



Many Representations

Data regarding the acquisition of knowledge, equipment, and material for non-peaceful nuclear purposes can have many representations.

Graphical Databases

Visualization Methods

Crowdsourcing

Graphical Databases

Manage connected data that forms a graph structure.

Neo4J

Unstructured properties



"What does a database represent, in a deep sense, that is beyond things or beings and things that are themselves not regarded as being in making themselves to be a problem?"

Conclusions

Data

Volume ↑
Number of formats ↑
Complexity ↑

Tools

Power ↑
Change ↑
Cognitive burden ↑
Risk ↑

Impact

Connect with experts
Use their filters
Balance risks against benefits

Methods -- How to Stay Abreast of the Internet by Using the Internet

Twitter

@horakg
@SISNuclear
@Santalala
@Gottensoder
@ChenSuh
@Shoeq
@Shlep

"I try to keep up with the pace of technological change, but then I have to take a nap..."

Social media: #lazyweb



Mashups and Blogs



Digital Natives



Visualization Methods

Gephi



GeoSafeguards



Augmented Reality

Word Clouds and Word Trees



Crowdsourcing NPM (National Public Means)

Crowdvoting



Crowdfunding



Challenges



Wisdom of the crowd



Implicit crowdsourcing





ESARDA

European Safeguards Research and Development Association

35th ESARDA Annual Meeting
Congrescentrum Oud St. Jan
Bruges, Belgium

Information Management I
27-30 May 2013

New and Emergent Information Technologies for Safeguards

Karl Horak
Sandia National Laboratories
Albuquerque, NM



Sandia
National
Laboratories

Sandia National Laboratories is a multi program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND2011-8303 C

Methods -- How to Stay Abreast of the Internet by Using the Internet

Twitter

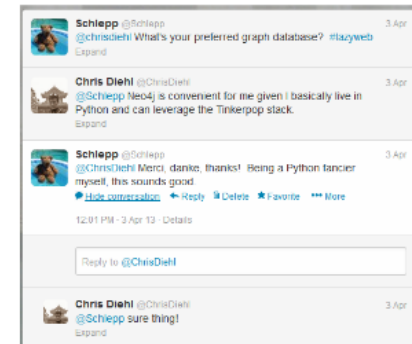
@iaeaorg
@ISISNuclear
@SandiaLabs
@Gottemoeller
@ChrisDiehl
@sanbeiji
@Schlepp

....

"I try to keep up with the pace of technological change, but then I have to take a nap..."

Joe Lewis, Chief Web Architect
Sandia National Labs, Livermore

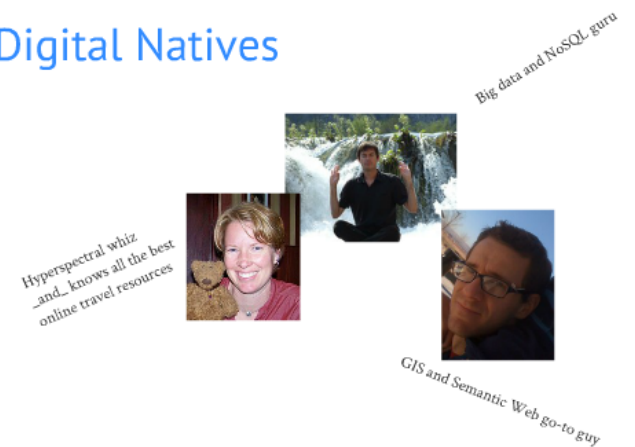
Social media: #lazyweb



Mashups and Blogs



Digital Natives



"I try to keep up with the
pace of technological
change, but then I have to
take a nap...."

Joe Lewis, Chief Web Architect
Sandia National Labs, Livermore

Twitter

@iaeaorg

@ISISNuclear

@SandiaLabs

@Gottemoeller

@ChrisDiehl

@sanbeiji

@Schlepp

....

Social media: #lazyweb

**Schlepp** @Schlepp 3 Apr
@chrisdiehl What's your preferred graph database? #lazyweb
Expand

**Chris Diehl** @ChrisDiehl 3 Apr
@Schlepp Neo4j is convenient for me given I basically live in Python and can leverage the Tinkerpop stack.
Expand

**Schlepp** @Schlepp 3 Apr
@ChrisDiehl Merci, danke, thanks! Being a Python fancier myself, this sounds good.
[Hide conversation](#) [Reply](#) [Delete](#) [Favorite](#) [More](#)
12:01 PM - 3 Apr 13 · Details




**Chris Diehl** @ChrisDiehl 3 Apr
@Schlepp sure thing!
Expand



Mashups and Blogs


paper.liLearn more ▾Newsstandsign up / log in

Nuclear Blogger Daily


A collection of the leading pro-nuclear voices

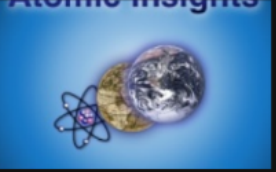
  TOPICS ▾  VIDEOS

 SHARE 0  SUBSCRIBE

Thursday, May 09, 2013 | Next update in about an hour |  Archives


Atomic Show #203 - Globally distributed atomic conversation - Atomic Insights

 Shared by nuke roadie




atomicinsights.com - Attempting to transition away from fossil fuels to an "all renewable" energy system is fraught with cost and reliability challenges. Germany is running into substantial challenges and is burned 5% ...

Unit 1 at Susquehanna Nuclear Power Plant Begins Outage for Planned Turbine Modifications - MarketWatch


 Shared by nuke roadie

marketwatch.com - BERWICK, Pa., May 9, 2013 /PRNewswire via COMTEX/ -- Operators at PPL's Susquehanna nuclear power plant disconnected Unit 1 from the regional power grid early Thursday (5/9) at the start of a sched...


Kewaunee nuclear plant shuts down

 Shared by nuke roadie

fox11online.com - CARLTON - Powering down on the 1 shutdown after 40 years, the Kewaunee Power

 Shared by nuke roadie

trade Arabia.com - Turkey is aiming to build a home-grown nuclear industry over the next decade as it seeks to cut reliance on costly imported oil and gas, even though the nuclear newcomer outsourced its first two at...





American Nuclear Soc

American Nuclear Society

FROM THE EDITOR

Fukushima activist fights fear and discrimination based on radiation - The Japan Times

 Shared by nuke roadie



japantimes.co.jp - Sachiko Banba aches for children in Fukushima Prefecture, who worry whether they can lead a normal life. "Three frequently asked questions from children are whether they are OK to live in Fukushima..."

Digital Natives

Hyperspectral whiz
and knows all the best
online travel resources



Big data and NoSQL guru



GIS and Semantic Web go-to guy

Many Representations

Data regarding the acquisition of knowledge, equipment, and material for non-peaceful nuclear purposes can have many representations.

Graphical Databases

Visualization Methods

Crowdsourcing

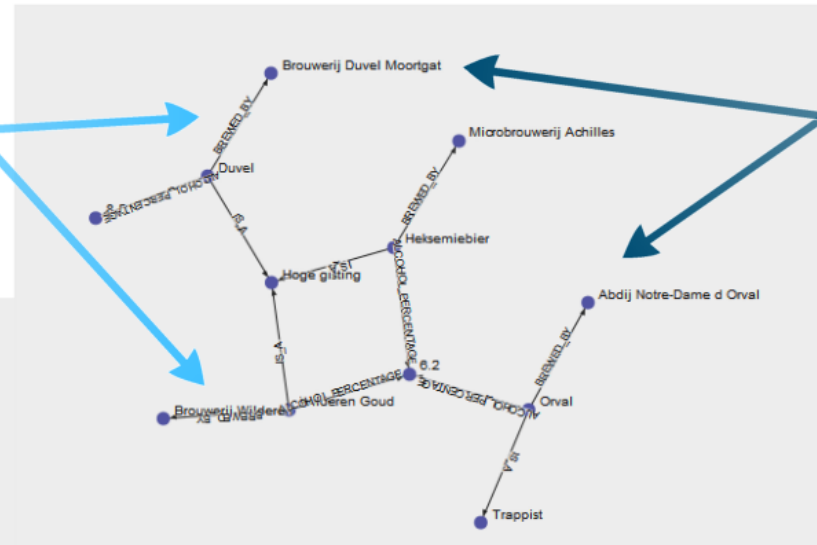
Graphical Databases

Manage connected data that forms a graph structure.

Neo4J

Edges

Nodes



```
Graph Setup:
create (orval{id:'1', name:'Orval', type:'BeerBrand'}),
(duvel{id:'2', name:'Duvel', type:'BeerBrand'}),
(heksemiebie{id:'3', name:'Heksemiebie', type:'BeerBrand'}),
(wilderengoud{id:'4', name:'Wilderengoud', type:'BeerBrand'}),
(andoval{id:'10', name:'Abdijs Notre-Dame d Orval', type:'Brewery'}),
(moortgat{id:'11', name:'Brouwerij Duvel Moortgat', type:'Brewery'}),
(wildereng{id:'12', name:'Brouwerij Wilderen', type:'Brewery'}),
(achilles{id:'13', name:'Microbrouwerij Achilles', type:'Brewery'}),
(hogegisting{id:'20', name:'Hoge gisting', type:'Beertype'}),
(trappist{id:'21', name:'Trappist', type:'Beertype'}),
(sixtwo{id:'30', name:'6.2', type:'AlcoholPercentage'}),
(eightfive{id:'31', name:'8.5', type:'AlcoholPercentage'}),
duvel-[:IS_A]->hogegisting,
duvel-[:ALCOHOL_PERCENTAGE]->eightfive,
duvel-[:BREWED_BY]->moortgat,
orval-[:IS_A]->trappist,
orval-[:ALCOHOL_PERCENTAGE]->sixtwo,
orval-[:BREWED_BY]->andoval,
heksemiebie-[:IS_A]->hogegisting,
heksemiebie-[:ALCOHOL_PERCENTAGE]->sixtwo,
heksemiebie-[:BREWED_BY]->achilles,
wilderengoud-[:IS_A]->hogegisting,
wilderengoud-[:ALCOHOL_PERCENTAGE]->sixtwo,
wilderengoud-[:BREWED_BY]->wildereng

Query:
START duvel=node:node_auto_index(name='Duvel'), orval=node:node_auto_index(name='Orval')
MATCH p = AllshortestPaths( duvel-[*]-orval )
RETURN EXTRACT(x in p : COALESCE(x.name?,TYPE(x))) as path, p;
```

Unstructured
properties

"Good data scientists understand, in a deep way, that the heavy lifting of cleanup and preparation is not something that gets in the way of solving the problem-it is the problem!"

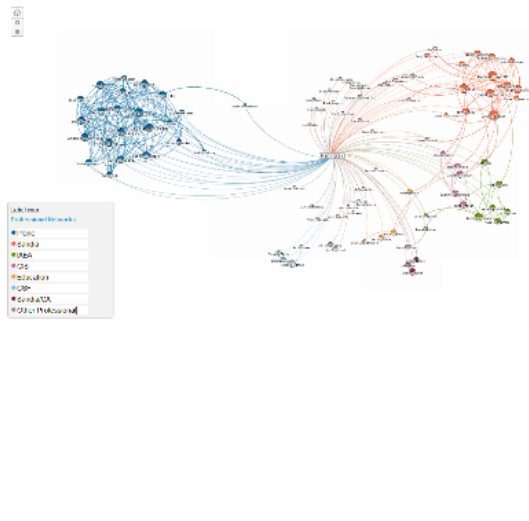
DJ Patil - Founding member of the LinkedIn data science team

"Good data scientists understand, in a deep way, that the heavy lifting of cleanup and preparation is not something that gets in the way of solving the problem--it is the problem!"

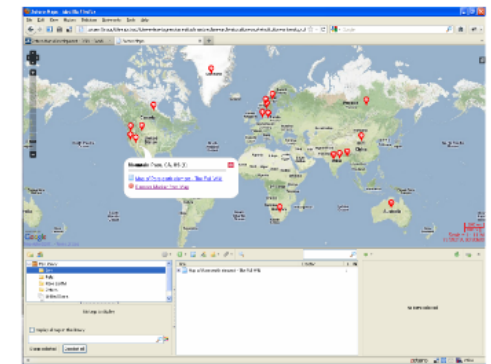
DJ Patil - Founding member of the LinkedIn data science team

Visualization Methods

Gephi



GeoSafeguards

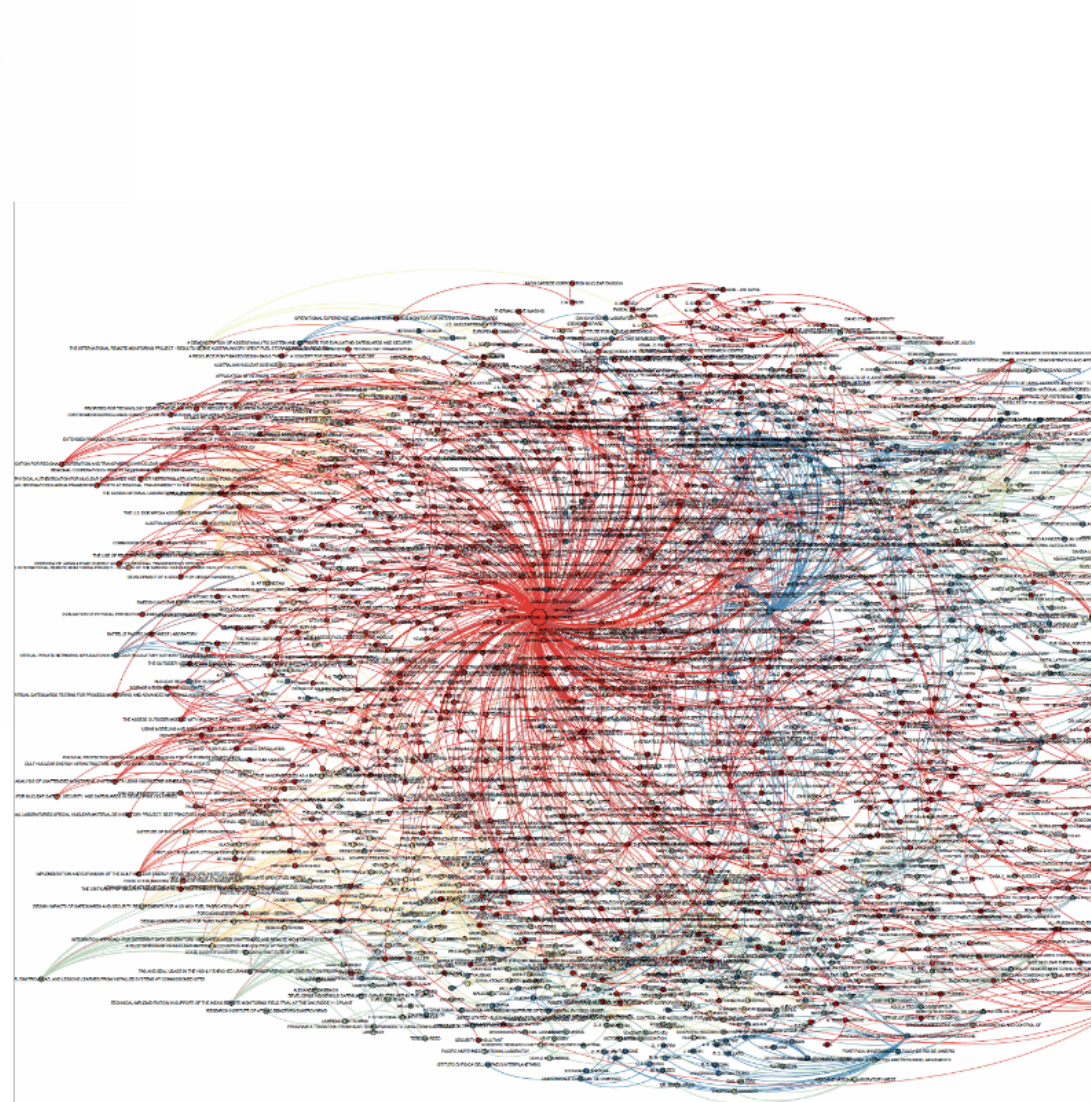
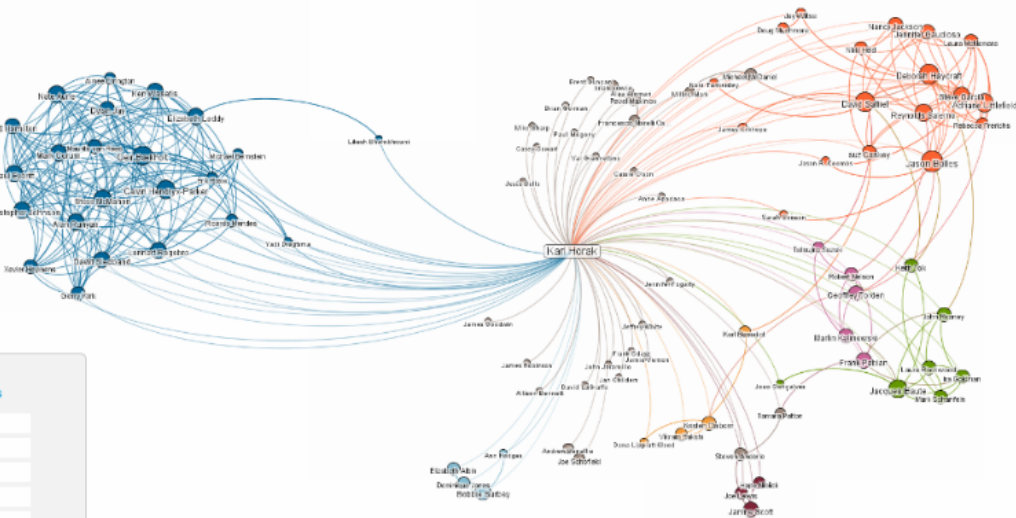


Augmented Reality

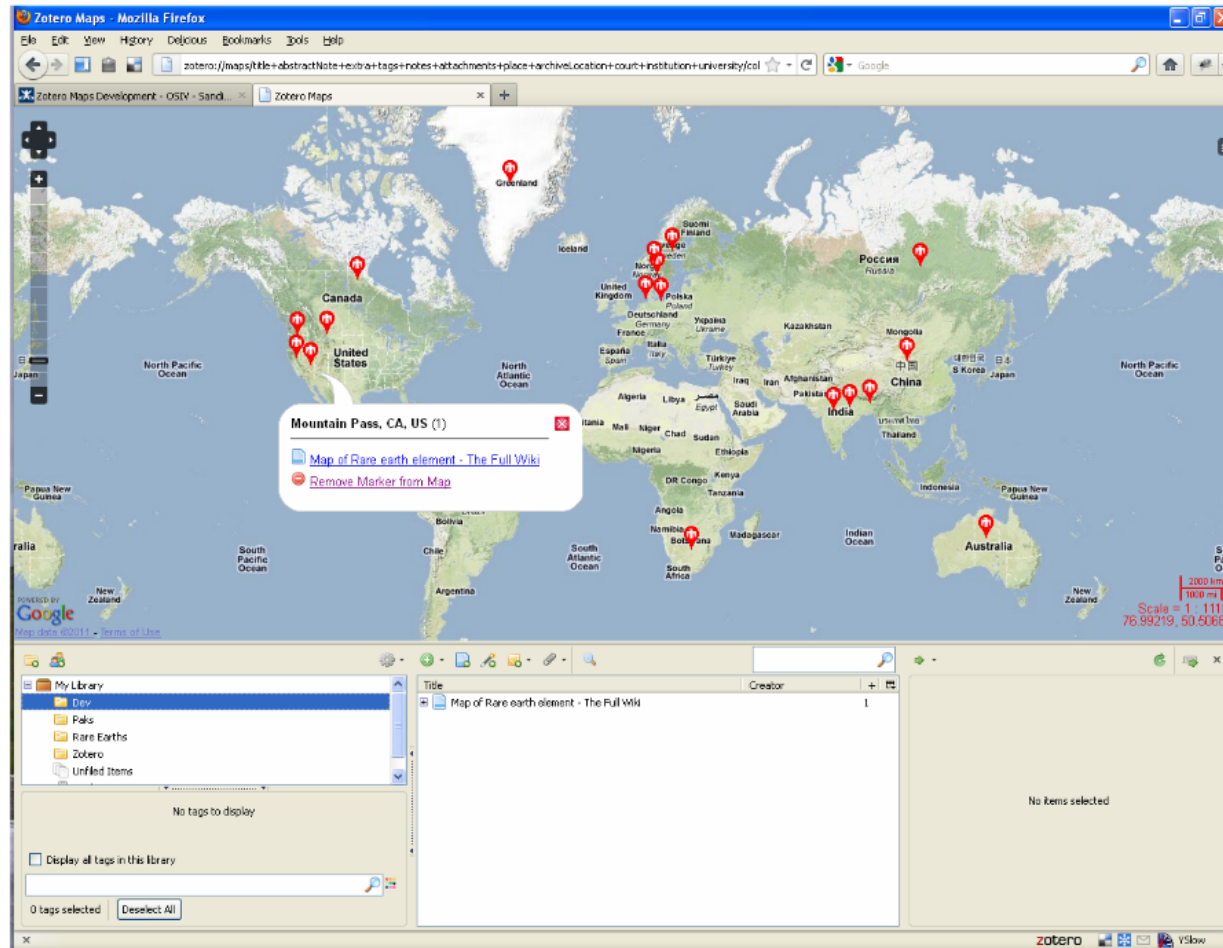
Word Clouds and Word Trees



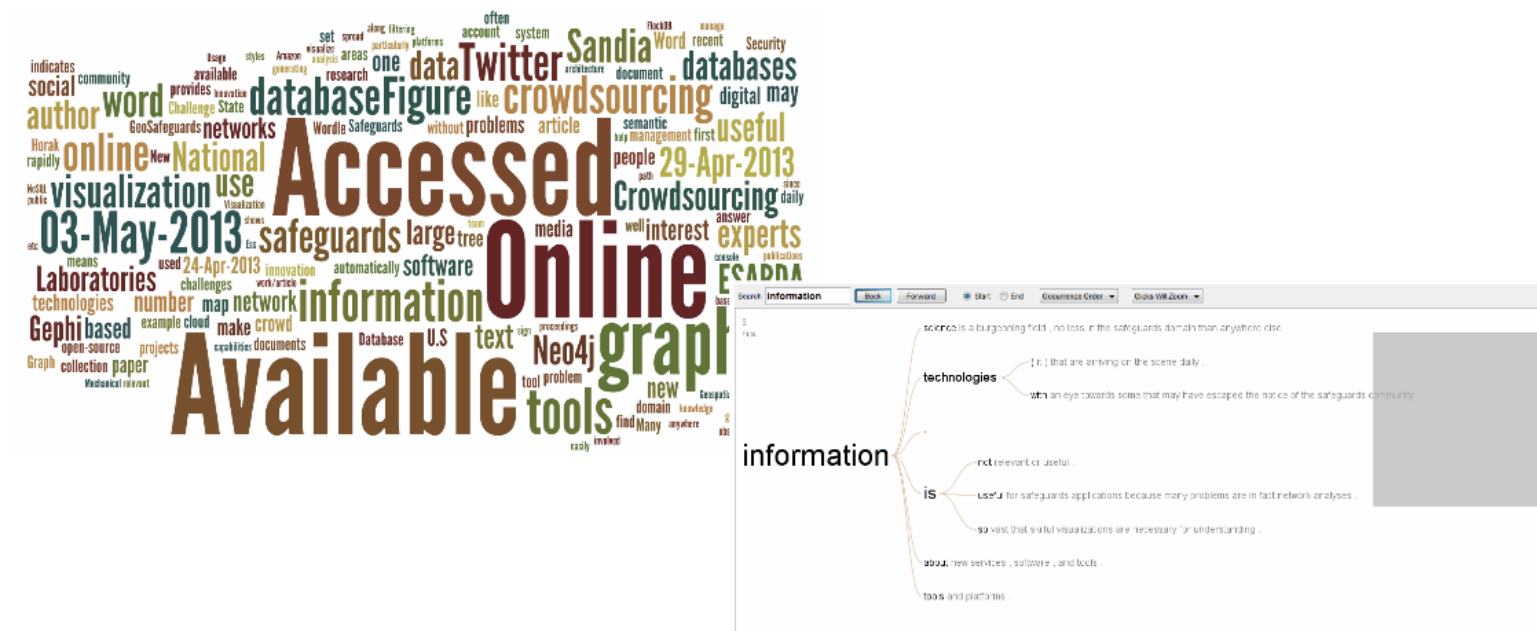
Gephi



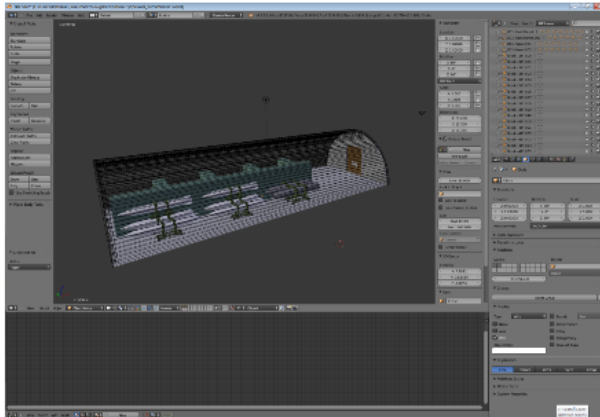
GeoSafeguards



Word Clouds and Word Trees



Augmented Reality



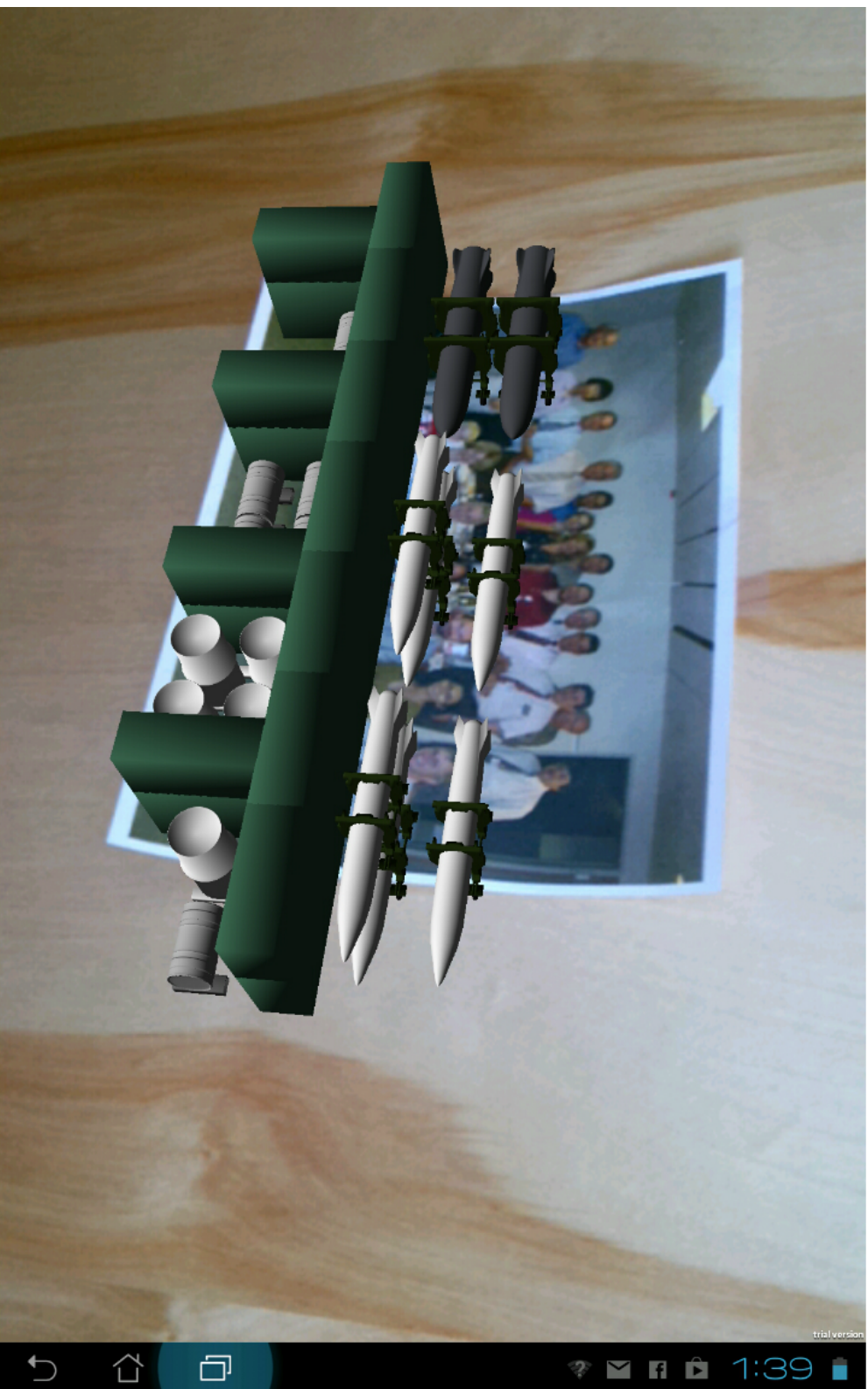
Blender



Vuforia



Unity



Unity

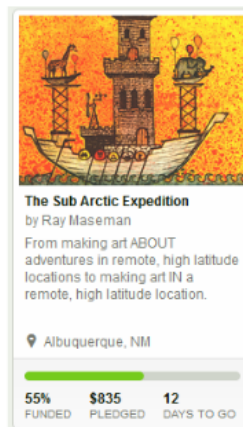
Crowdsourcing

NPM (National Public Means)

Crowdvoting



Crowdfunding



Challenges



Wisdom of the crowd



Implicit crowdsourcing

Digitizing Books One Word at a Time



Crowdvoting



International Atomic Energy Agency (IAEA) shared a link.

April 30

A workplace without enough women is missing out on 50% of the finest minds on the planet. So to encourage more young women to pursue careers in the sciences later in life and become interested in the work of the Agency, the IAEA hosted Take Your Daughter to Work Day on 25 April 2013. Read all about it here...



Good Advice

www.iaea.org

So to encourage more young women to pursue careers in the sciences later in life and become interested in the work of the Agency, the IAEA hosted Take Your

Like · Comment · Share

16



Sonya Kumar, Sushmita Hossain, Reynaldo Capili and 67 others like this.



Christabel Sanjukta Best of luck to the Daughters of the USA and Europe!

1 · April 30 at 10:50am



Daiva Vitkute <http://caseyresearchaffiliateuk.blogspot.com/>

May 1 at 1:39am

Crowdfunding



The Sub Arctic Expedition

by Ray Maseman

From making art ABOUT adventures in remote, high latitude locations to making art IN a remote, high latitude location.

📍 Albuquerque, NM



55%
FUNDED

\$835
PLEDGED

12
DAYS TO GO

Challenges

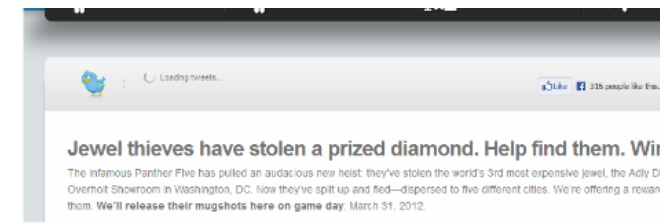
The screenshot shows the TAG Challenge website. At the top, there's a navigation bar with icons for a phone, camera, and laptop, followed by the text "TAG CHALLENGE". To the right are links for "Suspects", "About the Contest", "News & Updates", and a button labeled "Upload Photos".

The main content area is divided into two columns. The left column is titled "Step 2: Photograph the Suspect" and includes the text: "If you spot one of the suspects—in the crowds of New York, riding the tube in London, or slinking around Södermalm in Stockholm—snap a picture on your phone or camera." Below this is an orange button that says "Play TAG". The right column is titled "Step 1: Find the Suspect" and includes the text: "A band of jewel thieves is on the run in five cities across the world. We need your help finding them. On March 31, 2012, we'll release their pictures to the public. Get the lookout." Below this is a brown button that says "Play TAG".

At the bottom of the main content area, there's a horizontal bar with four steps: "1. Find The Suspect", "2. Photograph The Suspect", "3. Upload the Image", and "4. Win \$5000!". Each step has a small icon representing it.

Below the main content area, there's a section for social media. It includes a Twitter icon and the text "Loading tweets...", a Facebook "Like" button, and the text "316 people like this."

The bottom section features a headline: "Jewel thieves have stolen a prized diamond. Help find them. Win \$5,000." followed by a paragraph: "The infamous Panther Five has pulled an audacious new heist: they've stolen the world's 3rd most expensive jewel, the Adly Diamond, from the Overholt Showroom in Washington, DC. Now they've split up and fled—dispersed to five different cities. We're offering a reward to help find them. We'll release their mugshots here on game day: March 31, 2012."



Wisdom of the crowd



Implicit crowdsourcing

Solve Puzzles for Science

Implicit crowdsourcing

Digitizing Books One Word at a Time

seeK02A

23.7



stop spam.
read books.

Submit

Conclusions

Tools

Power ↑
Change ↑
Cognitive burden ↑
Risk ↑

Data

Volume ↑
Number of formats ↑
Complexity ↑

Impact

- Connect with experts
- Use their filters
- Balance risks against benefits

Data

Volume 

Number of formats 

Complexity 

Tools

Power ↑

Change ↑

Cognitive burden ↑

Risk ↑

Impact

- Connect with experts
- Use their filters
- Balance risks against benefits

New and Emergent Information Technologies for Safeguards

Karl Horak
Sandia National Laboratories
Albuquerque, NM



Sandia National Laboratories is a multi-program laboratory managed and operated by Lockheed Martin Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy National Nuclear Security Administration under contract DE-AC02-04OR21400 (N00014-04-1-0000).

Many Representations

Data regarding the acquisition of knowledge, equipment, and material for non-peaceful nuclear purposes can have many representations.

Graphical Databases

Visualization Methods

Crowdsourcing

Graphical Databases

Manage connected data that forms a graph structure.

Neo4J

Unstructured properties



"What does a database represent, in a deep sense, that is beyond things or events and objects? What does it represent that is not the thing or event or object itself, but the way in which it is represented in the database?"

Methods -- How to Stay Abreast of the Internet by Using the Internet

Twitter

@horak
@SISNuclear
@SISNuclear
@Gottensoder
@Chen2341
@Shelley
@Shelley

"I try to keep up with the pace of technological change, but then I have to take a nap..."

Social media: #lazyweb



Mashups and Blogs



Digital Natives



Conclusions

Data

Volume ↑
Number of formats ↑
Complexity ↑

Tools

Power ↑
Change ↑
Cognitive burden ↑
Risk ↑

Impact

Connect with experts
Use their filters
Balance risks against benefits

Visualization Methods

Gephi



GeoSafeguards



Augmented Reality

Word Clouds and Word Trees



Crowdsourcing NPM (National Public Means)

Crowdvoting



Crowdfunding



Challenges



Wisdom of the crowd



Implicit crowdsourcing

