



# Semantic Successes and Challenges for Search Based Applications

24 September 2010

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Chief Science Officer  
Exalead



# Search Based Application

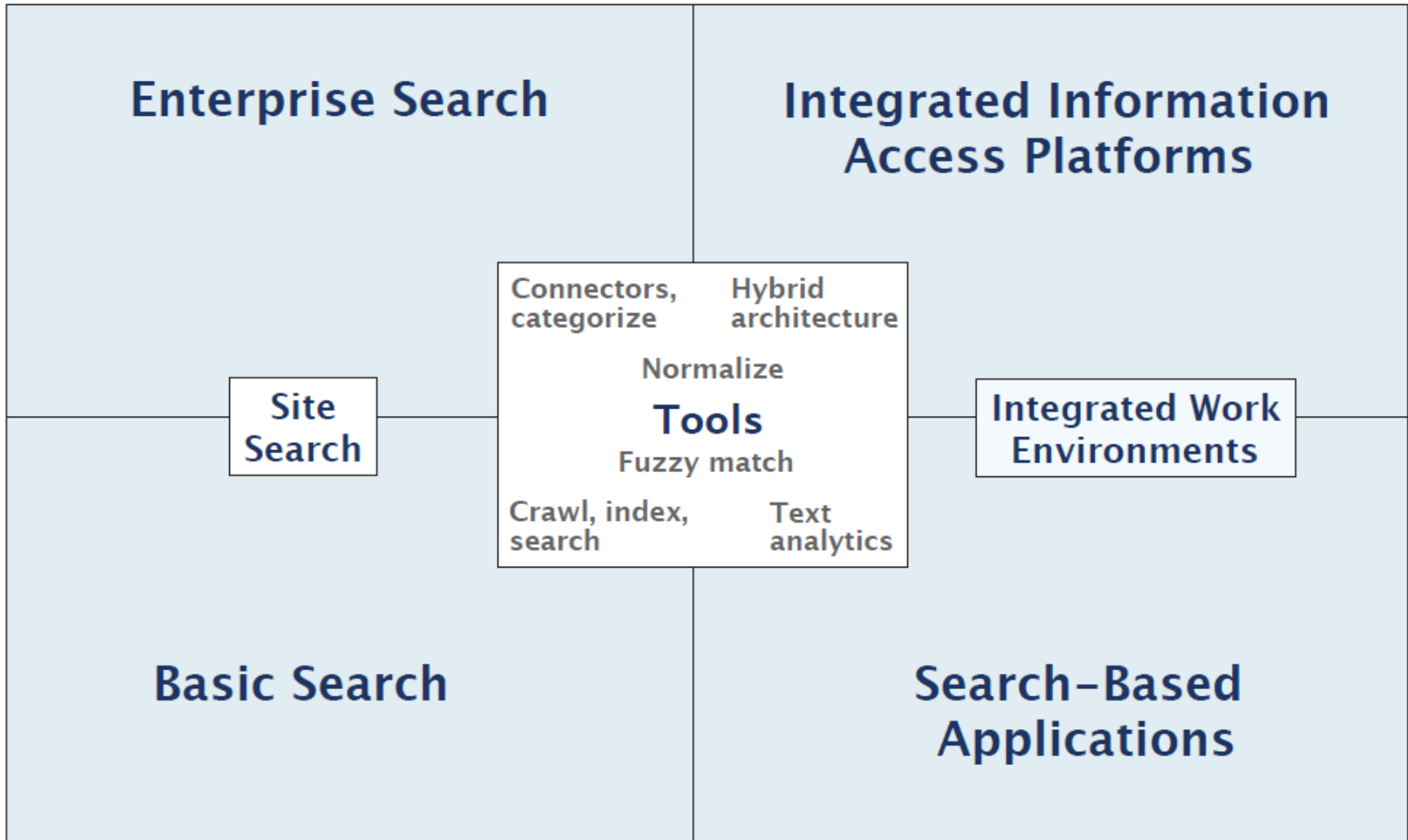
Sue Feldman:

Search Based applications “employ search as a central component, but they solve a specific business problem or support an information-intensive process”



"Search-based applications as a group are growing much faster than enterprise search because their value in accomplishing a task is immediately recognized by business users, because they are quick to deploy, and because they either control costs or increase revenue. Good examples of those are call center support, e-discovery, marketing, sales, R&D research to locate opportunities and e-commerce."

# Search and Discovery Software: 2009 Market Map



Source: IDC



Web Images Videos Wikipedia More >

hubble

Search

Advanced Search

Related Searches: Hubble Space Telescope, Telescope Spatial Hubble, Hubble Telescope

Home > Web results 1-10 of 1,315,510 for hubble, Page 1 - Next page

Ads by Google

## Hubble

Percer les mystères de l'espace en nous retrouvant sur Enjoyspace  
[www.enjoyspace.com](http://www.enjoyspace.com)

## Hubble

Tout l'univers Hubble  
Comparez, trouvez, achetez, vendez  
[www.eBay.fr](http://www.eBay.fr)

Your ad here.



### HubbleSite -- Out of the ordinary...out of this world.

Search all of HubbleSite HOME NEWSCENTER GALLERY HUBBLE DISCOVERIES HUBBLE [...] NEWSCENTER **hubble** news All the **Hubble** news and pictures, from the latest discoveries to the earliest observations.

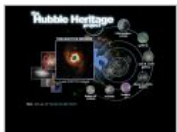
[hubblesite.org](http://hubblesite.org) - Cached - Bookmark



### Main Hubble Page

For instructions, click here + NASA HOME + Contact **Hubble** Program Named after the trailblazing astronomer Edwin P. **Hubble** (1889-1953), the **Hubble** Space Telescope (HST) is a large, space-...

[hubble.nasa.gov](http://hubble.nasa.gov) - Cached - Bookmark



### The Hubble Heritage Project Website

Last WFPC2 Image New: Join us on Facebook and Flickr!

[heritage.stsci.edu](http://heritage.stsci.edu) - Cached - Bookmark



### Esa Science & Technology: Hubble

During its lifetime **Hubble** has become one of the most important science projects ever. NEWS **Hubble** captures rare Jupiter collision [heic0909] Commissioning **Hubble** - preparing for science ...

[hubble.esa.int](http://hubble.esa.int) - Cached - Bookmark



### The European Homepage For The Nasa/esa Hubble Space Telescope

[...] videos goodies **hubble** shop about **hubble** science kids & teachers press projects jobs **Hubble** Picture of the Day **Hubble** Video of the Day NEWS 24-Jul-2009 heic0909: News: **Hubble**

[www.spacetelescope.org](http://www.spacetelescope.org) - Cached - Bookmark

#### Site type:

- » Blog
- » Forum

#### Multimedia:

- » Audio
- » Video

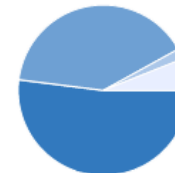
#### Filetype:

- » pdf

#### Related terms:

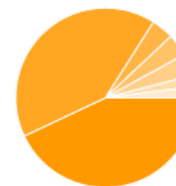
- » Advanced Camera for...
- » Planetary Camera
- » Space Telescope Sci...
- » SPACE SHUTTLE
- » Telescope Images
- » Navette Spatiale

#### Languages :



- English (52%)
- French (40%)
- Spanish (2%)
- Others (6%)

#### Countries :



- United States (43%)

16 billion web pages  
2 billion images  
50 million videos

# Semantics is three things to the ordinary person

---

**Is this an example of that?**

**Are these two things the same?**

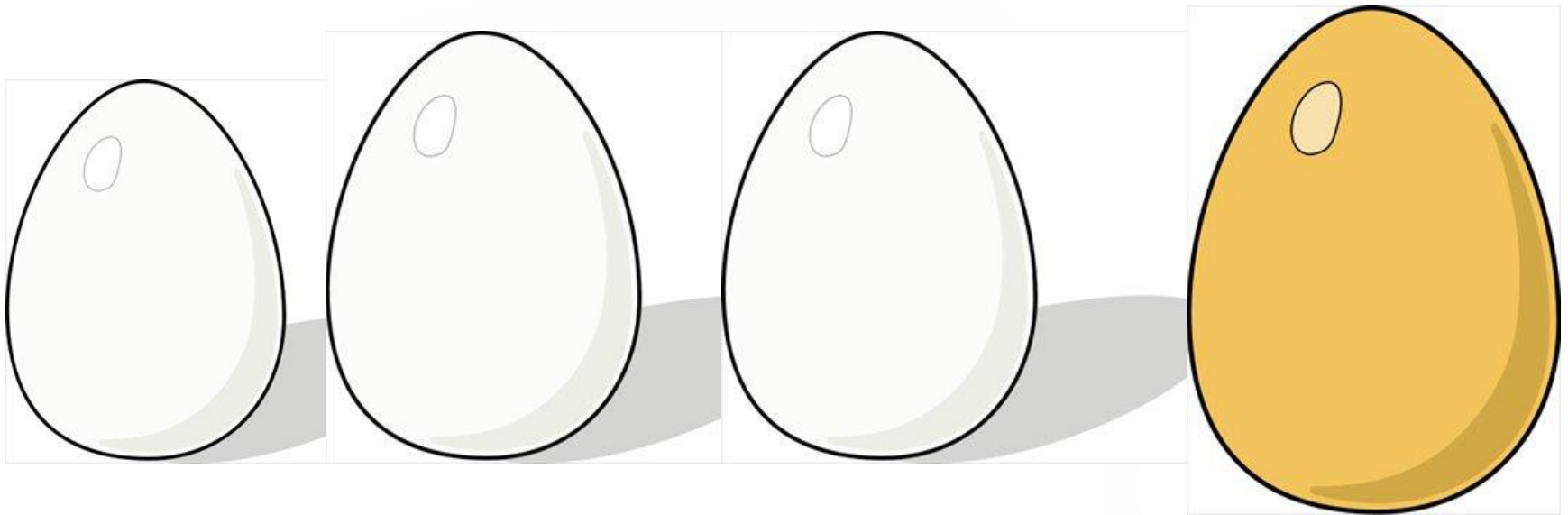
**What is the relation between these two things?**

# Success 1



# Egg Sorting

---





OLLIE original

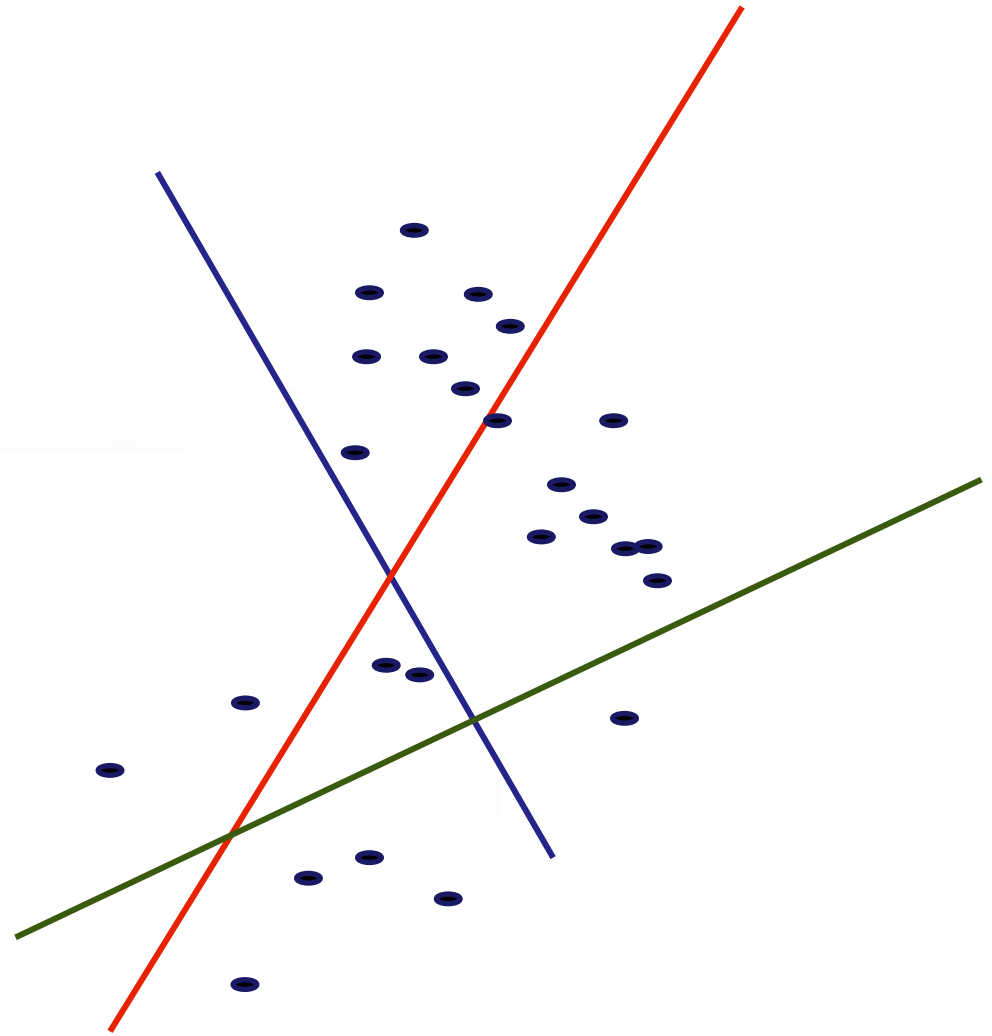


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# Semantic Dimensions

## Facets

*Hunting Gathering*  
*Shopping*



# Success 2: Egg Sorting Semantics

3suisses.fr

1<sup>ER</sup> SITE MARCHAND MODE & DÉCO

Accueil Femme Homme Enfant Maison Hightech Loisirs Promos

Rechercher :  
Mots clés ou référence catalogue (ex : 1234567) OK

300 articles trouvés pour votre recherche : T SHIRT

AFFINER  
VOTRE  
RECHERCHE

Page 1/7 Suivant

Trier les articles par du + cher au - cher

## Par prix

- ▶ De 10 à 20 (287)
- ▶ De 20 à 30 (149)
- ▶ De 0 à 10 (144)
- ▶ De 30 à 40 (62)
- ▶ De 40 à 50 (20)

Plus de prix

## Par coloris

- ▶ noir (247)
- ▶ blanc (148)

Plus de coloris

## Par taille

- ▶ 38 (258)
- ▶ 42 (254)

Plus de tailles

## Par marque

- ▶ Puma (36)
- ▶ Actuamode (35)
- ▶ Adidas performance (33)
- ▶ Votre Mode (31)
- ▶ 3 Suisses Collection Femme (30)

Plus de marques

## Par univers

- ▶ Femme (241)
- ▶ Enfant (148)
- ▶ Homme (128)
- ▶ Sport (98)
- ▶ Lingerie Beauté (22)

Plus d'univers

## Par boutique

- ▶ Bonnes affaires (158)
- ▶ Shopping par produit (147)
- ▶ Bonnes Affaires (85)
- ▶ Marques (32)
- ▶ Les nouveautés du sport (30)

Plus de boutiques

## Par rayon

- ▶ Bonnes affaires (158)
- ▶ Shopping par produit (147)

Plus de rayons



T-shirt TOGETHER

depuis 54.90 €



T-shirt LEVITS®

depuis 50.00 €



T-shirt manches longues LEVITS®

depuis 50.00 €



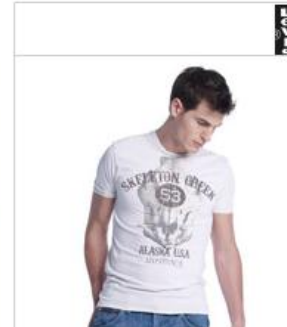
T-shirt manches longues PEPE JEANS

depuis 49.90 €



T-shirt TOGETHER

depuis 49.90 €



T-shirt homme LEVITS®

depuis 45.00 €

Fenêtres pop-up bloquées : 1

Search Results Results 1-10 of about 840 for developing countries

Sort by relevance - [Sort by date](#) - [Sort by size](#) | View:



**IDC WW Search Discovery Forecast 2007-2011.pdf**  
 The search market is in for another tumultuous year of fast growth. ! ... Whether this consolidation will be in conjunction with business intelligence applications, ...  
 29 May 2008 - 220k

- [Source: Vie société](#) : Formations Nouveaux Amivants : Resources : Additional interesting documents
- [Famous people:](#) Susan Feldman, Basel II
- [Geographic location:](#) Oss, Americas, Asia, Spain Street, USA, United States, Geographic Region, White North
- [Organization:](#) Microsoft, IBM, Oracle, Google, Ask Jeeves, AuA



**Research Areas, FP7**  
 6international collaboration with Developing Nations and Emerging Economies PAGEREF ...  
 21 Mar 2008 - 656k

- [Source: Vie société](#) : Documentation : Contrats : Consortium, Projects : L\_FPS : CHORUS
- [Famous people:](#) Federico Iloro, Isidro Lasa Ballesteros, Petros Dadas
- [Geographic location:](#) Europe, Brussels, Novel, Japan
- [Organization:](#) IBM, EU, European Commission, European Union, Information Society, The European Commission, Garner Group, Enabling New Mobile, Virtual Community



**SIXTH FRAMEWORK PROGRAMME**  
 search engines with the goal of developing an open source prototype of a distributed, semantic-based search ... goals, developing a system that is both ...  
 24 Apr 2007 - 3109k

- [Source: Vie société](#) : Documentation : Contrats : Consortium, Projects : L\_FP7 : SeenOnTV
- [Famous people:](#) Aïme Bioinformatics, Kari Aberg, Henry Tiri, Wray, Bunline, Aïms Architecture, Adeline Nazarenko
- [Geographic location:](#) Paris, Europe, US, Pu, Denmark, France, Finland
- [Organization:](#) INRA, EU, Exalead, EPFL, Google, Microsoft, MS, Project Management Committee, Université Paris, European Commission



**2.2 Individual participants** (Maximum length ... efficiency and satisfaction, and developing applications and platforms with which ageing people feel more at ...  
 02 May 2007 - 102k

- [Source: Vie société](#) : Documentation : Contrats : Consortium, Projects : L\_FP7 : SeenOnTV : Admin
- [Famous people:](#) Avila Rahav, Simon van Dam, Daniel Ockelton, Florian van der Velde, John De Vel, Kees Tulenbreijer
- [Geographic location:](#) France, Athens, The Netherlands, Europe, Israel, Greece, Haifa
- [Organization:](#) IBM, Exalead, Philips, IBM Haifa, EU, Usqellan Partners, European Commission, Philips Consumer Electronics, Digital Tv, Carnegie



**Preparing for Digital Natives** Joining Your Workforce November 3-7, 2008 ... access to the Internet, which will be nearly fully democratized in most countries.  
 20 Oct 2008 - 752k

- [Source: Vie société](#) : Documentation : Sales\_and\_communication\_kit : Powerpoint\_Presentation : Event\_presentations : Garner Symposium Cannes 2008
- [Famous people:](#) Ilonca Basso, Marc Fransky, Chris Anderson, Abraham Maslow, Will They Be
- [Geographic location:](#) Cannes, France, Africa
- [Organization:](#) Garner, Inc., Garner, Communities and Social Networks, Disney, Fun Community, LEGO, Diversity It and Mobile Skills, Information Retrieval, Consumer Products, Social Networks, Amazon, Apple



**The Big Bang: Demand for Advanced Leadership** ... rather than directing, by developing self-organizing structures rather than reporting structures and by ...  
 07 Nov 2008 - 520k

- [Source: Vie société](#) : Documentation : Sales\_and\_communication\_kit : Powerpoint\_Presentation : Event\_presentations : Garner Symposium Cannes 2008
- [Famous people:](#) Diane Loretto, Marlene Corps, Will Exploide
- [Geographic location:](#) Marines, U.S., Cannes, France, Ghana, Philippines
- [Organization:](#) Garner, Inc., Garner, IBM, Zappos.com, America's NASA, Internal Parties External Partners, Homogeneous Limited



**Retirement in developed countries**, retirement will be pushed back ... as business activities move within developed, emerging and developing countries.  
 07 Nov 2008 - 622k

- [Source: Vie société](#) : Documentation : Sales\_and\_communication\_kit : Powerpoint\_Presentation : Event\_presentations : Garner Symposium Cannes 2008
- [Famous people:](#) Vivian Genovesi, Marc Fransky
- [Geographic location:](#) Cannes, France, India, U.S., Applications Building, Berkeley, Beijing, Hyderabad
- [Organization:](#) Garner, Inc., Garner, Infosys, Population Division, United Nations, Duke University, University of California



**INTRODUCTION**  
 from NIC newly Industrialised countries) Destinations Strongly concentrated (75%) in developed economies High ... in different countries States may inhibit ...  
 24 Mar 2002 - 57k

- [Source: Vie société](#) : Commercial : KK : SEXALEAD MYCIE : IDEES : SARCHIVES 2000 : TEMP MBA : SARCHIVES 2000 : GT : MBA : INTERNATIONAL : from First class

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  - [2008](#) (276) [exclude](#)
    - [March 2008](#) [exclude](#)
    - [April 2008](#) [exclude](#)
    - [October 2008](#) [exclude](#)
  - [2007](#) (213) [exclude](#)
    - [April 2007](#) [exclude](#)
    - [September 2007](#) [exclude](#)
    - [October 2007](#) [exclude](#)
  - [2005](#) [exclude](#)
- Language**

# Success 3: Semantic Type Extraction

- **MUC: named entities**
- **Affect: emotive content**
- **ML: classification, clustering**

The proposed merger between Mega, Inc. and CNA Systems, Incorporated, has been postponed, Mega CEO Joe Smith said in an analyst call. "CNA's 1st quarter revenue dropped by 32%, and they lost 23 million dollars," Smith explained. CNA Systems sources blame weak sales in China. CNA shares (CNA) fell 47 percent to \$9.84 on May 12, the first trading day after the announcement.

<b>Company</b>	Mega, Inc., CNA Systems, Incorporated
<b>Date</b>	May 12
<b>Person</b>	Joe Smith
<b>Person Position</b>	Mega CEO
<b>Currency</b>	23 million dollars, \$9.84
<b>Measurement</b>	32%, 47 percent
<b>Country</b>	China
<b>Concept</b>	proposed merger, analyst call, 1st quarter revenue weak sales, first trading day
<b>Event: M&amp;A</b>	The proposed merger between Mega, Inc. and CNA Systems, Inc. has been postponed



View:



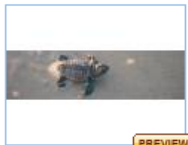
### Sea turtle

**Sea turtles** (Superfamily Chelonioidea) are **turtles** found in all the world's oceans except the Arctic Ocean. There are ... the body plan of **sea turtles** has remained ...

[en.wikipedia.org/wiki/Sea\\_turtle](http://en.wikipedia.org/wiki/Sea_turtle) - [Add to shortcuts](#)

**Categories:** [Sea turtles](#), [Marine reptiles](#)

See also: **People:** [Pope John Paul II](#), [Marine Laboratory](#), [Marine Mammal Center](#)



### Loggerhead Sea Turtle

As with other **sea turtles**, females return to lay their eggs on or near the same beach where they hatched. ... 1758 url <http://www.seaturtle.org/mtn/archives/mtn108> ...

[en.wikipedia.org/wiki/Loggerhead\\_Sea\\_Turtle](http://en.wikipedia.org/wiki/Loggerhead_Sea_Turtle) - [Add to shortcuts](#)

**Categories:** [Sea turtles](#), [Reptiles of Australia](#), [more »](#)

See also: **People:** [June Haimoff](#), [Marine Sanctuary](#)



### Sea Turtle Association of Japan, Kuroshima Research Station

research into the nesting of **sea turtles**, especially confirmation of the nesting of the hawksbill turtle for the ... Specimens of corals, **sea turtles**, and sea shells ...

[en.wikipedia.org/wiki/Sea\\_Turtle\\_Association\\_of\\_Japan,\\_Kuroshima\\_Research\\_Station](http://en.wikipedia.org/wiki/Sea_Turtle_Association_of_Japan,_Kuroshima_Research_Station) - [Add to shortcuts](#)

**Category:** [Laboratories](#)

See also: **People:** [Kuroshima Research Station](#)



### ARCHELON, the Sea Turtle Protection Society of Greece

founded in 1983. It aims to protect **sea turtles** and their habitats in Greece through research, public awareness campaigns, ... References Archelon's official website

[en.wikipedia.org/wiki/ARCHELON,\\_the\\_Sea\\_Turtle\\_Protection\\_Society\\_of\\_Greece](http://en.wikipedia.org/wiki/ARCHELON,_the_Sea_Turtle_Protection_Society_of_Greece) - [Add to shortcuts](#)

**Category:** [Conservation in Greece](#)



### Ridley sea turtle

Ridley **Sea Turtles** (Lepidochelys) are a genus of **sea turtles** with two species; the Kemp's Ridley and the Olive Ridley. ... Appearance Adult Ridley **Sea Turtles** grow to a ...

[en.wikipedia.org/wiki/Ridley\\_sea\\_turtle](http://en.wikipedia.org/wiki/Ridley_sea_turtle) - [Add to shortcuts](#)

**Category:** [Sea turtles](#)

See also: **People:** [Ridley Sea Turtles](#), [Olive Ridley](#), [more »](#)

### Narrow your search



Showing results in English  
[See results in all languages](#)

- [Australia](#) [Bahia Magdalena](#)
- [Chelonia mydas](#) [China](#) [Coastal](#)
- [Crocodylus porosus](#) [Delaware](#)
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- [Familia Cheloniidae](#) [Fauna of Bangladesh](#)
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# Success 4 : Geolocalised search and Timelines

Google maps pizza Search Maps Show search options

Get Directions My Maps

**pizza**

**Domino's Pizza** Sponsored Links  
Place Your Order in Advance Online. Check Out Our Hot Deals & Coupons! [www.Dominos.com](http://www.Dominos.com) Pennsylvania

**Pizza Parma** 217 S Highland Ave, Pittsburgh, PA - (412) 441-6600  
13 reviews  
"I ordered the fish and chicken combo and the chicken was not fresh fried ..."

**Papa John's Pizza** 4815 Centre Ave, Pittsburgh, PA - (412) 682-7272  
7 reviews  
"Recently, I was interested in seeing whether or not Papa John's offered ..."

**Pizza Perfecta Inc** 258 S Highland Ave, Pittsburgh, PA - (412) 661-9991  
18 reviews  
"We left Pittsburgh 5 years ago now and I'm still looking for a pizza place ..."

**Bites & Brews** 5750 Ellsworth Avenue, Pittsburgh, PA

pizza near skibo

Print Send Link Traffic More... Map Satellite Earth

Exalabs Chromatic Constellations Exalead Light Milget Sourcier Tweepz Voxalead Wikiter

Voxalead news

"toyota"

All Français English 中文 العربية español Русский Select sources

Show tags Hide Time Line

Numbers of quotation week of Jan 12, 2009 - week of Sep 21, 2010

chart by amCharts.com

Custom period: 2009-01-12 - 2010-09-21 Zoom: 10D 1M 3M 1Y YTD MAX

September 21 2010: ...are way above the folks like Honda , Nissan and Toyota . I have to agree to have a contract in...

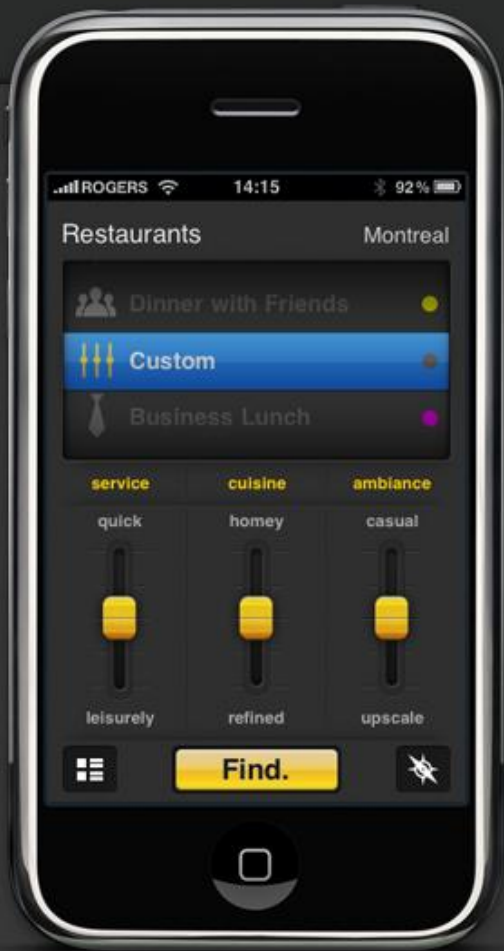
September 20 2010: ...Mori , Toyota is a hundred years old when he was born early 20th century Japan was undeveloped...

September 14 2010: ...Mr. Castle told Toyota . All of the entire world seems to have this last name currently between...

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A search based application, including social graph

**URBANIZER.com**



View your city's mood



Français



BETA

# urbanizer for iPhone

Discover your city by mood!

Urbanizer is an innovative interactive application that recommends places in your city based on mood. Whether you are planning a romantic dinner, or an evening out with friends, Urbanizer will help you discover the perfect place that suits the mood.

FREE



Vote for your city, enter your email, select city and vote :

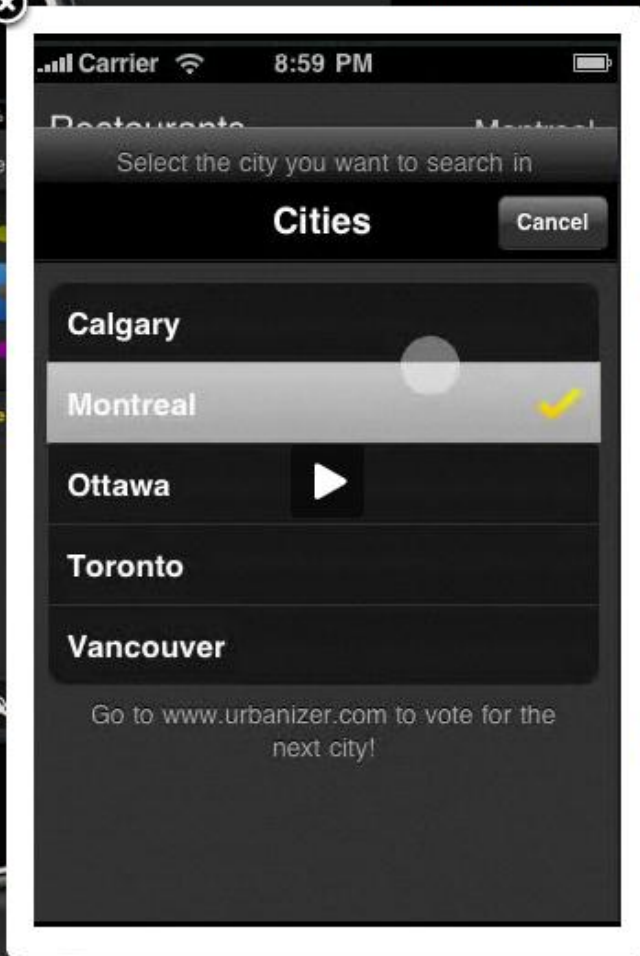


Vote



Urbanizer is powered by YellowPages.





View your city's mood



Français

# Urbanizer for iPhone

View your mood!

An interactive application that recommends restaurants on mood. Whether you are planning a business meeting or hanging out with friends, Urbanizer will help you find the place that suits the mood.

Sign up with your email, select city and vote :

Select City

Vote

+ Mood Tags

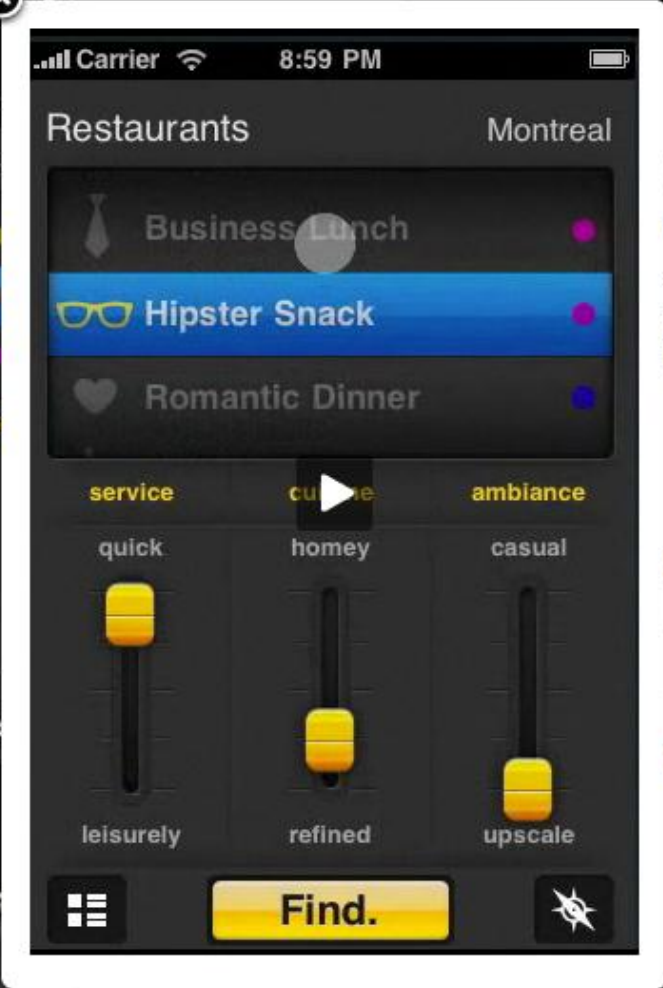
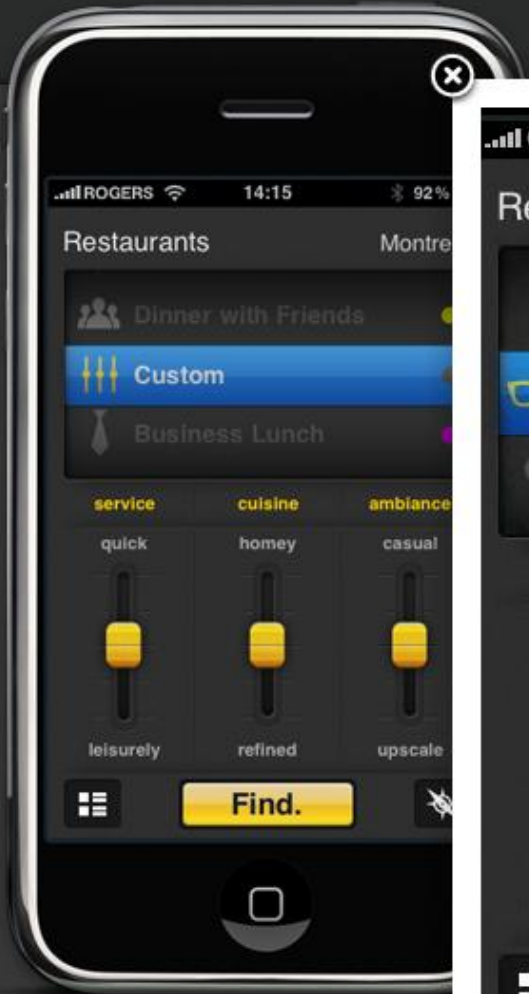
+ Friends

+ Reviews

+ 13. Restaurant Strc  
1019, avenue Du Mont-

+ 14. Taj Restaurant  
2077, Rue Stanley, Mon

Urbanizer is powered by YellowPages.



View your city's mood



Français

# Urbanizer for iPhone

View your mood!

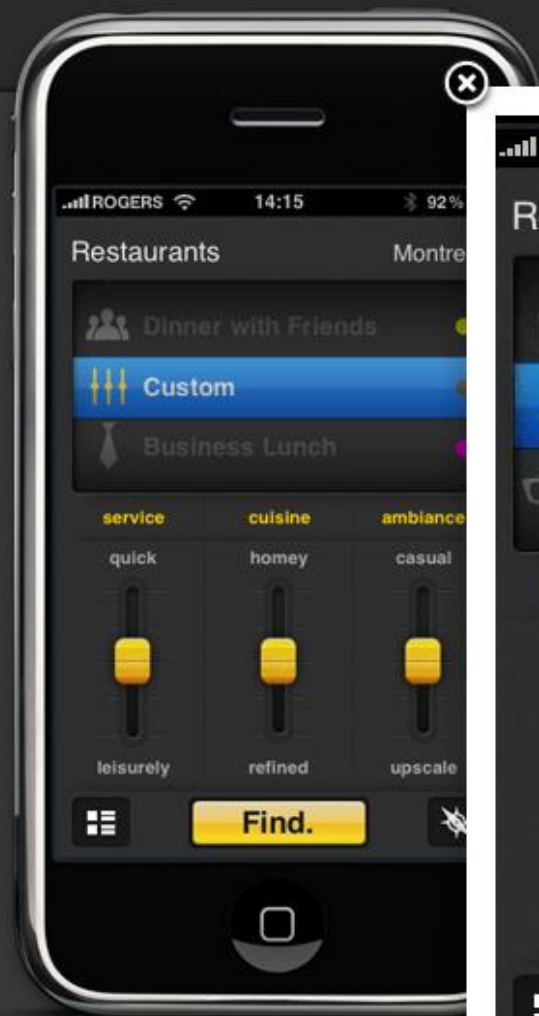
The interactive application that recommends restaurants on mood. Whether you are planning a dinner out with friends, Urbanizer will help you find a place that suits the mood.


Enter your email, select city and vote :

Select City

- + Mood Tags
- + Friends
- + Reviews
- + 13. Restaurant Str  
1018, avenue Du Mont-  
Real
- + 14. Taj Restaurant  
2077, Rue Stanley, Mon

Urbanizer is powered by YellowPages.



View your city's mood 

Français

## Urbanizer for iPhone

Know your mood!

An interactive application that recommends restaurants based on mood. Whether you are planning a business meeting or dining out with friends, Urbanizer will help you find the place that suits the mood.

Enter your email, select city and vote :


Select City

**Mood Tags**

- Friends
- Reviews

**13. Restaurant Strc**  
1019, avenue Du Mont

**14. Taj Restaurant**  
2077, Rue Stanley, Mon

View your city's mood 

Français



**Restaurants**

- Café Cherrier**  
3635, Rue Saint-Denis, Montreal
- Restaurant Le Fripon**  
436, Place Jacques-Cartier, Montreal
- Restaurant Toque**  
900, Place Jean-Paul Riopelle, Montreal  
1 friend is fan
- Restaurant Beaver Hall**  
1073, Cote Du Beaver Hall, Montreal
- Restaurant Méridional Inc**  
550, Chemin De Chambly, Longueuil

Mood Nearby Score Filter

# Urbanizer for iPhone

Know your mood!

The interactive application that recommends restaurants based on mood. Whether you are planning a business meeting or hanging out with friends, Urbanizer will help you find the place that suits the mood.

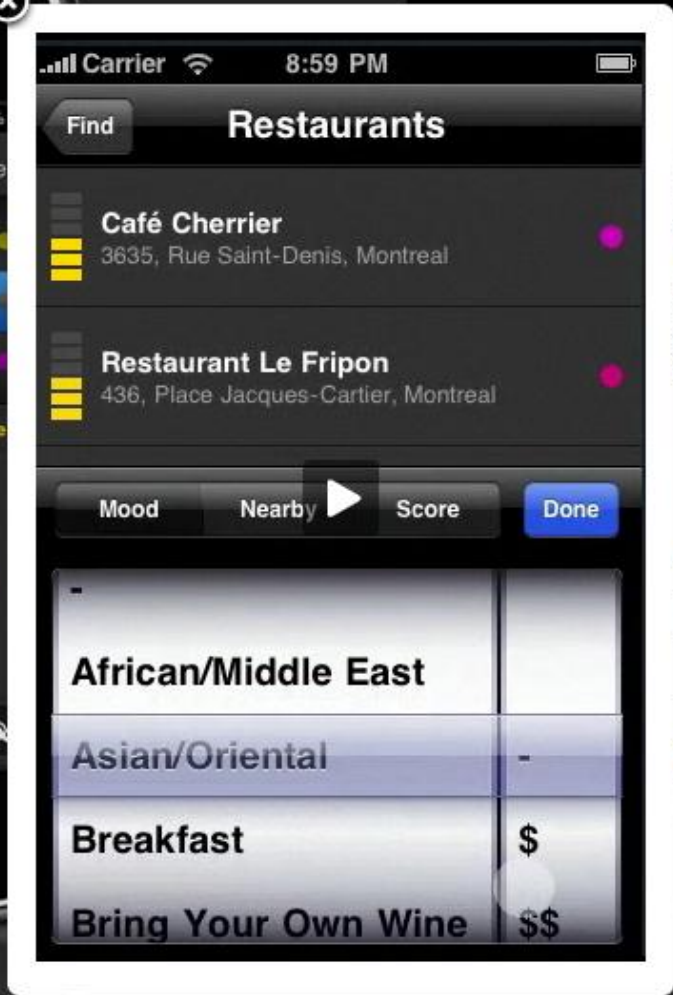
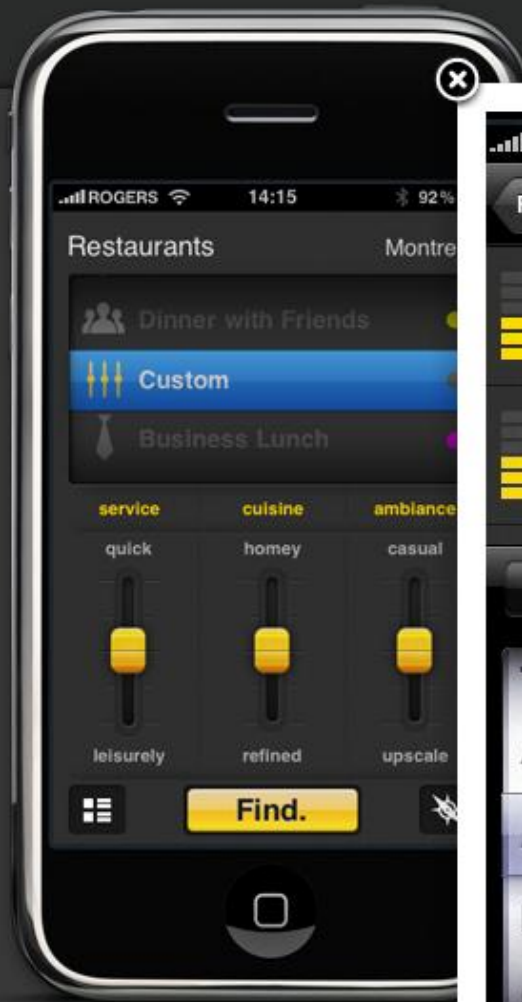
Enter your email, select city and vote :

Select City

**Mood Tags**

- Friends
- Reviews

**13. Restaurant Str**  
1019, avenue Du Mont-  
**14. Taj Restaurant**  
2077, Rue Stanley, Mon



View your city's mood



Français

# Urbanizer for iPhone

Urbanizer is an interactive application that recommends restaurants based on mood. Whether you are planning a dinner out with friends, Urbanizer will help you find the place that suits the mood.

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**Mood Tags**

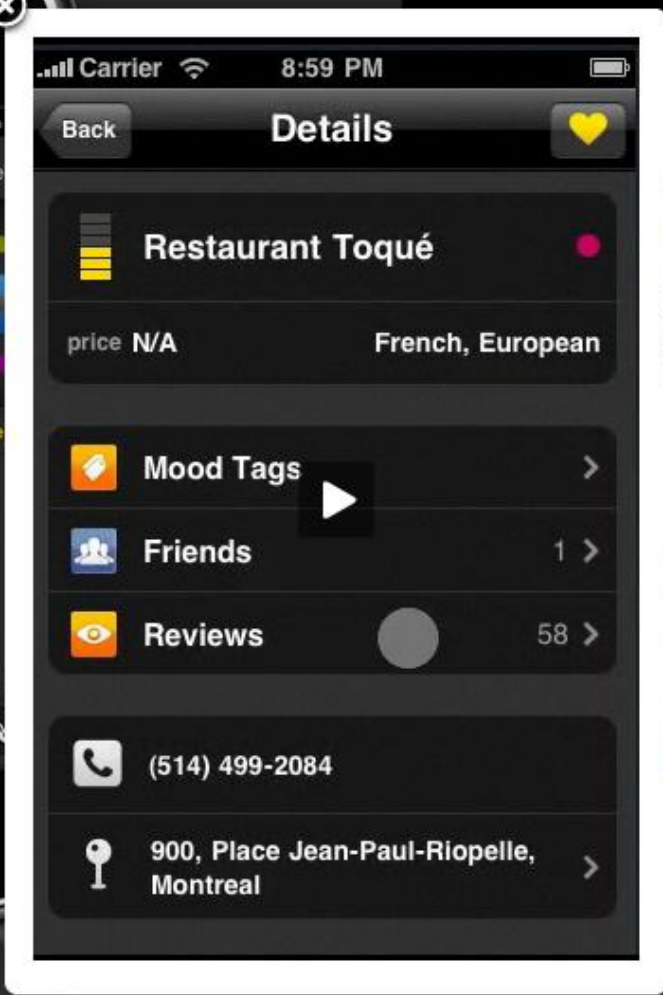
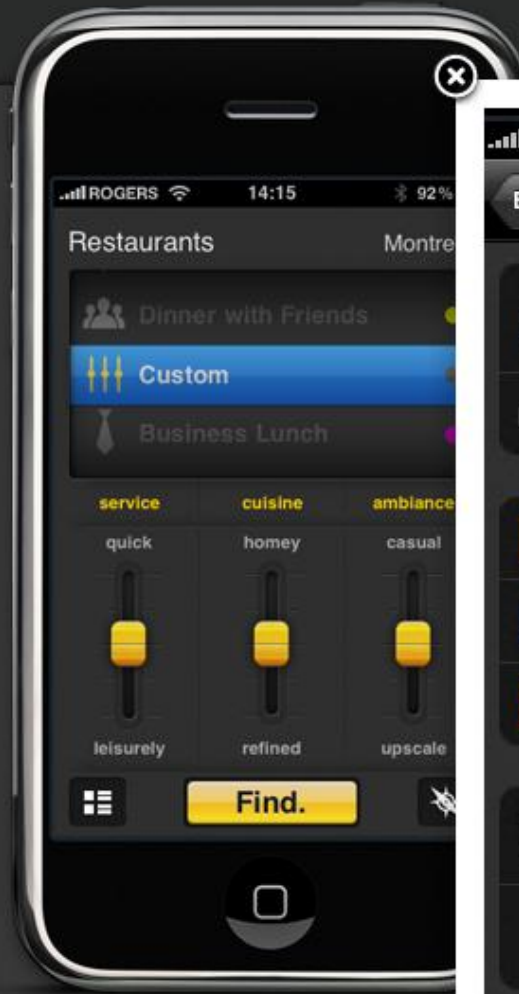
- Friends
- Reviews

**13. Restaurant Strc**  
1019, avenue Du Mont-

**14. Taj Restaurant**  
2077, Rue Stanley, Mon

Urbanizer is powered by YellowPages™.





View your city's mood



Français

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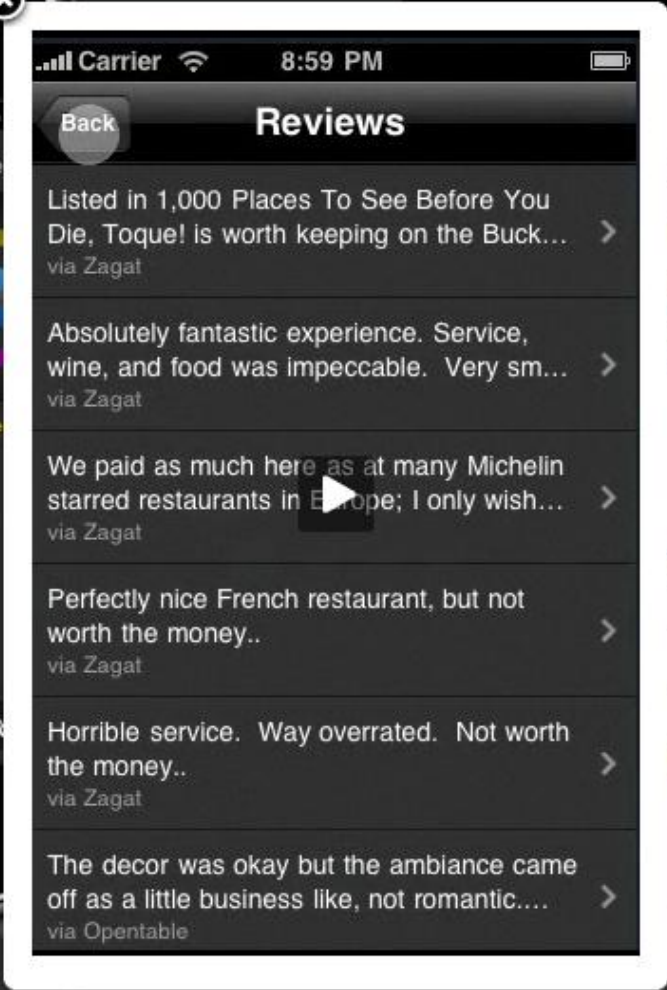
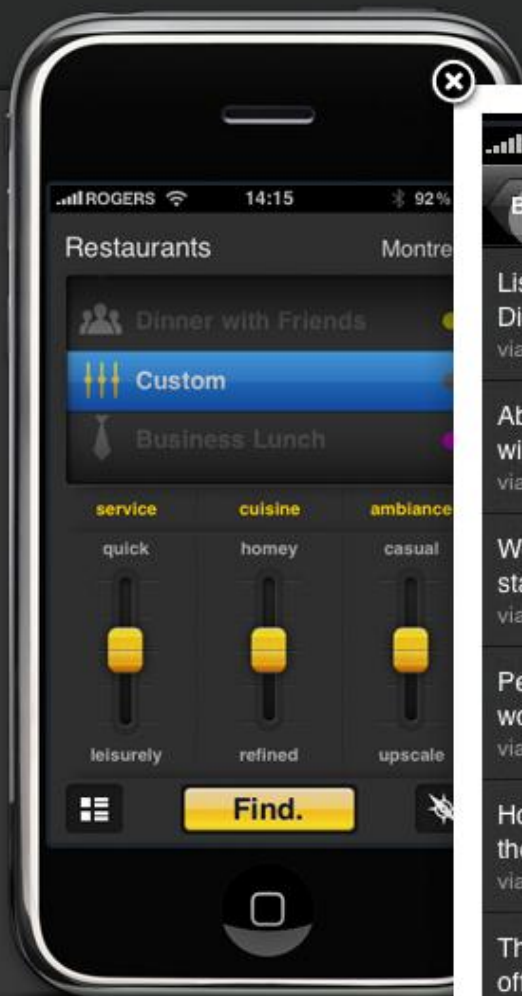
The interactive application that recommends restaurants based on mood. Whether you are planning a business meeting, a date, or hanging out with friends, Urbanizer will help you find the place that suits the mood.

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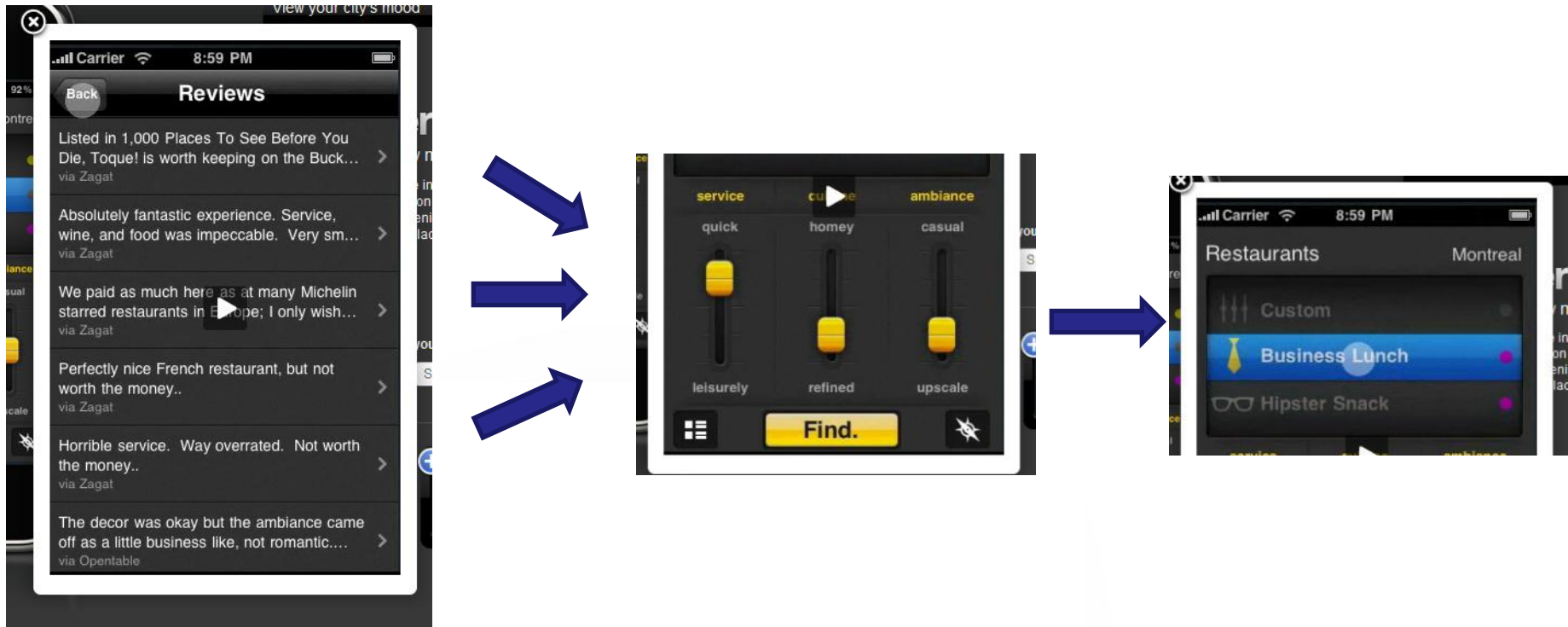
Select City

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1019, avenue Du Mont-  
**14. Taj Restaurant**  
2077, Rue Stanley, Mon

# Extraction + Abstraction + Abstraction



"...decor is not particularly elegant..."

ambiance ↓ 70

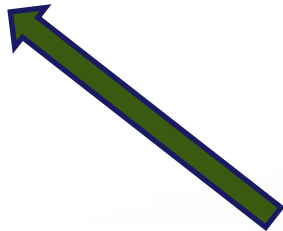
Business Lunch  $\approx$  service  $\in$  [0,40]  $\vee$  cuisine  $\in$  [45,100]  $\vee$  ambiance  $\in$  [45,100]



# Domain modeling

---

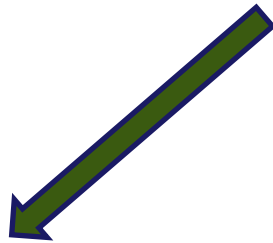
*Service*



*Cuisine*



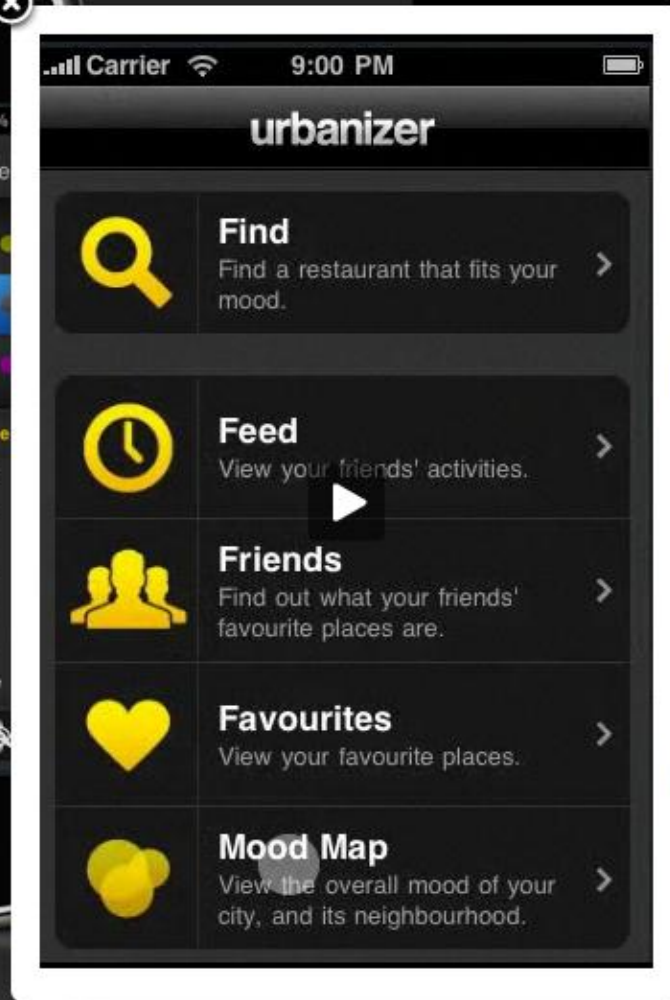
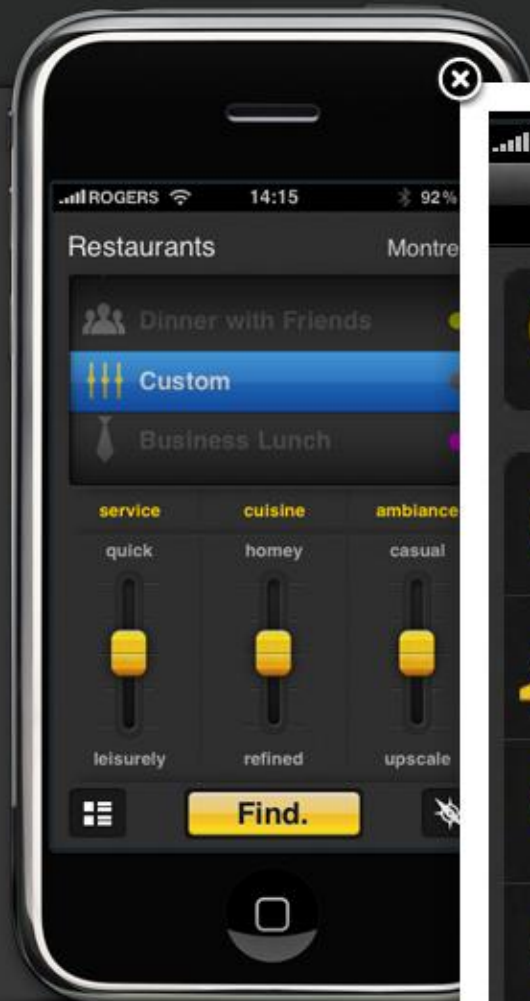
*Ambiance*



Domain vocabulary

Sentiment for domain

Syntactic patterns



View your city's mood



Français

# Urbanizer for iPhone

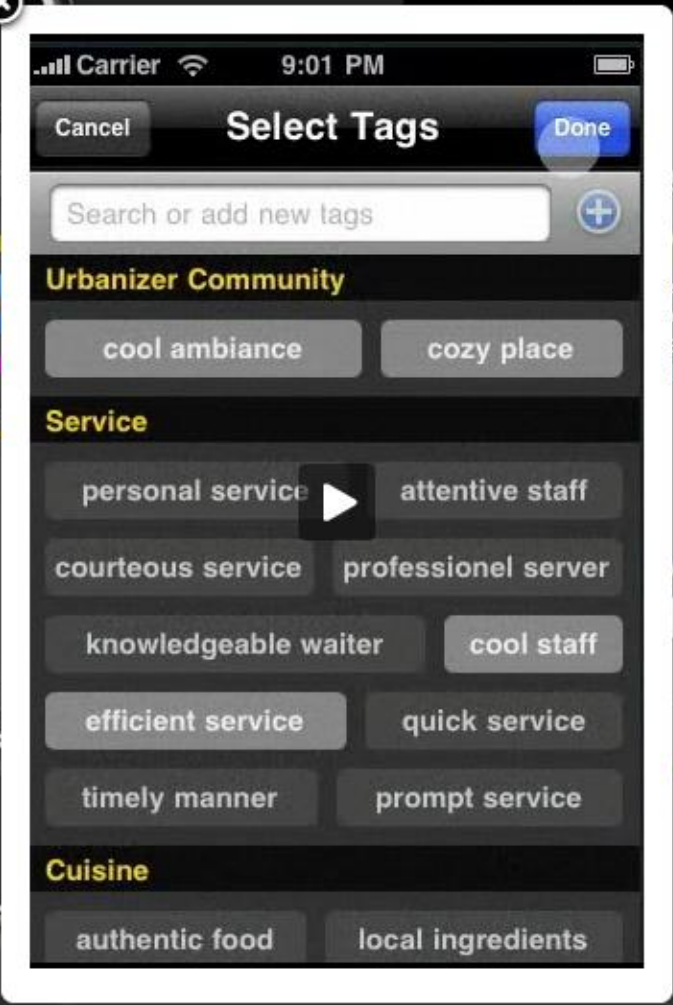
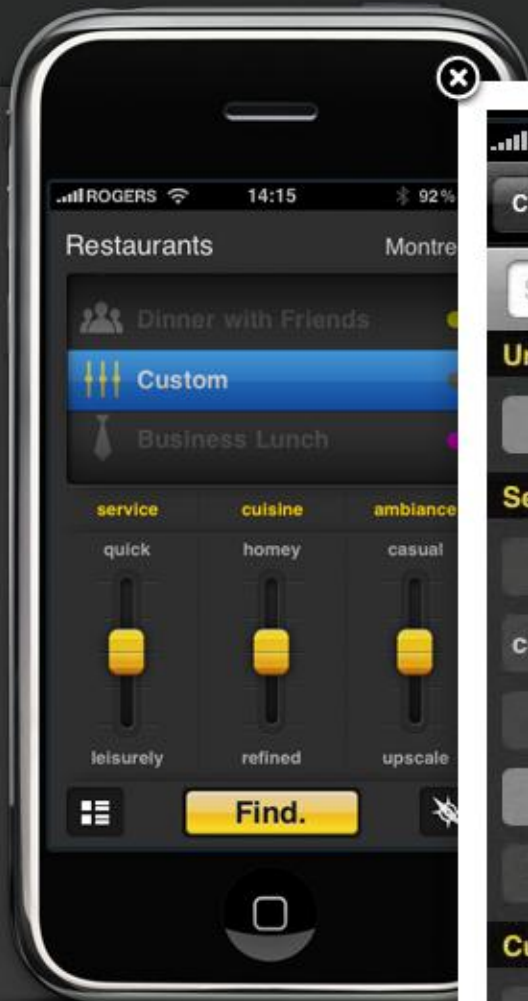
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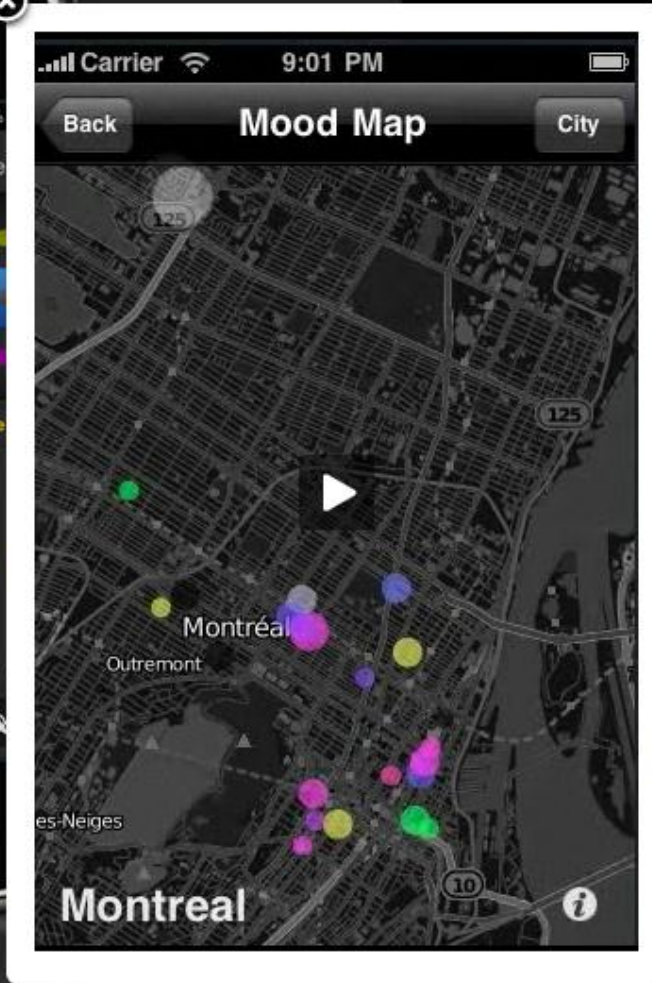
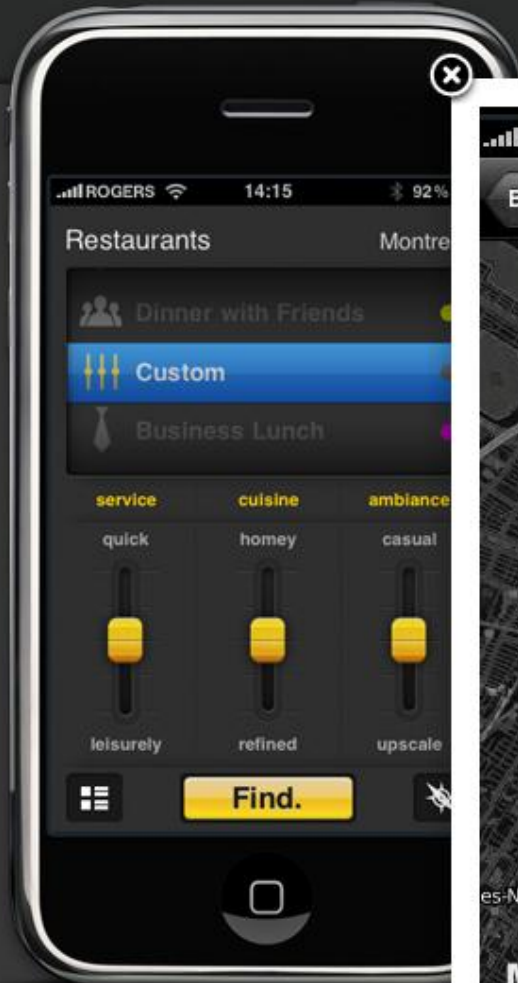
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9019, avenue Du Mont-...
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2077, Rue Stanley, Mon...

Urbanizer is powered by YellowPages

# Successes : Semantics for search

---

- **Information Extraction**
  - **Faceted Search**
  - **Sentiment Analysis**
    - → Domain Modeling
  - **Friends' opinion**
- 
- **Drawbacks**
    - Domain modeling economically feasible en masse

# Challenge: searching ad hoc, idiosyncratic spaces

## Video Stream from Meetings



Steve Renals,  
"Recognition and  
Understanding of  
Meetings", keynote for  
"Human Language  
Technologies: The 11th  
Annual Conference of the  
North American Chapter  
of the Association for  
Computational  
Linguistics", June 1–6,  
2010, Los Angeles, CA.

[Jean Carletta, Human  
Communication Research Centre,  
School of Informatics, University of  
Edinburgh](#)

# Challenge 1: searching ad hoc, idiosyncratic spaces



<http://www.imrc.kist.re.kr/wiki/LifeLog>

# Microsoft SenseCam



<http://research.microsoft.com/en-us/um/cambridge/projects/sensecam/>

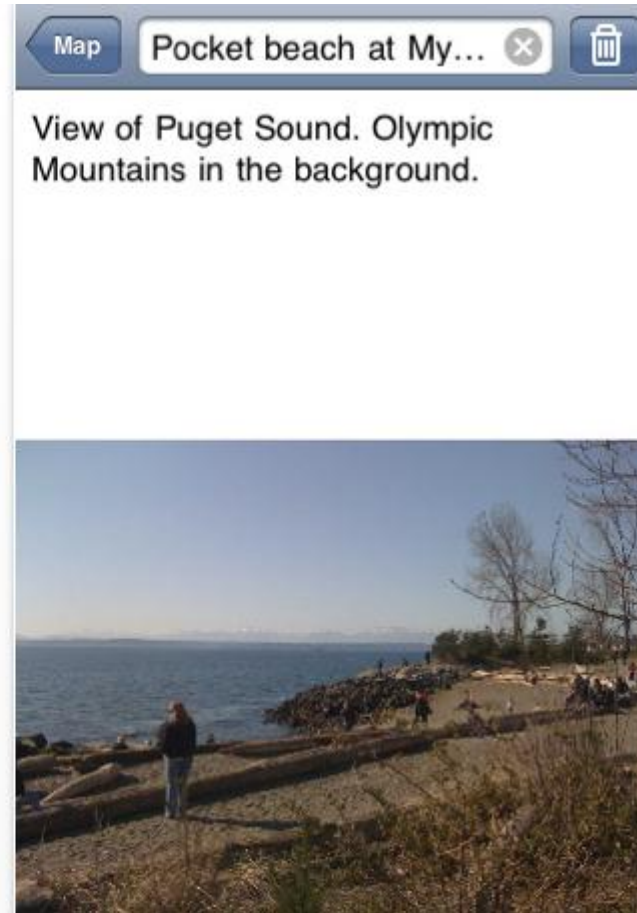
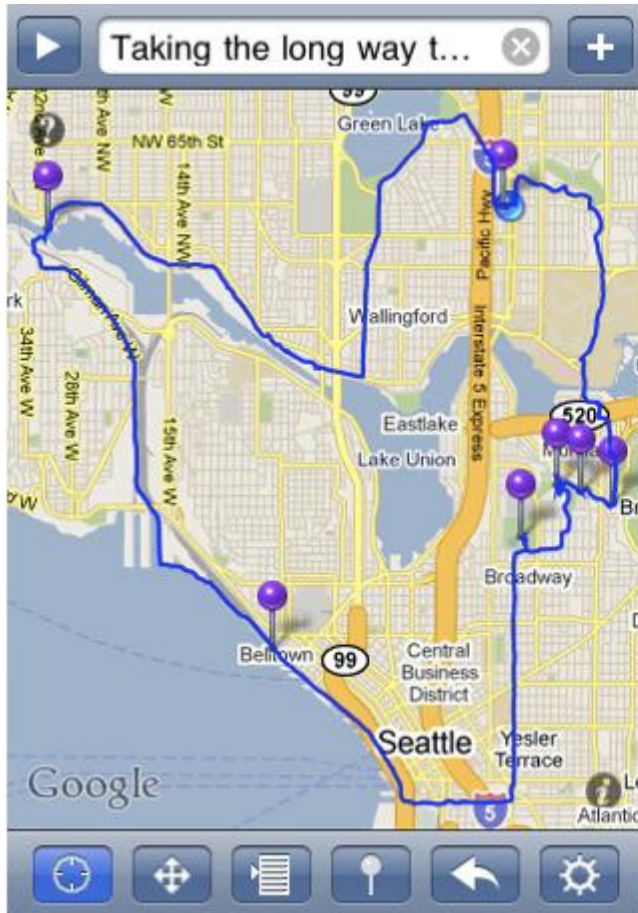
<http://justgetthere.us/blog/plugin/tag/cameras>





<http://gadgets.infoniac.com/head-worn-camera-for-special-events.html>

# Bike My Way



# Insta Mapper

## Jarel's iPhone



Click on positions to select track endpoints and to see other options.

2010-03-11 01:28:59	2663 ft	0 mph
2010-03-11 01:30:01	2663 ft	0 mph
2010-03-11 01:31:02	2663 ft	0 mph
2010-03-11 01:32:03	2663 ft	0 mph
2010-03-11 01:33:05	2663 ft	0 mph
2010-03-11 01:34:11	2663 ft	0 mph
2010-03-11 01:35:12	2663 ft	0 mph
2010-03-11 01:36:13	2663 ft	0 mph
2010-03-11 01:37:13	2663 ft	0 mph
2010-03-11 01:38:16	2663 ft	0 mph
2010-03-11 01:39:21	2663 ft	0 mph
2010-03-11 01:40:25	2663 ft	0 mph
2010-03-11 01:41:29	2663 ft	0 mph
2010-03-11 01:42:31	2663 ft	0 mph
2010-03-11 01:43:32	2663 ft	0 mph
<b>Trip boundary</b>		
2010-03-11 07:07:56	2627 ft	0 mph
2010-03-11 07:27:59	236 ft	0 mph
2010-03-11 07:28:31	2926 ft	0 mph
2010-03-11 07:28:40	2926 ft	0 mph
2010-03-11 07:36:00	2903 ft	0 mph
2010-03-11 07:37:01	2857 ft	0 mph
2010-03-11 07:38:01	2857 ft	0 mph
2010-03-11 07:39:01	2857 ft	0 mph
2010-03-11 07:40:02	2857 ft	0 mph
2010-03-11 07:41:02	2857 ft	0 mph
2010-03-11 07:42:03	2857 ft	0 mph
2010-03-11 07:43:03	2857 ft	0 mph
2010-03-11 07:44:04	2857 ft	0 mph
2010-03-11 07:45:04	2857 ft	0 mph
2010-03-11 07:46:04	2857 ft	0 mph

Mar 11 2010 Go

# Challenge 2: Mapping Pertinent User information



NOVEMBER 2009 ATLANTIC MAGAZINE

## Filtering Reality

How an emerging technology could threaten civility

By [Jamais Cascio](#)

Illustration By  
IMAGE CREDIT: GLUEKIT



# Augmented Reality for Maintenance and Repair (ARMAR)

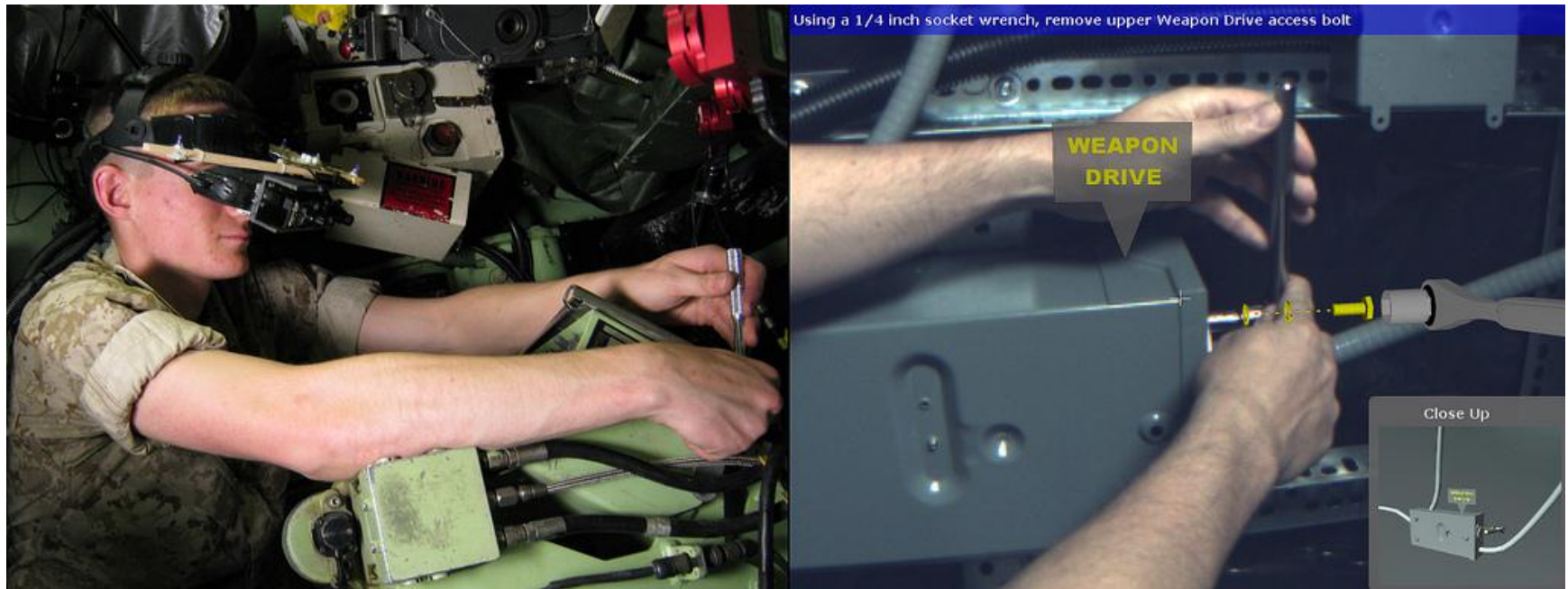
<http://graphics.cs.columbia.edu/projects/armar/index.htm>



(Left) A mechanic wearing a tracked head-worn display performs a maintenance task on a Rolls Royce DART 510 Engine. (Right) A view through the head-worn display depicts information provided using augmented reality to assist the mechanic.

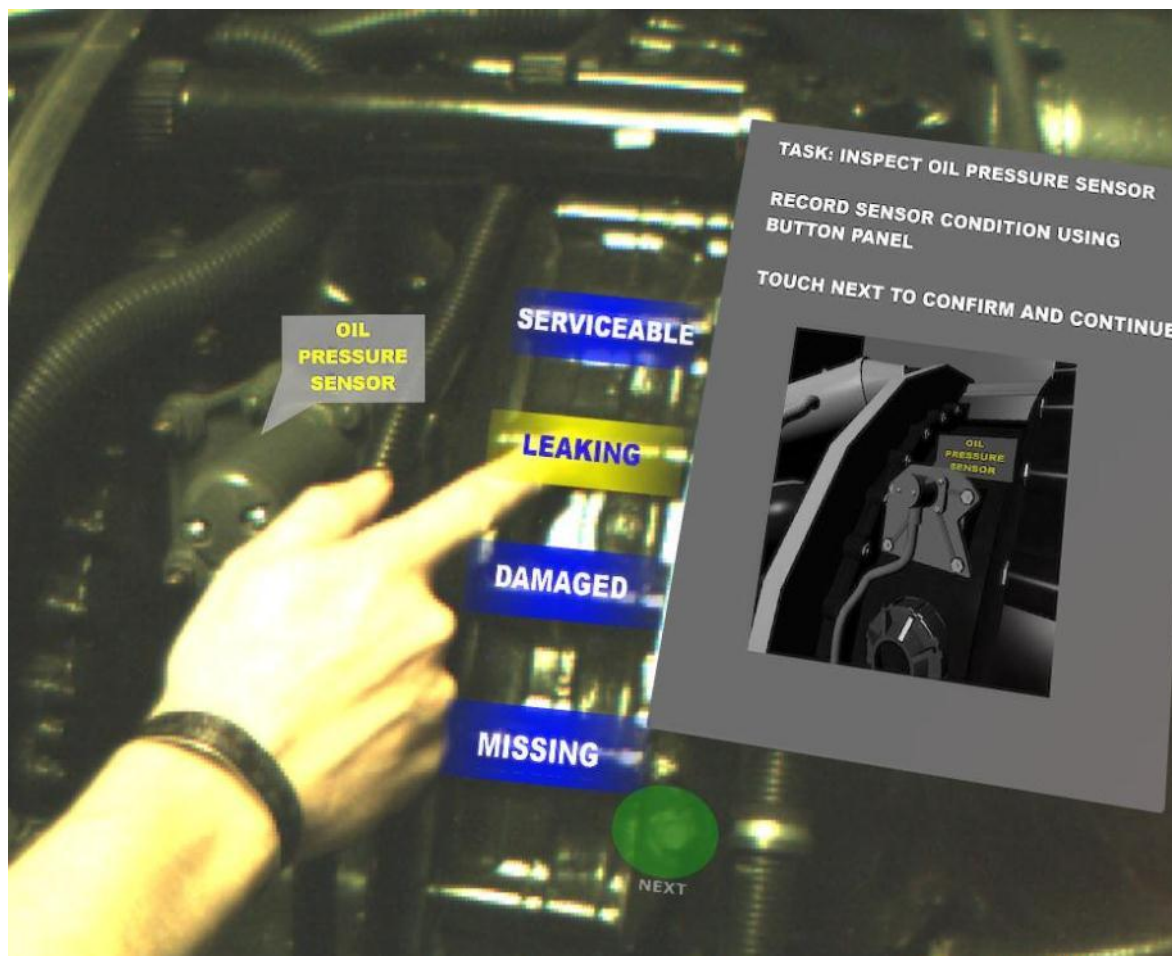
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<http://graphics.cs.columbia.edu/projects/armar/index.htm>

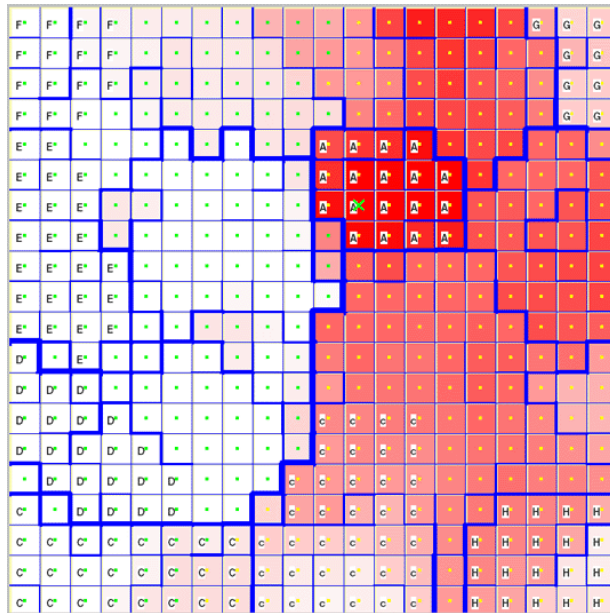
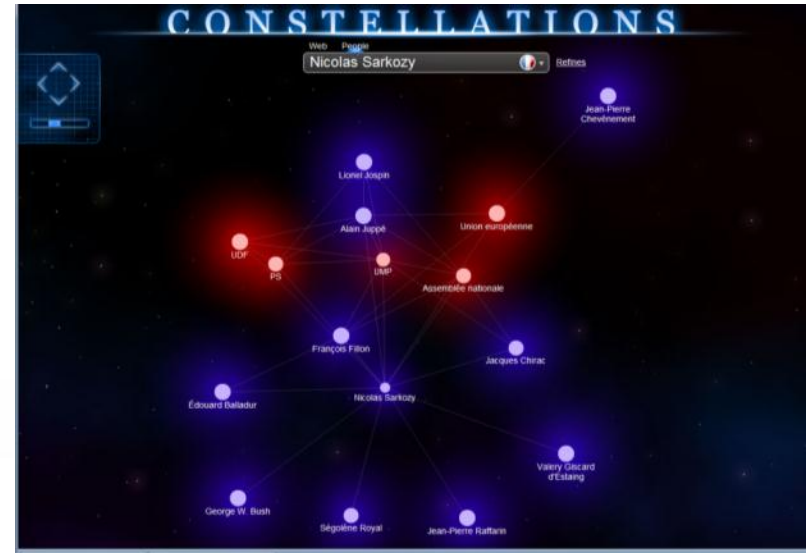
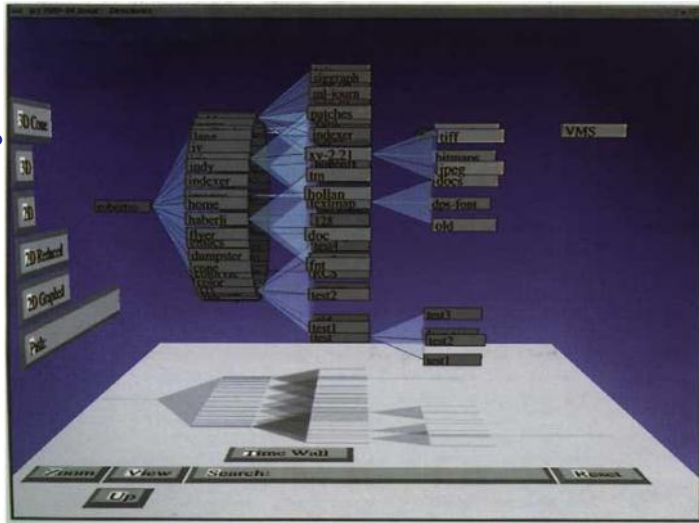


(Left) A mechanic wearing a tracked head-worn display performs a maintenance task inside an LAV-25A1 armored personnel carrier. (Right) The AR condition in the study: A view through the head-worn display captured in a similar domain depicts information provided using augmented reality to assist the mechanic.

# A user manipulates 3D virtual buttons while receiving haptic feedback from the underlying grooves of an engine compression section



# Challenge 3 : liberation from real world maps





# What does space mean in a virtual world



# Conclusions

---

## *Successes*

- **Entities, Affect**
- **Faceted Search**
- **Local Search**

## *Challenges*

- **Idiosyncratic volume**
- **Idiosyncratic abstraction**
- **Assigning meaning to virtual space**

# Thank you

www.3ds.com