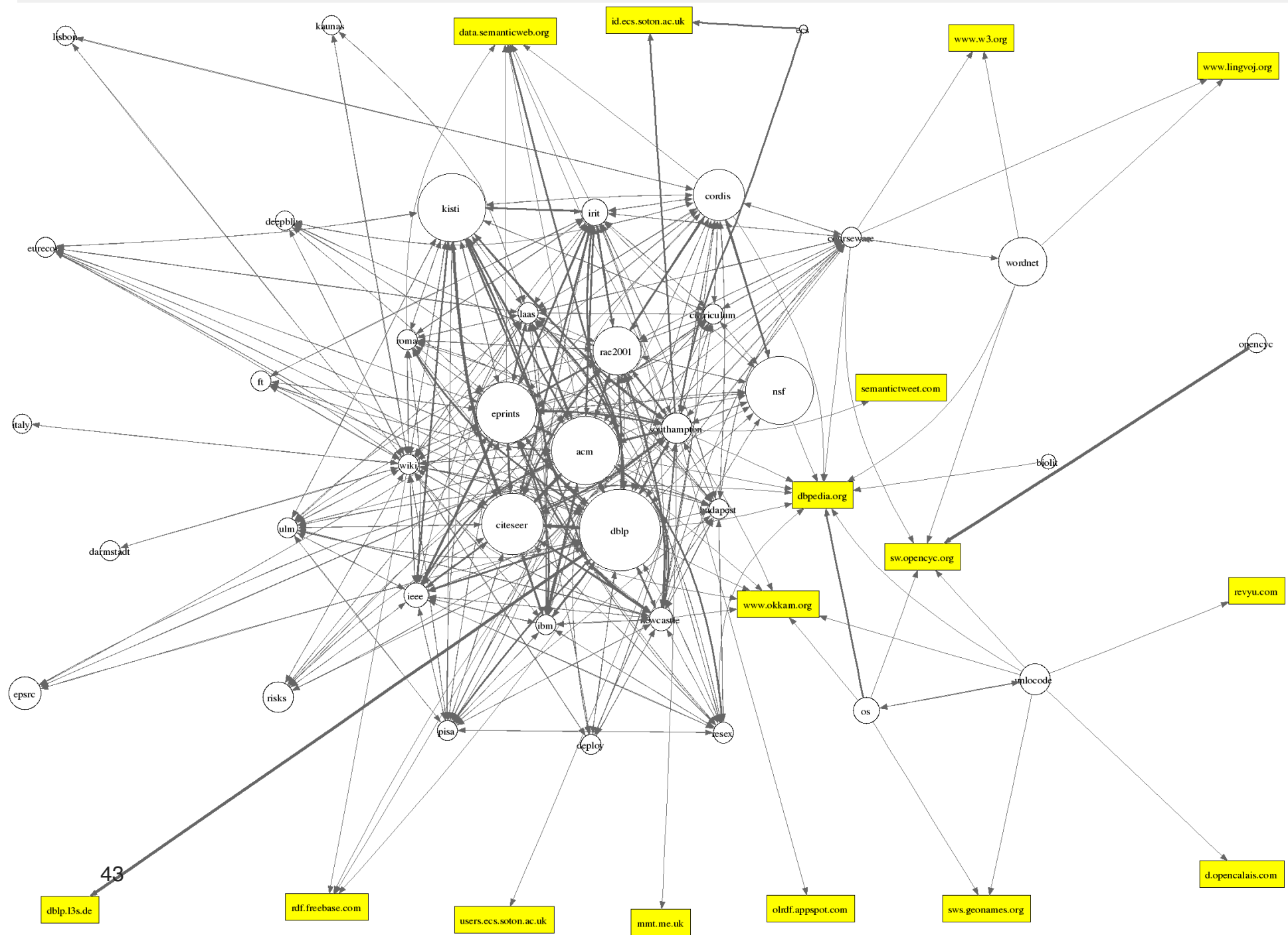
- **Datasets have people, publications, etc. which also exist in other datasets**
- **And vice versa**
- **Co-Reference is a Big Problem**
 - Everything is a URI (not title, name, number...)
 - Identifying multiple URIs for one resource
 - Rejecting incorrectly conflated resources
 - Publishing
 - Using
- **Coldstart – a serious problem**
 - Nothing is linked to anything
 - Not even (reliably) within most datasets

Co-Reference Service (CRS)

- **CRS Subsystem**
 - Find co-references
 - Store them
 - Publish them
 - Essentially:
 - $URI_i \rightarrow \{ URI_1, \dots, URI_i, \dots, URI_n \}$
 - Recommend a “Canon”
- **Published by the Data Publisher**
 - And possibly others
- **Middleware aggregates co-references from recognised CRSes**

CRS continued

- **CRS Policies are defined by context**
 - Often one per Triplestore
 - Can be many per Triplestore for different purposes
 - May not be associated with a particular Triplestore
- **Maintenance**
 - Provenance
 - Rollback
- **Can be used to infer owl:sameAs**



Who is Carl Lagoze?

http://www.rkbexplorer.com/sameAs/

http://www.rkbexplorer.com/sameAs/?uri=http://southampton.rkbexplorer.com/id/person-4d564daeac70b53cdf9484e447cf43

Google

69. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-73181b1963dd49ae65b30679a8059a9d>
70. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-7c910c21b3ea29b1e3b7223789789aee>
71. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-80eb29003c4dee74f9ceffe659b5beb>
72. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-8a161e86160a457e33d352f544cac6df>
73. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-8ef4c07fe3f48d687ea46139acff5945>
74. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-9892c3083c24cd0b2d14a7c6d4bc6249>
75. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-a19f0facbce75bb0bd1e02004e54741d>
76. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-a2571a29fada234b934bd897281a012c>
77. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-a873c80bc3fad1a742ec9a69c43d76d5>
78. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-b14ad5607812e7da3ec48ebcd0dcafa5a>
79. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-bfde8736ae5a223cd174b92018c2c9e0>
80. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-d0d56d749bae48784d627caff4a8fb0f>
81. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-d362b9a8c57896705bad3afc77a490f1>
82. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-d99d856fa0bbab93efc6dec6f033696>
83. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-e15e2df8876f4689744ca2dbd6f789f8>
84. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-e18f93e70839a5a678cecc4d5a1c4566>
85. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-e902f181e8acd30cea561432a1e48fb9>
86. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-e9694e0aafbc94016973dda540353e98>
87. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-ea4e8917907e8dc4d3d1449f61e16acd>
88. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-f40424320a43d4086b21dab23fcb0383>
89. <http://dblp.rkbexplorer.com/id/people-4d564daeac70b53cdf9484e447cf43cf-fb9c508592b981d036918f2f8675c39d>
90. <http://eprints.rkbexplorer.com/id/ecs-soton/person-4d564daeac70b53cdf9484e447cf43cf-9a06c8c478fc2c05b11f5a06e1e491c9>
91. <http://eprints.rkbexplorer.com/id/kfupm/person-4d564daeac70b53cdf9484e447cf43cf-2fa54d79a20221a302bf5d3703c20a4e>
92. <http://eprints.rkbexplorer.com/id/kfupm/person-4d564daeac70b53cdf9484e447cf43cf-795e2593beeeffe7e33dff7ddb7ffca6>
93. <http://eprints.rkbexplorer.com/id/kfupm/person-4d564daeac70b53cdf9484e447cf43cf-b629ef7043c4236f915e34e9c1869c72>
94. <http://eprints.rkbexplorer.com/id/kfupm/person-4d564daeac70b53cdf9484e447cf43cf-ba2369c86478860d6a951d7697d89f93>
95. <http://eprints.rkbexplorer.com/id/webscience/person-4d564daeac70b53cdf9484e447cf43cf-32c76ccfe53680bc8fa3e23bac21deef>
96. <http://nsf.rkbexplorer.com/id/person-011ce119da13737c5157df47e96cfa1f>
97. <http://nsf.rkbexplorer.com/id/person-1c6b47fe02bfe414b9ed45067e698a66>
98. <http://nsf.rkbexplorer.com/id/person-29e8d8c280031d52551c27915d4ac267>
99. <http://nsf.rkbexplorer.com/id/person-9ece4b4bc99071af0ad84abb0ce76fdd>
100. <http://nsf.rkbexplorer.com/id/person-abc2bb7b3d0109233a60fba1c91661c7>
101. <http://nsf.rkbexplorer.com/id/person-c679fb6eb7ce31ae1fd8e5b3a74a0097>
102. (Carl) <http://southampton.rkbexplorer.com/id/person-4d564daeac70b53cdf9484e447cf43cf-9a06c8c478fc2c05b11f5a06e1e491c9>

See this bundle as [RDF XML](#) or [N3](#)

<http://acm.rkbexplorer.com/id/person-293802>

Showing information queried from all repositories ...

Who is Wendy Hall?

Subject	Property	Object/Value	Source
Wendy Hall"@e	abstract	Wendy Hall (born in 1952) is Professor of Computer Science University of Southampton in southern England. Wendy Hall was born in the East End of London. She studied for undergraduate and postgraduate degrees in mathematics at the University of Southampton. She returned in 1984 to join the newly formed computer science group there, working in multimedia and hypermedia. Her team invented the Microcosm hypermedia system, which was commercialized a start-up company, Multicosm Ltd. Hall was appointed the University's first female professor of engineering in 1994. She then served as Head of the School of Electronics and Computer Science from 2002 to 2007. She was awarded a CBE in June 2000, and became a Fellow of the Royal Academy of Engineering that year too. She is a Fellow of the British Computer Society and a Fellow of the Institution of Engineering and Technology . In 2002, she was appointed a Fellow of the City and Guilds (FCGI). Hall also has honorary degrees from Oxford Brookes University, Glamorgan University, Cardiff University, and the University of Pretoria. In 2006, Hall is founding director, with Sir Tim Berners-Lee, Professor Nigel Shadbolt and Daniel Weitzner, of the Web Science Research Initiative, to promote the discipline of Web Science and foster research collaboration between the University of Southampton and MIT. In 2008 Hall was elected as the President of the Association for Computing Machinery, the premier professional society for computing. Hall is particularly interested in promoting women in computing in particular and science in general. Wendy Hall is married to Peter Chandler, a plasma physicist.	Wendy_Hall >>
Wendy Hall"@e	http://dbpedia.org/property/hasPhotoCollection	Photos for DBpedia.org resource Wendy_Hall"@e	Wendy_Hall >>
Wendy Hall"@e	id	h/Hall:Wendy	Wendy_Hall >>
Wendy Hall"@e	http://dbpedia.org/property/name	Wendy Hall	Wendy_Hall >>
Wendy Hall"@e	wiki page uses template	http://dbpedia.org/resource/Template:dblp_name	Wendy_Hall >>
Wendy Hall"@e	wiki page uses template	http://dbpedia.org/resource/Template:dblp_name	Wendy_Hall >>
Wendy Hall	extrn:has-interest	semantic web	interests.ttl >>
Wendy Hall	akt:family-name	Hall	southampton-people.rdf
Wendy Hall	akt:family-name	Milne	southampton-publication
And Wendy Hall	akt:full-name	And Wendy Hall [Explore]	cs_metadata_3.rdf >>
And Wendy Hall	akt:full-name	And Wendy Hall [Explore]	cs_metadata_5.rdf >>
Wendy Hall	akt:full-name	W. Hall [Explore]	com-periodicals.rdf >>

http://www.rkbexplorer.com/sameAs/				
http://www.rkbexplorer.com/sameAs/?uri=http%3A%2F%2Fsouthampton.rkbexplorer.com%2Fid%2Fperson-~ Google				
i-MetrO eprints3 iPhone SA Single (74) And Benny Uni DH ECS UoS ReSIST MacOS X Football P SWC GPS Stately Homes SS Add To Twine AKT Shopping >>				
http://www.rkbexplorer.com/sameAs/?uri=http%3A%2F%2Fsouthampton.rkbexplorer.com%2Fid%2Fperson-~ 9cdf8d665f2fcc20fc5...				
Wendy Hall	akt:has-affiliation	http://acm.rkbexplorer.com/id/org-e9f6460843767ee5386b100d61bfd7d	acm-periodicals.rdf >>	
Wendy Hall	akt:has-affiliation	http://acm.rkbexplorer.com/id/org-fb53de9717078ad0b24ca8b5b5a40b1f	acm-proceedings.rdf >>	
Wendy Hall	akt:has-affiliation	University of Southampton	southampton-people.rdf	
Wendy Hall	akt:has-appellation	akt:Prof	southampton-people.rdf	
Wendy Hall	has email address	wh@ecs.soton.ac.uk [Email]	southampton-people.rdf	
Wendy Hall	akt:has-postal-address	School of Electronics and Computer Science, University of Southampton, SO17 1BJ, United Kingdom	southampton-people.rdf	
Wendy Hall	akt:has-telephone-number	+44 (0)23 8059 2388	southampton-people.rdf	
Wendy Hall	kisti:engNameOfPerson	Wendy Hall [Explore]	datatypeproperties.ttl >>	
Wendy Hall	kisti:engNameOfPerson	Wendy Hall [Explore]	datatypeproperties.ttl >>	
Wendy Hall"@e	rdf:type	academic of the University of Southampton	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	commander of the Order of the British Empire	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	scientist	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	http://dbpedia.org/class/yago/FellowsOfTheBritishComputerSociety	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	fellow of the Institution of Engineering and Technology	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	fellow of the Royal Academy of Engineering	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	person	Wendy_Hall >>	
Wendy Hall"@e	rdf:type	scientist	Wendy_Hall >>	
Wendy Hall	rdf:type	akt:Academic	southampton-people.rdf	
Wendy Hall	rdf:type	akt:Affiliated-Person	acm-bookchapters.rdf >	
Wendy Hall	rdf:type	akt:Affiliated-Person	acm-periodicals.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	acm-proceedings.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_1.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_2.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_2.rdf >>	
Wendy Hallz	rdf:type	akt:Affiliated-Person	cs_metadata_2.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_3.rdf >>	
And Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_3.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_3.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_4.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_4.rdf >>	
Wendy Hall	rdf:type	akt:Affiliated-Person	cs_metadata_4.rdf >>	

http://www.rkbexplorer.com/sameAs/			
http://www.rkbexplorer.com/sameAs/?uri=http%3A%2F%2Fsouthampton.rkbexplorer.com%2Fid%2Fperson-~			
i-MetrO eprints3 iPhone SA Single (74) And Benny Uni DH ECS UoS ReSIST MacOS X Football P SWC GPS Stately Homes SS Add To Twine AKT Shopping			
http://www.rkbexplorer.com/sameAs/?uri=http%3A%2F%2Fsouthampton.rkbexplorer.com%2Fid%2Fperson-~			
Subject	Property	Object	Source
Association for Computing Machinery"@p	leader name	Wendy Hall"@e	Association_for_Compu
Association for Computing Machinery"@p	leader name	Wendy Hall"@e	Association_for_Compu
http://dbpedia.org/resource/1970_Wimbledon_Championships_-_Women%27s_Singles	rd1 team06	Wendy Hall"@e	1970_Wimbledon_Charr _Women%27s_Singles
Wimbledon 1969 (vrouwen)"@n	rd1 team12	Wendy Hall"@e	1969_Wimbledon_Charr _Women%27s_Singles
Wimbledon 1969 (vrouwen)"@n	rd1 team12	Wendy Hall"@e	1969_Wimbledon_Charr _Women%27s_Singles
Wimbledon 1968 (vrouwen)"@n	rd1 team14	Wendy Hall"@e	1968_Wimbledon_Charr _Women%27s_Singles
Wimbledon 1968 (vrouwen)"@n	rd1 team14	Wendy Hall"@e	1968_Wimbledon_Charr _Women%27s_Singles
1967 Wimbledon Championships - Women's Singles"@e	http://dbpedia.org/property/rd2Team02	Wendy Hall"@e	1967_Wimbledon_Charr _Women%27s_Singles
1967 Wimbledon Championships - Women's Singles"@e	http://dbpedia.org/property/rd2Team02	Wendy Hall"@e	1967_Wimbledon_Charr _Women%27s_Singles
A Portable Multimedia Communicator Scheme	akt:edited-by	Wendy Hall	southampton-publication
Multimedia Technologies and Future Applications	akt:edited-by	Wendy Hall	southampton-publication
Proceedings of the Fourth ACM International Multimedia Conference, Multimedia '96	akt:edited-by	Wendy Hall	southampton-publication
Media integration issues in open hypermedia systems	akt:edited-by	Wendy Hall	southampton-publication
Extending the role of the digital library	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
WiCKEd	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
When open hypermedia meets peer-to-peer computing	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
Assisting artifact retrieval in software engineering projects	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
The case for explicit knowledge in documents	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
An implementation of Prolog for the Inmos T800 transputer	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
Applications of hypermedia in education	akt:has-author	Wendy Hall	acm-periodicals.rdf >>
Applications of hypermedia in education	akt:has-author	Wendy Hall	acm-proceedings.rdf >>
MICROCOSM: an open model for hypermedia with dynamic linking	akt:has-author	Wendy Hall	acm-bookchapters.rdf >

Co-Reference Closure

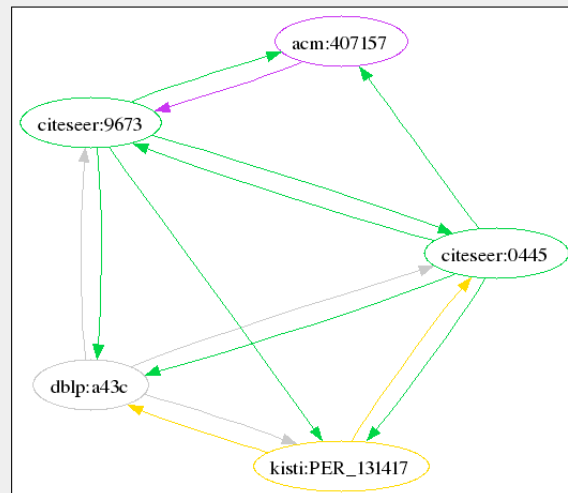
Complete Co-Reference Information

This service computes the equivalence class within the known URIs for a specified URI, by consulting all relevant CRS knowledge bases.

Equivalent URIs...

1. **(Canon)** <http://acm.rkbexplorer.com/id/person-407157>
2. <http://citeseer.rkbexplorer.com/id/resource-CSP179673>
3. <http://citeseer.rkbexplorer.com/id/resource-CSP180445>
4. <http://dblp.rkbexplorer.com/id/people-1ec5a600299222dd6374695ef5214f05-90d423eb148125a6e5c573dc5a15a43c>
5. http://kisti.rkbexplorer.com/id/PER_0000000000000131417

The following diagram shows the interconnectivity between the CRS knowledge bases which maintain the context-dependent representation of coreference for each of the RKBExplorer domains.



Seungwoo Lee

Showing information queried from all repositories ...

48

Showing information queried from all repositories ...

Subject	Property	Object/Value	Source
Seungwoo Lee	akt:full-name	Seungwoo Lee [Explore]	acm-periodicals.rdf >>
Seungwoo Lee	akt:full-name	Seungwoo Lee [Explore]	acm-proceedings.rdf >>
Seungwoo Lee	akt:full-name	Seungwoo Lee [Explore]	dblp-publications-2001.rdf >>
Seungwoo Lee	akt:has-affiliation	Electrical and Computer Engineering Division, Pohang University of Science & Technology (POSTECH), Pohang, South Korea.gblee@postech.ac.kr	acm-periodicals.rdf >>
Seungwoo Lee	akt:has-affiliation	POSTECH, Pohang, Korea	acm-proceedings.rdf >>
Seungwoo Lee	kisti:engNameOfPerson	Seungwoo Lee [Explore]	datatypeproperties.ttl >>
Seungwoo Lee	rdf:type	akt:Affiliated-Person	acm-periodicals.rdf >>
Seungwoo Lee	rdf:type	akt:Affiliated-Person	acm-proceedings.rdf >>
Seungwoo Lee	rdf:type	Generic Agent	acm-periodicals.rdf >>
Seungwoo Lee	rdf:type	Generic Agent	acm-proceedings.rdf >>
Seungwoo Lee	rdf:type	Generic Agent	dblp-publications-2001.rdf >>
Seungwoo Lee	rdf:type	akt:Person	acm-periodicals.rdf >>
Seungwoo Lee	rdf:type	akt:Person	acm-proceedings.rdf >>
Seungwoo Lee	rdf:type	akt:Person	dblp-publications-2001.rdf >>
Seungwoo Lee	rdf:type	PER_char(20)^^^	datatypeproperties.ttl >>
Seungwoo Lee	rdf:type	PER_char(20)^^^	objectproperties.ttl >>
Seungwoo Lee	rdf:type	PER_char(20)^^^	resources.ttl >>

Subject	Property	Object	Source
Automatic acquisition of named entity tagged corpus from world wide web	akt:has-author	Seungwoo Lee	acm-proceedings.rdf >>
A Corpus-Based Learning Method of Compound Noun Indexing Rules for Korean	akt:has-author	Seungwoo Lee	acm-periodicals.rdf >>
SiteQ: Engineering High Performance QA System Using Lexico-Semantic Pattern Matching and Shallow NLP.	akt:has-author	Seungwoo Lee	dblp-publications-2001.rdf >>
A Corpus-Based Learning Method of Compound Noun			dblp-publications-2001.rdf >>



LINKED DATA SOLUTIONS

Finding Co-reference

The screenshot shows a web browser window with the URL `http://sameas.org/html?q=Les+Carr&x=24&y=22`. The page title is "Les Carr « owl:sameAs". The main heading is "<sameAs> interlinking the Web of Data". Below this, there is a text block explaining the service: "The Web of Data has many equivalent URIs. This service helps you to find co-references between different data sets. Enter a known URI, or use Sindice to search first." There are two search input fields: one for "<sameAs>" containing the URI `http://southampton.rkbexplorer.com/`, and another for "Sindice" containing the name "Les Carr". Below the search results, it says "Search results from Sindice, with co-references applied...". The results are grouped under "Sindice 'Les Carr'". The first group, labeled "<sameAs>", lists three URIs from southampton.rkbexplorer.com and one from kisti.rkbexplorer.com. The second group, also labeled "Sindice 'Les Carr'", lists one URI from dblp.l3s.de. At the bottom, it states "Currently serving 23268924 URIs in 8454882 bundles!" and includes links for "about" and "contact", along with a Creative Commons BY-NC-SA license logo.

Les Carr « owl:sameAs

http://sameas.org/html?q=Les+Carr&x=24&y=22

<sameAs>
interlinking the Web of Data

The Web of Data has many equivalent URIs.
This service helps you to find co-references
between different data sets.
Enter a known URI, or use Sindice to search first.

<sameAs>

Sindice

Search results from [Sindice](#), with co-references applied...

Sindice "Les Carr"

<sameAs> {

1. <http://southampton.rkbexplorer.com/id/person-00060>
2. <http://southampton.rkbexplorer.com/id/person-98e0f2e8dd84b079a54318...f484814122>
3. <http://southampton.rkbexplorer.com/id/person-a635f51b18c81bf1df7dab...84425e0250>

Show 118 more

122. http://kisti.rkbexplorer.com/id/PER_000000000000000081787

rdf+xml · n3 · json · text

Sindice "Les Carr"

<sameAs> {

1. http://dblp.l3s.de/d2r/resource/authors/Les_Carr

rdf+xml · n3 · json · text

Currently serving 23268924 URIs in 8454882 bundles!

about · contact

CC BY-NC-SA

http://dbpedia.org/resource/London « owl:sameAs

http://sameas.org/html?uri=http%3A%2F%2Fdbpedia.org%2Fresource%2FLondon

News WRP MO ENT sameas iPhone Single (26) And ECS UoS DH ReSIST MacOS X Football RKB iPhone App dwb Benny Uni >>

http://dbpedia.org/resource/Lon... http://webscience.org/person/2... http://dbpedia.org/resource/14-...

The Web of Data has many equivalent URIs.
This service helps you to find co-references
between different data sets.
Enter a known URI, or use Sindice to search first.

<sameAs>

Equivalent URIs for http://dbpedia.org/resource/London –

<sameAs> {

1. <http://dbpedia.org/resource/London>
2. <http://dbpedia.org/resource/Leondeon>
3. <http://dbpedia.org/resource/Lundúnir>
4. [http://dbpedia.org/resource/London_\(UK\)](http://dbpedia.org/resource/London_(UK))
5. [http://dbpedia.org/resource/London_\(Britain\)](http://dbpedia.org/resource/London_(Britain))
6. [http://dbpedia.org/resource/London_\(England\)](http://dbpedia.org/resource/London_(England))
7. [http://dbpedia.org/resource/London_\(Great_Britain\)](http://dbpedia.org/resource/London_(Great_Britain))
8. [http://dbpedia.org/resource/London_\(United_Kingdom\)](http://dbpedia.org/resource/London_(United_Kingdom))
9. <http://www.okkam.org/ens/id1d7d3fb0-44f8-41a1-8866-89c1458a1c66>
10. <http://www.okkam.org/entity/oke0ab0619-e28a-438d-b53b-cdd5c8157f30>
11. <http://os.rkbexplorer.com/id/osr7000000000041428>
12. <http://data.ordnancesurvey.co.uk/id/7000000000041428>
13. <http://linkededgeodata.org/triify/node/107775#id>
14. <http://mpii.de/yago/resource/London>
15. <http://rdf.freebase.com/ns/guid.9202a8c04000641f80000000000242b2>
16. <http://statistics.data.gov.uk/id/eer/07>
17. <http://statistics.data.gov.uk/id/eer?name=London>
18. <http://sw.opencyc.org/concept/Mx4rvVjWPJwpEbGdrcN5Y29ycA>
19. <http://sw.opencyc.org/2008/06/10/concept/en/CityOfLondonEngland>
20. <http://sw.opencyc.org/2009/04/07/concept/en/CityOfLondonEngland>
21. <http://sw.opencyc.org/2008/06/10/concept/Mx4rvVjWPJwpEbGdrcN5Y29ycA>
22. <http://sw.opencyc.org/2009/04/07/concept/Mx4rvVjWPJwpEbGdrcN5Y29ycA>
23. <http://sws.geonames.org/2643743/>
24. <http://telegraphis.net/data/capitals/GB/London#London>
25. <http://umbel.org/umbel/ne/wikipedia/London>
26. <http://www.ontologyportal.org/SUMO.owl#LondonUnitedKingdom>

rdf+xml · n3 · json · text · show fewer items

Open System

- **RKBExplorer is only one interface**
 - And not a required part
- **Other Interfaces (using the services)**
 - Either as RDF, or JSON, csv, etc.
- **Services**

http://www.rkbexplorer.com/services/

News WRPMO Single (24) And same as sameas Furniture iPhone ECS UoS DH ReSIST MacOS X Football RKB ENT iPhone App

http://www.rkbexplorer.com/ser...



www.rkbexplorer.com

[contact](#)

This page gives convenient access to various useful links and demonstrations associated with RKBExplorer.
It is primarily for the use of project members and collaborators, and not intended as a general entry point for other people.
It exposes many of the services of the RKB system in RESTful-style manners.
One day I will find the time to make a better page, with documentation.

If you are interested in something here and want to explore using it, please contact [Hugh Glaser](#) or [Ian Millard](#).

RKB Explorer application
[ReSIST project](#), [Jean-Claude Laprie](#), [ALRL Paper](#)

iGoogle Gadgets of the RKB Panels
[\[Main Page\]](#)

Complete Co-Reference Information
[\[Main Page\]](#),
or try: [Nigel Shadbolt](#), [Hugh Glaser](#), [Brian Randell](#), [Jean-Claude Laprie](#), [Seungwoo Lee](#)

Ontology Mapping
[\[Main Page\]](#),
or try: [KISTI -> AKT \(RDF, html\)](#);

Networks (Communities of Practice)
[\[Find the Network of a URI\]](#),
or try: [Hugh Glaser](#), [The Semantic Web Revisited](#), [Tim Berners-Lee](#)

Detail Information
[\[Find Information about a URI\]](#),
or try: [Hugh Glaser](#), [The Semantic Web Revisited](#), [Tim Berners-Lee](#)

Why? - Why are two Things Related?
[\[Main Page\]](#),

Cross-Dataset Services

- **Search**
- **Aggregated summary view**
 - <http://www.rkbexplorer.com/detail/?uri=http://southampton.rkbexplorer.com/id/eprints-12614>
- **Networks of related URIs**
 - <http://www.rkbexplorer.com/network/?uri=http://southampton.rkbexplorer.com/id/eprints-12614&type=publication-person>
- **Co-reference**
- ...

MyExperiment :: dotAC Explorer

http://www.dotac.info/explorer/#project/http://jisc.rkbexplorer.com/id/project-279

News WRP MO ENT sameas iPhone Single (24) And ECS UoS DH ReSIST MacOS X Football RKB iPhone App dwb Benny Uni Air Canada P SWC GPS IPK

MyExperiment :: dotAC Explorer

MyExperiment Search... dotAC .info

Location of Project Members

Map Satellite Terrain

POWERED BY Google 100 mi 100 km Map data ©2010 Tele Atlas

Details

Names:
MyExperiment

Starts:
01/03/2007

Ends:
31/03/2009

Web Address:
<http://www.myexperiment.org/>

Description:
The myExperiment Virtual Research Environment enables you and your research

Project Members

- [Carole Goble](#) ?
- [Darius Michaelides](#) ?
- [David De Roure](#) ?
- [Frederique VanTill](#) ?

Participating Organisations

- [University of Southampton](#) ?

Related JISC Projects

- [Meeting Memory Technology Informing Collaboration](#) ?
- [myExperiment Repository Enhancement](#) ?
- [Collaborative Orthopaedic Research Environment](#) ?
- [Internet-Based Behavioural Research](#) ?
- [Virtual Research Integration Collaboration](#) ?
- [Building Research and Innovation Networks](#) ?

Publications

Where are Courses Taught?

http://resist.ecs.soton.ac.uk/gmap/resist-courses.php

http://resist.ecs.soton.ac.uk/gmap/resist-courses.php Google

Map Satellite Hybrid

Budapest University of Technology and Economics

Courses taught at [Budapest University of Technology and Economics](#) , Budapest:
[Software Verification and Validation](#) [hide]
[Istvan Majzik](#)
[Management of Computing Infrastructure](#) [show instructors...]

200 mi
200 km

Go to the ReSIST Partners Map

Gadget – find out about people

The screenshot shows an iGoogle homepage with a search bar at the top. Below it, there are three instances of the RKBExplorer gadget, titled "RKBExplorer » Networks (Communities of Practice)".

The first instance shows a search for "Carl Lagoze". It displays "Found 1 result for 'Carl Lagoze'" and a link to "Carl Lagoze". Below this, it lists a network of people including James Allan, Massoud Amin, Ross Anderson, William Arms, Jeroen Bekaert, Donna Bergmark, Les Carr, Tim Cornwell, Lorrie Cranor, James R. Davis, Pavel Dmitriev, Naomi Dushay, Doug Dyer, Dea Eckstrom, Adam Finkelstein, J. French, and Stone.

The second instance shows a search for "Les Carr". It displays a link to "Les Carr" and a "Display Metadata" link. Below this, it lists a network of people including Christopher Bailey, David Barron, Sean Bechhofer, Donna Bergmark, Tim Brody, Grainne Conole, Hugh Davis, David De Roure, Samhaa El-Beltagy, Quintin Gee, Nicholas Gibbins, Lester Gilbert, Yves Gingras, Hugh Glaser, Carole Goble, Simon Grange, Christopher Gutteridge, Wendy Hall, Stevan Harnad, Stephen Harris, Jessie Hey, G Hill, Steve Hitchcock, Neil Jefferies, Zhuoan, and Timothy.

The third instance shows a search for "Les Carr". It displays a link to "Les Carr" and a "Display Metadata" link. Below this, it lists a network of people including Christopher Bailey, David Barron, Sean Bechhofer, Donna Bergmark, Tim Brody, Grainne Conole, Hugh Davis, David De Roure, Samhaa El-Beltagy, Quintin Gee, Nicholas Gibbins, Lester Gilbert, Yves Gingras, Hugh Glaser, Carole Goble, Simon Grange, Christopher Gutteridge, Wendy Hall, Stevan Harnad, Stephen Harris, Jessie Hey, G Hill, Steve Hitchcock, Neil Jefferies, Zhuoan, and Timothy.

The rightmost instance shows a detailed view of "Les Carr" with the following information:

- Full Name: [Les Carr](#)
- Telephone: +44 (0)23 8059 4479
- Email Address: lac@ecs.soton.ac.uk
- Web Address: <http://www.ecs.soton.ac.uk/~lac/>
- Raw Linked Data: [Resolvable URI](#), [All Known Co-reference Data](#)

56

Mark Borkum did this

© 2010 Seme4

⏪ ⏩ +  http://www.google.com/ig?refresh=1

🔍 Google

⌂ 📖 📱 iPhone ▾ Single (50) ▾ And ▾ ECS ▾ UoS ▾ DH ▾ ReSIST ▾ MacOS X ▾ Football ▾ RKB ▾ iPhone App ▾ dwb ▾ Benny Uni ▾ Air ▾ Canada ▾ P ▾ SWC ▾ GPS ▾ IPK ▾ >>

iGoogle

Web [Images](#) [Videos](#) [Maps](#) [News](#) [Shopping](#) [Gmail](#) [more ▾](#)

hugh.glaser@gmail.com | [Classic Home](#) | [My Account](#) | [Sign out](#)



Google Search

I'm Feeling Lucky

[Advanced Search](#)
[Search Preferences](#)
[Language Tools](#)

New! [Add social gadgets](#) to post updates and play games with friends.

[Change theme from Classic](#) | [Add stuff >](#)

Home

Weather

Gmail

My Gadgets

BBC News | News F...

Slashdot

Search YouTube

RKBGadget » People

RKBGadget » Project

Google Translate

RKBGadgets

Updates

Friends

Chat

Search, add, or invite

Hugh Glaser

Set status here ▾

Chat with friends in undefined!

Rather stay offline?

[Sign out of chat.](#)

Christopher Gutte

new [splashurl.net](#)

Valanto Kousetti

Andrew Landells

Joyce Lewis

[Options ▾](#) [Add friends](#)

Google Translate

Enter text to translate here

Detect langu ▾

>> English ▾

Translate

[Translate Homepage](#) | [Dictionary Homepage](#)

RKBGadget » People

Berners-Lee

Search

Reset

Found 3 results for "Berners-Lee"

[M Berners-Lee](#) [Mary Lee Berners-Lee](#) [Lee](#) [Tim Berners-Lee](#)

Tim Berners-Lee

Full Name:
[Tim Berners-Lee](#)

Email Address:
timbl@w3.org

Web Address:
http://en.wikipedia.org/wiki/Tim_Berners-Lee

My Gadgets

Gadget

[dictionary.xml](#)

Inlined

Cached

RKBGadget » Project

Search

Reset

KNOWLEDGE WEB

Title:
Realizing the semantic web

Other Names:
KNOWLEDGE WEB

Project Overview:
The current World Wide Web (WWW) is, by its function, the syntactic web where structure of the content has been presented while the content itself is inaccessible to computers. The next generation of the Web (the Semantic Web) aims to alleviate such problem and provide specific solutions targeted the

BBC News | News Front Page | World Edition

[Afghan poll media blackout urged](#)

[US Colombia deal 'not a threat'](#)

[Sony cuts price of PS3 consoles](#)

[Honduras expels Argentine envoys](#)

[US journalist Robert Novak dies](#)

[Turnaround 'will not be simple'](#)

[Russia detains ship 'hijackers'](#)

[New Israeli settlements 'on hold'](#)

[Jackson to be buried on birthday](#)

Weather

Southampton, England

 13°C Current: Clear
Wind: SE at 3 km/h
Humidity: 94%

Tue

Wed

Thu

Fri

21° | 13°

24° | 16°

20° | 11°

18° | 9°

Search YouTube

YouTube

Best Silverlight Apps

Zingals uses Silverlight apps to enhance user experience. READ

Ads by Google

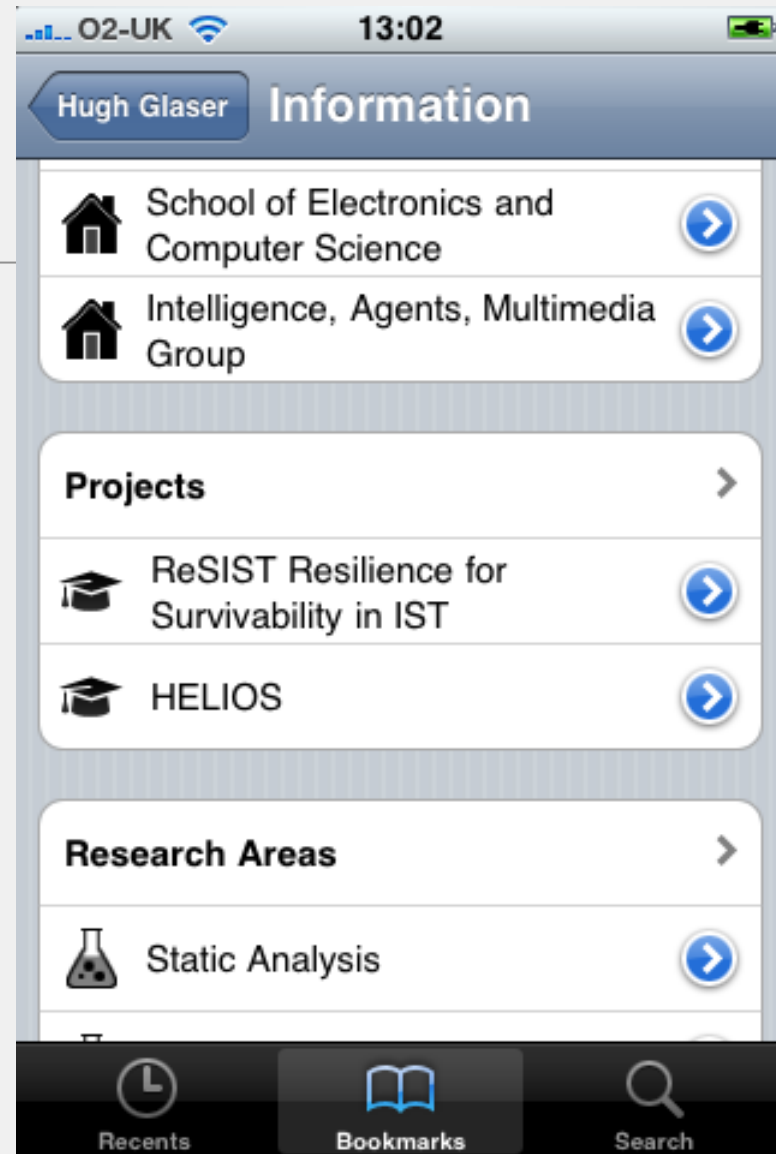
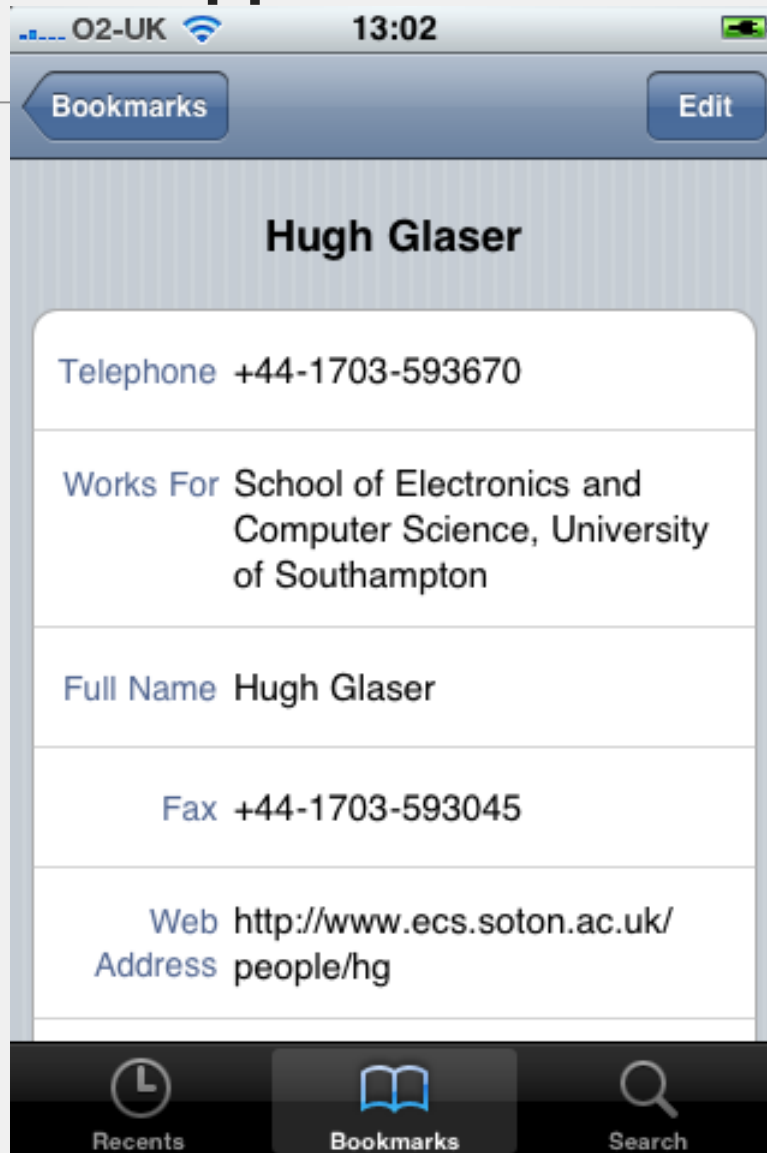
Confucius Quotes

Zytu

Gmail

Loading "http://www.google.com/ig?refresh=1", completed 20 of 22 items

iPhone App



Semantic Web is not “All or Nothing”

UNIVERSITY OF
Southampton
School of Electronics
and Computer Science

[Home](#) [UG Study](#) [MSc Admissions](#) [PG Opportunities](#) [Research](#) [Business](#) [People](#)
[Alumni](#) [Contact](#) [Intranet](#)

Search Enter keywords here

University of Southampton > [ECS](#) > [People](#) > **Hugh Glaser**

Hugh Glaser

- [Contact](#)
- [Research and Projects](#)
- [Publications](#)
- [Homepage](#)

Search People

Enter a name here

Search



Hugh Glaser
School of Electronics and Computer
Science
University of Southampton
Southampton
SO17 1BJ
United Kingdom



Hugh Glaser

Position: Visiting academic staff in
[Intelligence, Agents, Multimedia Group](#)
Fax: +44 (0)23 8059 3045
Email: hg@ecs.soton.ac.uk
URI: <http://id.ecs.soton.ac.uk/person/21>
[\[browse\]](#)

Interests: [genetic algorithms](#), [ontology maintenance](#), [semantic grid](#), [semantic squirrels](#), [semantic web](#), [semantic wiki](#), [service composition](#), [ubiquitous computing](#), [web 2.0](#)

The group secretary for the Intelligence, Agents, Multimedia Group is [Jane Morgan](#).

Additional Contact Details
[I may be here](#)

Duties
ECS - Staff Training Budget
ECS - Travel Budget
Staff Teaching allocation (with Mark Zwolinski)

Hugh works with:

- [Dr Ian Millard](#) ([explain](#))
- [Afraz O Jaffri](#) ([explain](#))
- [Professor Nigel R Shadbolt](#) ([explain](#))
- [Dr Nicholas Gibbins](#) ([explain](#))
- [Bene Rodriguez-Castro](#) ([explain](#))
- [Professor David C De Roure](#) ([explain](#))
- [dr monica mc schraefel](#) ([explain](#))
- [Dr Harith Alani](#) ([explain](#))

This list of people is sourced from [RKBExplorer](#), the result of an ECS project. Click on the "explain" link to the right of each person to find out how they are connected.
Note: the explain link requires heavy processing and may take some time to load.

Tel: +44 (0)23 8059 6000 | [Contact ECS](#) | [Intranet](#) | © [University of Southampton](#)

Knowledge-Enabled Research Support: RKBExplorer.com
 Ian Millard & Hugh Glaser, {icm,hg}@ecs.soton.ac.uk

Faceted Browser

Why?

Alexander Romanovsky is related to R de Lemos. They are linked by 33 relations.

They have co-authored 32 papers:

- Coordinated Atomic Actions in Modeling Objects Cooperation
- Exception Handling in a Cooperative Object-Oriented Approach
- Integrating COTS Software Components into Dependable Software Architectures

Affiliations

They are both affiliated to NEWCASTLE UNIVERSITY.

Fresnel renderer

Community of Practice Analyser

Machine Learning

Manual classification of IEEE DSN papers

NLP

ReSIST / Courses / Editing 'Advanced semesters on Distributed Systems'

SPARQL

SPARQL Query Interface

This interface permits queries to be

Result format: **HTML Table**

Query:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX akt: <http://www.aktors.org/ontology#>
PREFIX akts: <http://www.aktors.org/ontology#>
```

SELECT * WHERE { ?s ?p "string" }

© 2010 Sem

Linked Data

We are pleased to acknowledge the help and work provided by our ReSIST Partners and many others.

This work was supported by the ReSIST Network of Excellence, which is sponsored by the Information Society Technology (IST) priority under contract number IST-4-026764 NOE.

Mesh-up

Semantic MediaWiki

Coreference Analysis

Offline Conversion & Versioning

Ontology Mapping Service

Ontologies

Resolving URIs
 KISTI, dbpedia, etc.

CiteSeer, CORDIS, DBLP, Partners, UN LoCode, ...

Concluding Remarks

- **Linked Data is not hard**
 - Producing - easy
 - Publishing – not quite so easy
 - Using - easy
- **Powerful data integration technology**
- **Major adoption now happening**
 - Eg US & UK governments

RKBExplorer.com – Try it!

RKBExplorer » People » Tim Berners-Lee

Search...

→ about → system requirements
→ help → data sources
→ contact → acknowledgements

Related people

Details

Full Name:
[Tim Berners-Lee](#)

Email Address:
timbl@w3.org

Web Address:
http://en.wikipedia.org/wiki/Tim_Berners-Lee

Description:
Sir Timothy John Berners-Lee OM KBE FRS FREng FRSA (born 8 June 1955) is an English computer scientist, who is credited with inventing the World Wide Web. On 25 December 1990 he implemented the first successful communication between an HTTP client and server via the Internet with the help of Robert Cailliau and a young student staff at CERN. He was ranked Joint First alongside Albert Hofmann in The Telegraph's list of 100 greatest living geniuses. Berners-Lee is the director of the World Wide Web Consortium, which oversees the Web's continued development, the founder of the World Wide Web Foundation and he is a senior researcher and holder of the 3Com Founders Chair at the MIT

People

- [Danny Weitzner](#)
- [Nigel Shadbolt](#)
- [R. Cailliau](#)
- [James A Hendler](#)
- [Dan Connolly](#)
- [Lalana Kagal](#)
- [Wendy Hall](#)
- [J.-F. Groff](#)
- [Gerald J. Sussman](#)
- [Henrik Frystyk Nielsen](#)

Organisations

- [MASSACHUSETTS INSTITUTE OF TECHNOLOGY](#)
- [World Wide Web Consortium](#)

Publications

- [Interacting with eHealth: towards grand challenges for HCI](#)
- [Twenty Years: Looking Forward, Looking Back](#)
- [Information accountability](#)
- [Linked data on the web \(LDOW2008\)](#)
- [N3Logic: A Logical Framework For the World Wide Web](#)
- [Web Science Emerges](#)
- [Web Science: An Interdisciplinary Approach to Understanding the Web](#)

Research Areas

- [H.3.4. Systems and Software](#)
- [C.2.1. Network Architecture and Design](#)
- [C.2.1.6. Network communications](#)
- [C.2.2. Network Protocols](#)
- [C.2.m. Miscellaneous](#)
- [H.1.2. User/Machine Systems](#)
- [H.1.2.0. Human factors](#)
- [H.4.3. Communications Applications](#)
- [H.5.0. General](#)

Applet eu.resist.rkb.RKBExplorer2 started

University of Southampton

- **Since 1862 (Hartley Institution)**
- **Multi-discipline University**
 - Arts, Science, Law, Medicine, Engineering, ...
- **25,000 Students**
- **5,000 Staff**
- **“Russell Group”**



ECS

- **100+ Faculty**
- **1000+ Students (300 Graduate)**
- **Highly-rated**
 - Teaching and Research



Research Groups

- **Communication**
- **Dependable Systems & Software Engineering**
- **Electrical Power Engineering**
- **Electronic Systems & Devices**
- **Information: Signals, Images, Systems**
- **Intelligence, Agents, Multimedia**
- **Learning Societies Lab**
- **Nano**
- **Optoelectronics Research Centre**
- **Pervasive Systems Centre**
- **Science & Engineering of Natural Systems**