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# Experience Discovery from the Web

Towards an Experience Web:  
Reasoning from Other People's Experiences

**NIRMALIE WIRATUNGA**

# Reasoning with Experiences

Recommending

Trouble  
shooting

Planning

Design

Configuration

www

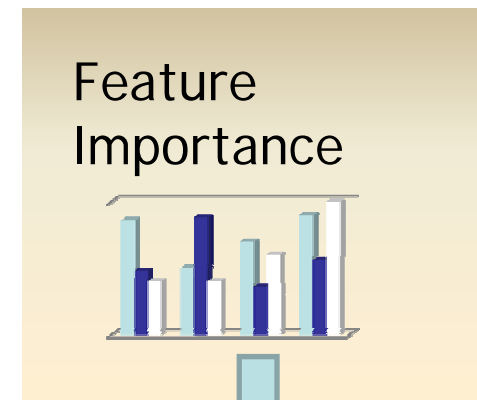


# Outline

- What data/information is available and how can it be captured?
  - Knowledge Representation with text and multimedia
- What are Web Experiences?
  - Reusability of experiences
  - Multiplicity of individual experience
- Towards an Experience Web
  - How can we capture experiential content from plentiful data?
  - How can we reason with this content?



# Knowledge Capture Framework



blend  
knowledge  
captured  
in varied  
formats

$$D = \begin{bmatrix} w1 & w2 & w3 \\ \cdot & & \\ & \cdot & \\ & & \cdot \end{bmatrix}$$

$$T = \begin{bmatrix} w1 & w2 & w3 \\ \cdot & & \\ & \cdot & \\ & & \cdot \end{bmatrix}$$

$$W = \begin{bmatrix} w1 & & \\ & w2 & \\ & & w3 \\ & & & \cdot \end{bmatrix}$$

$$D' = (D \times T) \times W$$

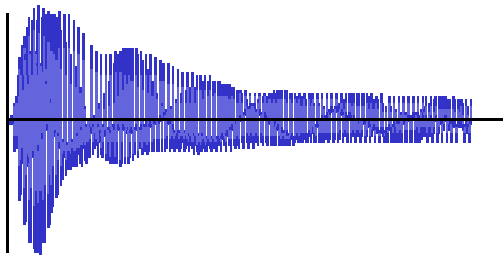
w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13
1	0.8	1	1	0.9	0	0	1	1	0	1	0	0



# Blend Knowledge Representations

- Music Video recommendation system

## Audio Features



- Texture
- Rhythm
- Harmony
- Melody

## Listener Profiles



- Likes
- Dislikes
- Friends
- Listens

## Social Tags

**rock** **female vocalists**  
Yeah Yeah Yeahs, The Joy Formidable  
The Velvet Underground **alternative rock**  
**new wave** **alternative**  
New Order, The Cure Radiohead, The Libertines

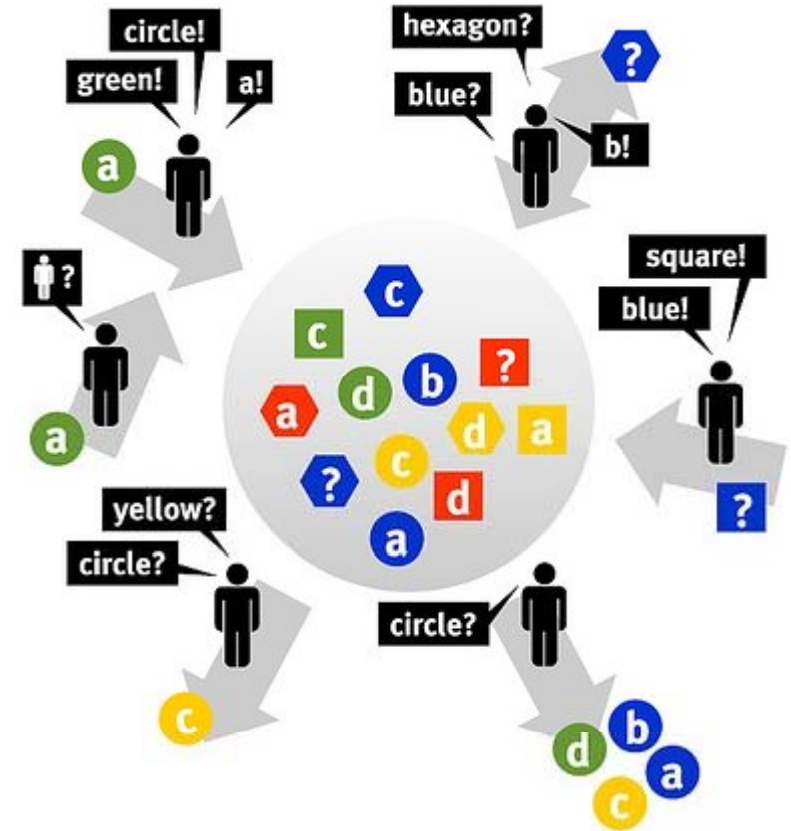
- Genre
- Opinions
- Descriptions

Knowledge Representation



# What are Web Experiences?

- Large amounts of experiential content generated on the Web e.g. Blogs, twits, wikis, forums
- The challenge is how to represent, organize, and reuse this experiential content beyond a collection of hyperlinked documents





# Experience content on the Web – How to Experiences

**Ingredients**  
Without ingredient  
With ingredient

**Taste**  
Salty: No Preference  
Savory: No Preference  
Sour: No Preference  
Bitter: No Preference  
Sweet: No Preference  
Spicy: No Preference

**Allergies**  
 Dairy-Free  Egg-Free  
 Gluten-Free  Peanut-Free  
 Seafood-Free  Sesame-Free  
 Soy-Free  Sulfite-Free  
 Tree Nut-Free  Wheat-Free

**Diets**  
 Lacto vegetarian  Vegetarian  
 Ovo vegetarian  Pescatarian  
 Vegan

**Nutrition**  
Cholesterol: No Preference  
Fat: No Preference  
Carbs: No preference  
Price: No Preference

## Lamb Steaks

★★★★★

Like Send Save Email Print

Photo from: shooter  
Epicurious

Ingredients 4 Servings

- lamb steaks (the leg or shoulder cut about 1 1/2 inches thick)
- garlic
- marinade (oil)
- salt
- pepper

Directions

1. Preheat the grill to medium-high heat.
2. Rub each steak with a cut clove of garlic and brush with melted butter or oil.
3. Grill over coals, turning to brown evenly, until the steaks are nicely browned on the outside.
4. Season to taste with salt and pepper as they cook.

**Expected Goals/outcome**

**Problem and solution descriptors**

Nice recipe i tried it and it worked wonderfully...I used a little extra garlic in mine though because i like the garlic flavour. and i used red wine instead of white...  
shfullclip9mm 8 months ago

@shfullclip9mm - Great!! am glad you liked it. I will try it out with red wine next time..thanks  
joSawant 8 months ago

Great recipe, thanks! I wouldn't be worried about any stones from your gorgeous ring falling into the dish :)  
GirliqueDownUnder 10 months ago

@GirliqueDownUnder - I'll be sure to visit it to keep it as a next time!  
joSawant 9 months ago

thanks for posting this it looks real good. one advice tho...when I saw your ultra-diamond studded ring, I cringed at the possibility of chewing one of them if it went loose and mixed with the dish.... :D So I'd remove them for peace of mind I think. Thanks again and I hope to try this recipe in the future!  
jerryison2003 11 months ago

## Marinated Grilled Lamb Chop Recipe

OutdoorChefBarbecue 14 videos

1,699 views

**Multiplicity of individual experiences**



# Experience content on the Web – How to Experiences

The screenshot shows a web browser displaying the Oracle Data Mining Administrator's Guide (11g Release 1 (11.1), Part Number B28130-04) at [download.oracle.com/docs/cd/B28359\\_01/datamine.111/b28130/install\\_odmer.htm](http://download.oracle.com/docs/cd/B28359_01/datamine.111/b28130/install_odmer.htm). The page title is "Oracle® Data Mining Administrator's Guide 11g Release 1 (11.1) Part Number B28130-04". The main heading is "5 Installing Oracle Data Miner". Below the heading, it says "This chapter provides instructions for installing Oracle Data Miner".

Overlaid on the bottom left is a forum thread titled "New workflow GUI in Oracle Data Miner 11g R2". The thread contains three posts:

- Post 1:** by user2494509, posted 10-Feb-2011 07:08. Title: "New workflow GUI in Oracle Data Miner 11g R2". Content: "I am not able to get clarity on whether the new GUI for data mining is available. Some post says, it is in Oracle 11g R2 but in download page, you dont find it. Some post says, it is available in SQL Developer 3 Early adapter, and even in that this functionality is not there. Can anyone help in letting us clarity as what is happening to this much publicised functionality!!!! Thanks in advance".
- Post 2:** by Brendan, posted 10-Feb-2011 08:38. Title: "Re: New workflow GUI in Oracle Data Miner 11g R2". Content: "Its ready yet but getting close. It was planned to be part of the SQL Dev 3 (EA), but it is believed that it will be available in a few months time. Regards Brendan".
- Post 3:** by ciberber, posted 10-Feb-2011 10:18. Title: "Re: New workflow GUI in Oracle Data Miner 11g R2". Content: "Oracle employees can install, demo, etc. the software today. There is now the process of releasing ODMr 11gR2 new GUI as part of the SQL Developer Early Adopter release program. Customers must sign and acknowledge the SQLDev EA Oracle license agreement to download SQLDev. 3.0 and ODMr should now be part of EA4, hopefully. See SQLDev. OTN site for all dates but that's where you'll download ODMr GUI from - it'll just be pre-installed as another Extension to SQLDev. We understand this process has been taking longer than we all anticipated. Sorry, but we promise it is coming very soon. For those eager to "see" more, I've created a home made .avi quick ODMr movie as a better preview. It is 86MB and you can access it here: [https://docs.google.com/leaf?id=0B0-rK48p30eNGY3NlNlZjU4MTc5ZC00MTY5LWVlNDMlNzI2MjA2MmVlOTdj8hI=en\\_GB&authkey=CP6\\_gUMI](https://docs.google.com/leaf?id=0B0-rK48p30eNGY3NlNlZjU4MTc5ZC00MTY5LWVlNDMlNzI2MjA2MmVlOTdj8hI=en_GB&authkey=CP6_gUMI) Hope this helps and watch for SQL Dev. 3.0 updates".

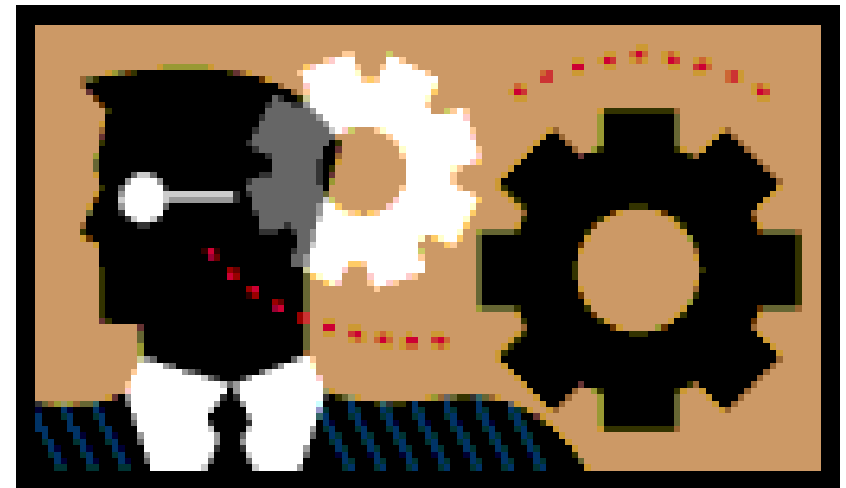
Overlaid on the bottom right is a YouTube video player showing a video titled "Comes of Age - Introduction" with 138 views. The video shows a man speaking. The YouTube interface includes a search bar, navigation links (Browse, TV Shows, Upload), and a list of suggestions for related videos.





# Challenge: reasoning with web content

- Unstructured & heterogeneous nature of extracted knowledge makes reasoning a challenge
- How to reason?
  - Humans have a model of the world
  - Experience templates for different tasks!



# Metadata of an Experience

**Who**     *UserID | ID-URL | ID-service*

**What**   *Hotel-Name | Address | Hotel URL*

**Where**    *Address | GeoTAG | GIS-ID*

**When**    *1 Night | Summer | March 11-12*

Metadata  
(Experience  
Identifier)

**Why**            *Why I liked/disliked this hotel*

**How**            *How I did/achieved this*

Experience  
Content



# Reasoning with the HOW-TO Experiences

How to obtain a good quality black & white image?

## *Assumptions*

- 1 Step description
- 2 Step description
- 3 Step description
  
- N*** Step description

## *Effect*

## **Photoshop, color image**

- 1 Use **PluginX**
- 2 Download it from **URL**
- 3 Install it
- 4 Set it to **Beginners mode**

## **B/W image, high quality**



# Reasoning with the HOW-TO Experiences

What if Photoshop is missing?

**Photoshop?**

color image

- 1 Use **PluginX**
- 2 Download it from **URL**
- 3 Install it
- 4 Set it to **Beginners mode**

B/W image, high quality



# Reasoning with the HOW-TO Experiences

color image

- 1 Use **Photoshop**
- 2 Go to this **URL**
- 3 Pay **Photoshop** licence
- 4 Download it from the website
- 5 Install it

image processing, **Photoshop**

Experiences, like plans,  
can be adapted

**Photoshop**, color image

- 1 Use **PluginX**
- 2 Download it from **URL**
- 3 Install it
- 4 Set it to **Beginners mode**

B/W image, high quality





# Reasoning with the HOW-TO Experiences

color image

- 1 Use **Photoshop**
- 2 Go to this **URL**
- 3 Pay **Photoshop** licence
- 4 Download it from the website
- 5 Install it

- 6 Use **PluginX**
- 7 Download it from **URL**
- 8 Install it
- 9 Set it to **Beginners mode**

B/W image, high quality

A new form of  
"mash-up"



# The Priority: Towards an Experience Web!

Focus: Text & data that record experiences

Core Idea: Task determines an interpretation and reuse of “experiences”

Challenge: how to deal with the multiplicity of individual sources of experiences

Web resources capture How and Why as well as what, when and where, but all this knowledge must be extracted in knowledge-rich experiences from plentiful data/information

Summary: An AI approach to **learn** and **reason** from other people’s experiences on the Web

