

A 15 MILLION IMAGE LIFELOG

THOUGHTS & EXPERIENCES

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Quantified Self 2015

(Expo) 20 June 2015

Archived Lifetimes

Using mobile/wearable devices and information loggers to **automatically** record everything you see, hear, learn and experience. Creates a **complete and accurate record of an individual** - a Lifelog.

First generation devices are on the market now and people have begun to do this.



SIGNIFICANT POTENTIAL

Private Archive
The Internet of Me



Life Enriching Value

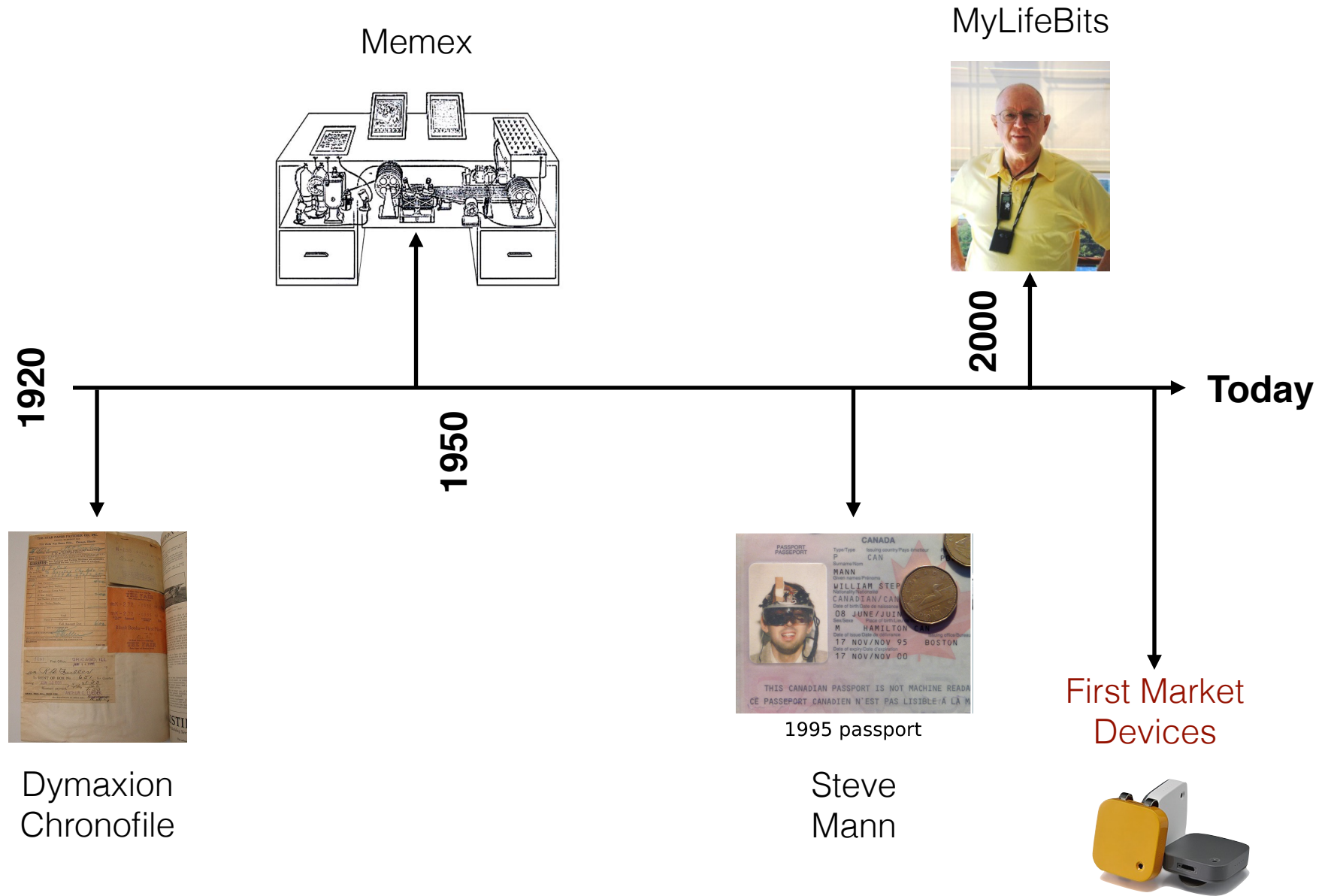


A personal search engine
for life experience

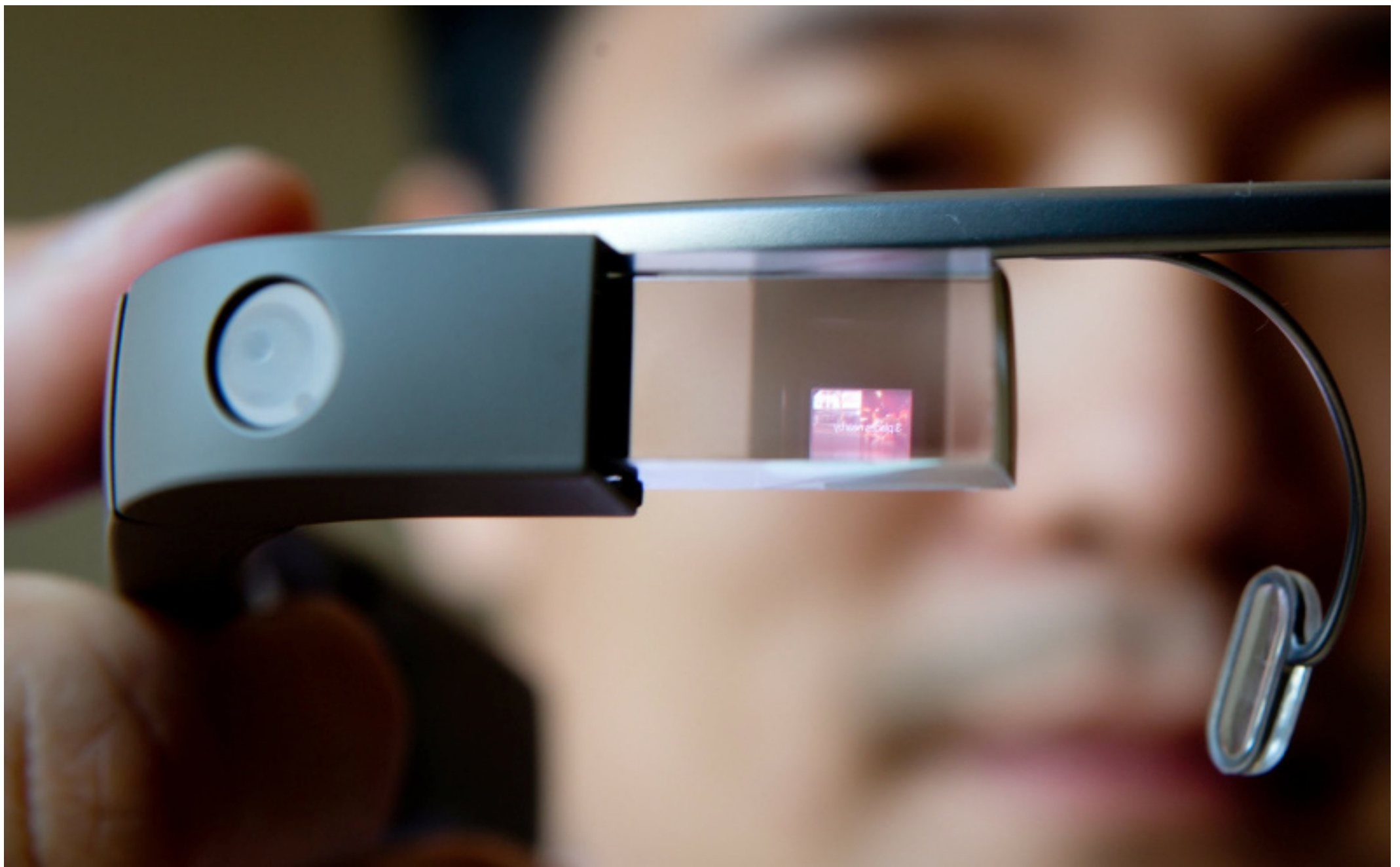


Long-term, my goal is to develop a **surrogate memory**. A private digital archive that operates in synergy with your own memory is always available to assist you.

Lifelogging has been around for decades.



HARDWARE & SENSORS



Ideally we need a sensor that can record everything experience, in many dimensions...

VISUAL LOGGING



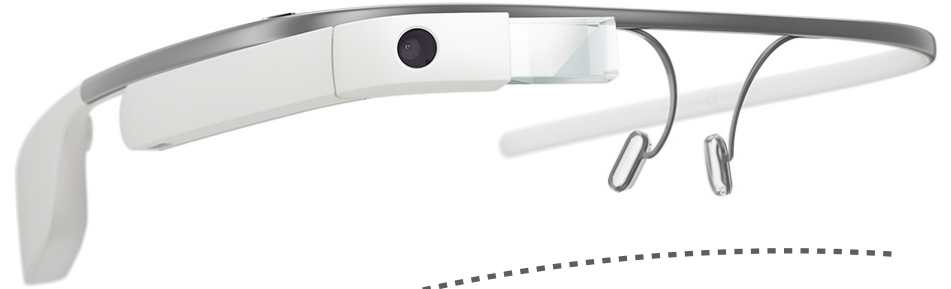
Easy to do audio logging also,
but people don't like it...

What about touch, taste, smell?

OMG Autographer
(2000+ per day)



Google Glass
(400 per day)



not for sale

Narrative Clip
(2000+ per day)

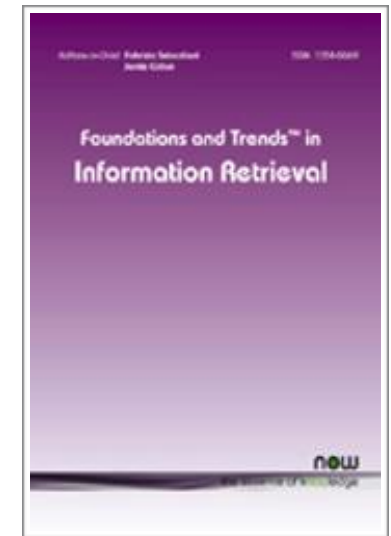
Vicon Revue
(4500+ per day)



HOW MUCH DATA?

Content Type	Num (16 hours/day)	Size/ year
HD Video	5,840 hours	32,768 GB
Autographer Camera	1.1 million images	479.6 GB
Audio (mono - 22KHz)	5,840 hours	227.8 GB
Microsoft SenseCam	1.65 million images	30.2 GB
Accelerometer (1 Hz)	21 million readings at 1 Hz	0.05 GB
Locations (0.2 Hz)	3.9 million	0.01 GB
Bluetooth Interactions	150,000 (estimated)	2 GB+
Reading Log	User dependent	1 GB +

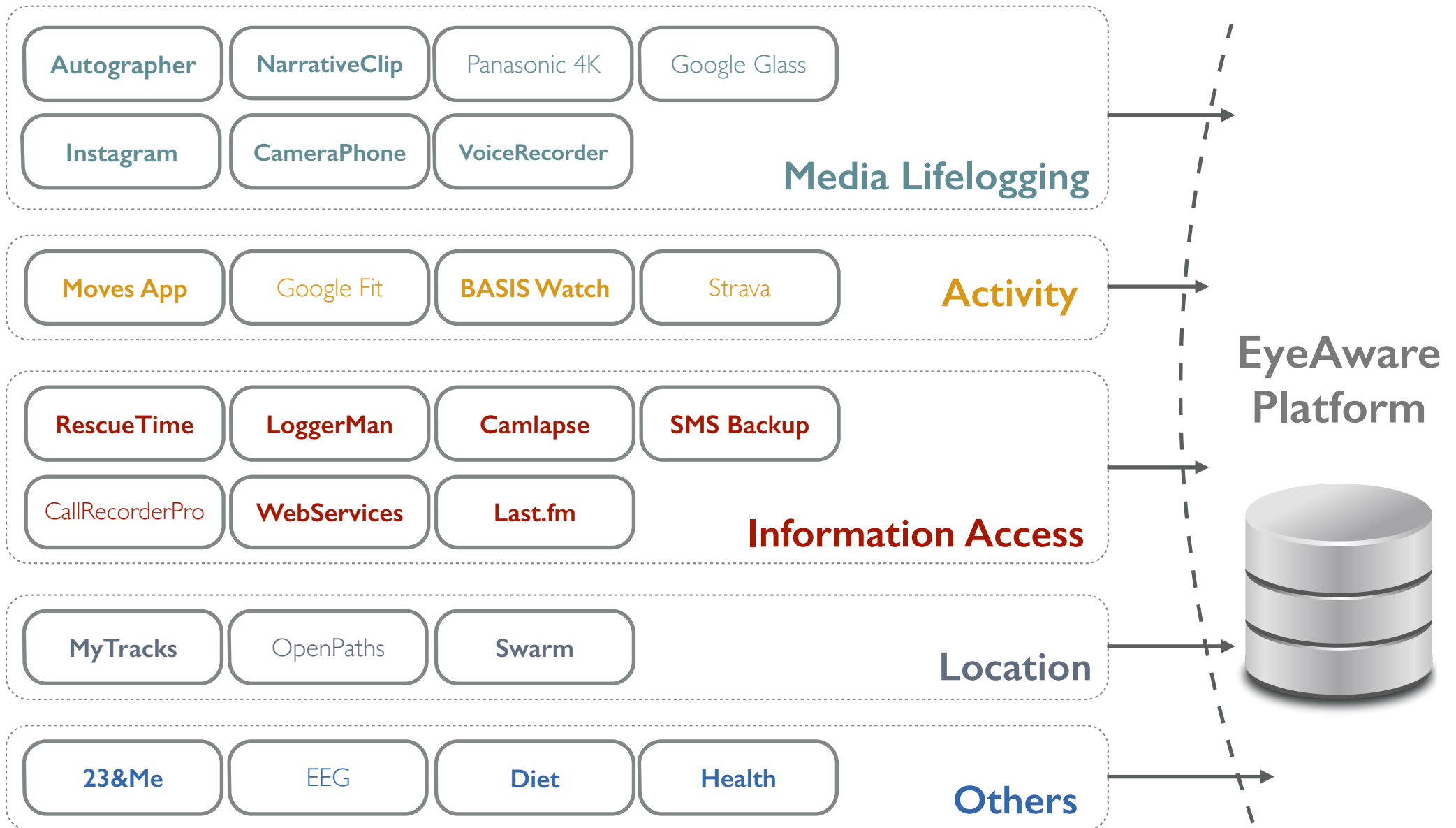
Table 2.1 An Illustration of the data quantities and data sizes of a year of a selection of lifelog data.



Lifelogging - Personal Big Data... from the Foundation and Trends in Information Retrieval series. Free download, ask Google.

\$50 per year without video

PART OF A LIFELOG - MY LIFELOG



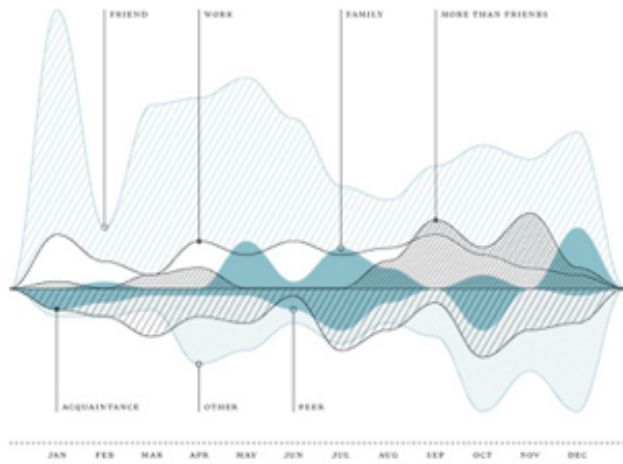
SOFTWARE

Ideally one integrated platform, but there is none.

Relationships

Reporting on the reporters.

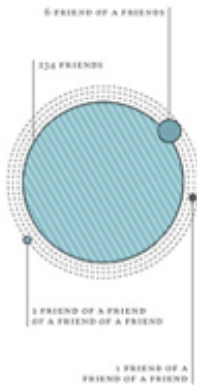
FIGURE 3. RELATIONSHIPS REPORTED



5 Mins **Forever**
ERIC, MAY 15 ELISE, JAN 7

AVERAGE RELATIONSHIP DURATION

FIGURE 4. DEGREE OF FRIENDSHIP



QUESTION 1. WHAT IS YOUR RELATIONSHIP TO NICHOLAS?

- Friend / esteemed colleague. ERIC, JANUARY 12
- Internet buddy. NOAH, FEBRUARY 18
- Grill master. WARREN, MAY 16
- Drinking buddy. HANA, JUNE 12
- Double-digit sociability. OGA, SEPTEMBER 17
- Ex-wife. NICK K., OCTOBER 24
- Statistic. KEVIN, DECEMBER 21
- Dentist. JOHN B., DECEMBER 23

QUESTION 2. HOW LONG HAVE YOU KNOWN NICHOLAS?

- A year, come February 22. ELISE, JANUARY 26
- Since Summer 2004. MARGARET, FEBRUARY 9
- 27 days at the time of recording. IAN, MARCH 14
- About three hours. ALE JET 126, APRIL 3
- 5 years, my whole life. JULIAN, APRIL 12
- Sixty four days. JESSICA B., APRIL 19
- Since birth. CAROL, MAY 15
- Since I was a teenager? Could that be? MARIANA, SEPTEMBER 1
- Years... I'm bad with time. MELISSA, NOVEMBER 20

Activities

The length and habits of an encounter.

FIGURE 5. AVERAGE LENGTH OF AN ENCOUNTER

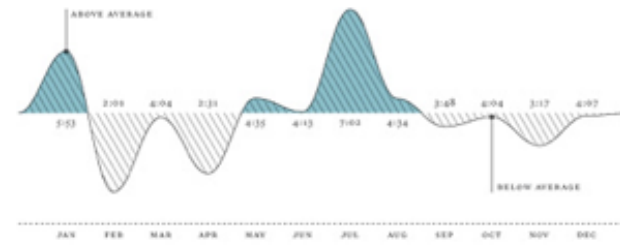
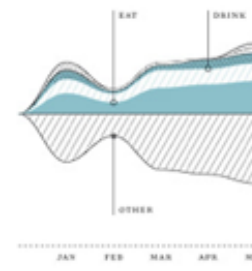


FIGURE 6. FREQUENTLY REPORTED ACTIVITIES



CUMULATIVE REPORTING TIME

Three Months
99 DAYS, 6 HOURS AND 17 MINUTES

AVERAGE ENCOUNTER LENGTH

Four Hours
4 HOURS, 15 MINUTES AND 15 SECONDS

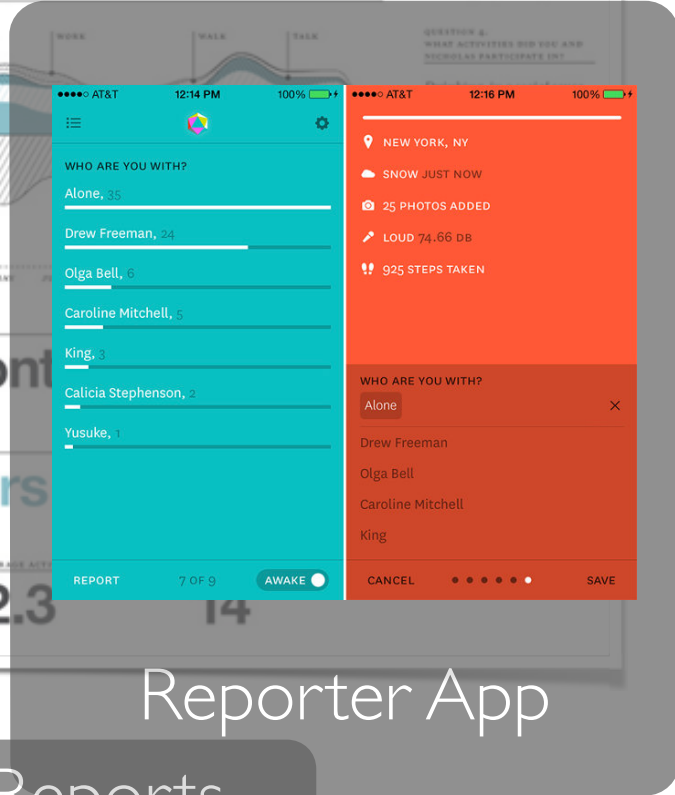
DANCE TO DANCING RATIO

5:4 **2.3** **14**

QUESTION 5. APPROXIMATELY HOW LONG WAS YOUR ENCOUNTER?

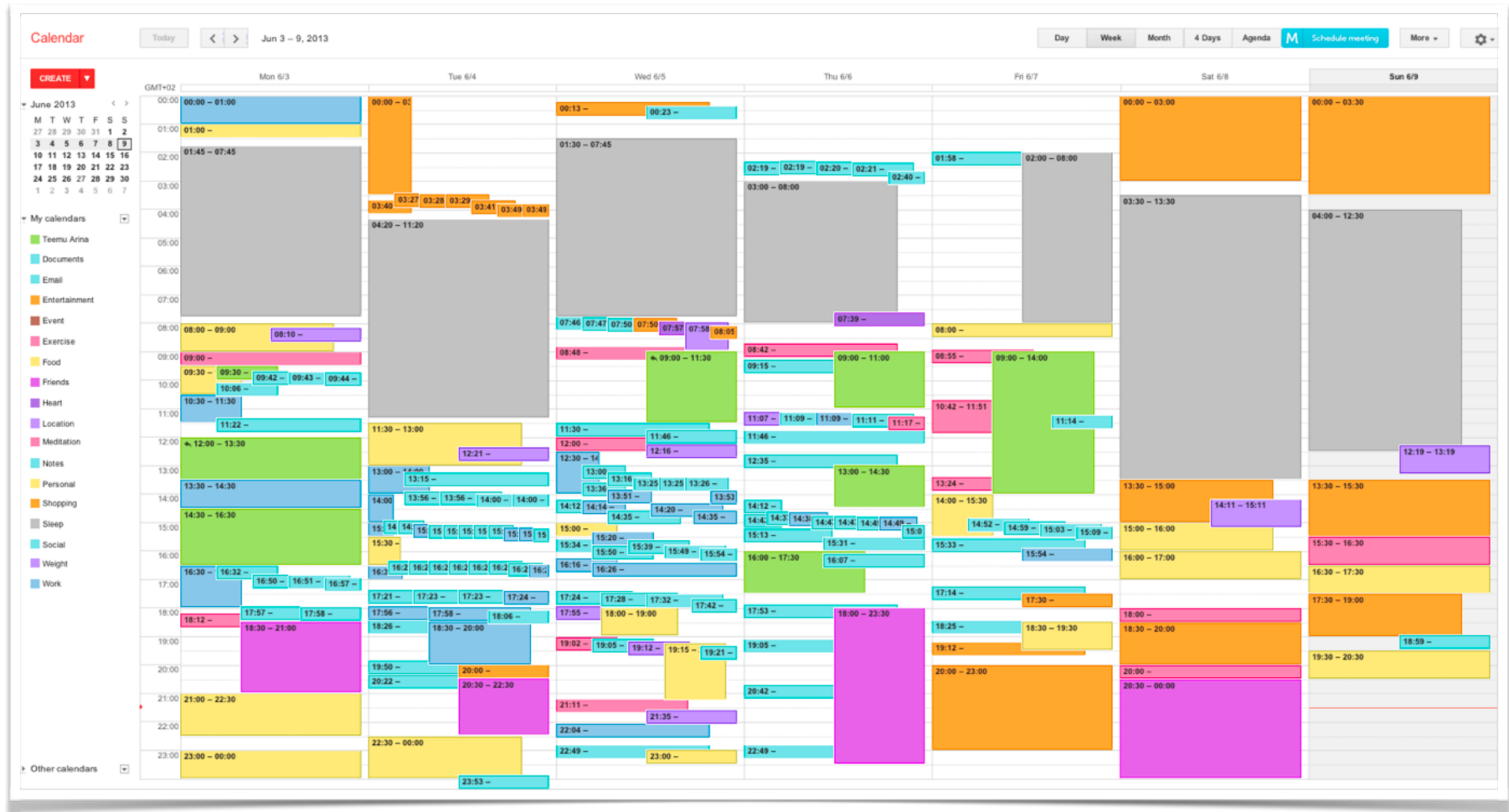
- A total of about 60 minutes. LARA, JANUARY 7
- 10:30-11:30 PM ON 03/26/09. NIKI, MARCH 25
- 900 seconds. CHRISTOPHER F., APRIL 2
- 3 hours (they always seem to be 3 hours!). BONNIE, JUNE 19
- Personal - 7 mins; Impersonal - 35 mins. ANDREW K., AUGUST 19
- 7 hours 30 minutes. MARINA F., DECEMBER 14

QUESTION 6. WHAT ACTIVITIES DID YOU AND NICHOLAS PARTICIPATE IN?

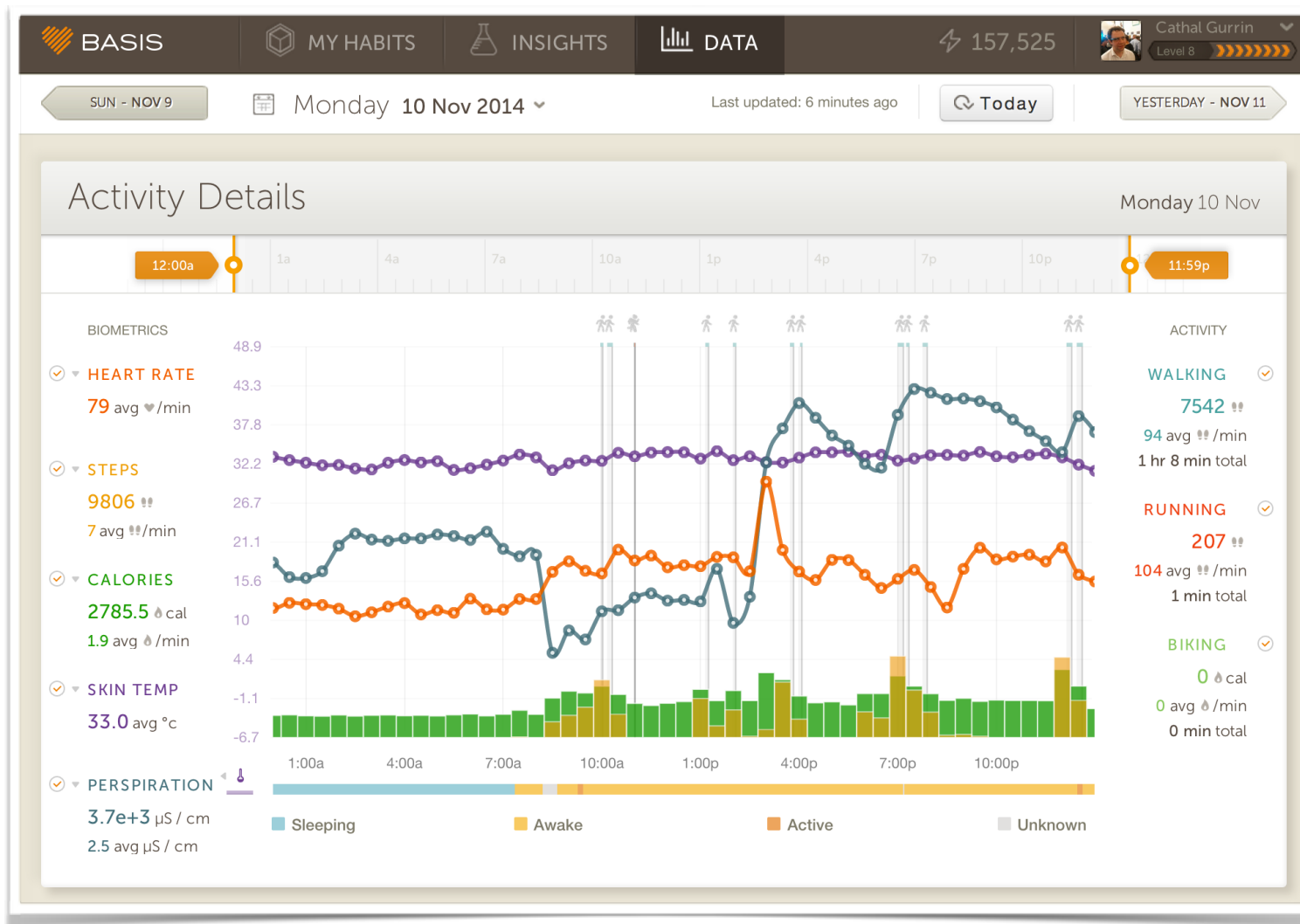


Reporter & The Annual Reports
Nick Feltron

Reporter App



Teemu Arina - Lifelog using Google Calendar



Conventional QS style lifelog

Autographer - Calendar

Search > All cameras Sign in

VIEW

- Stream
- Cinema
- Calendar

ACTION

- Import

APPLICATION

- Settings
- Help

FILTER

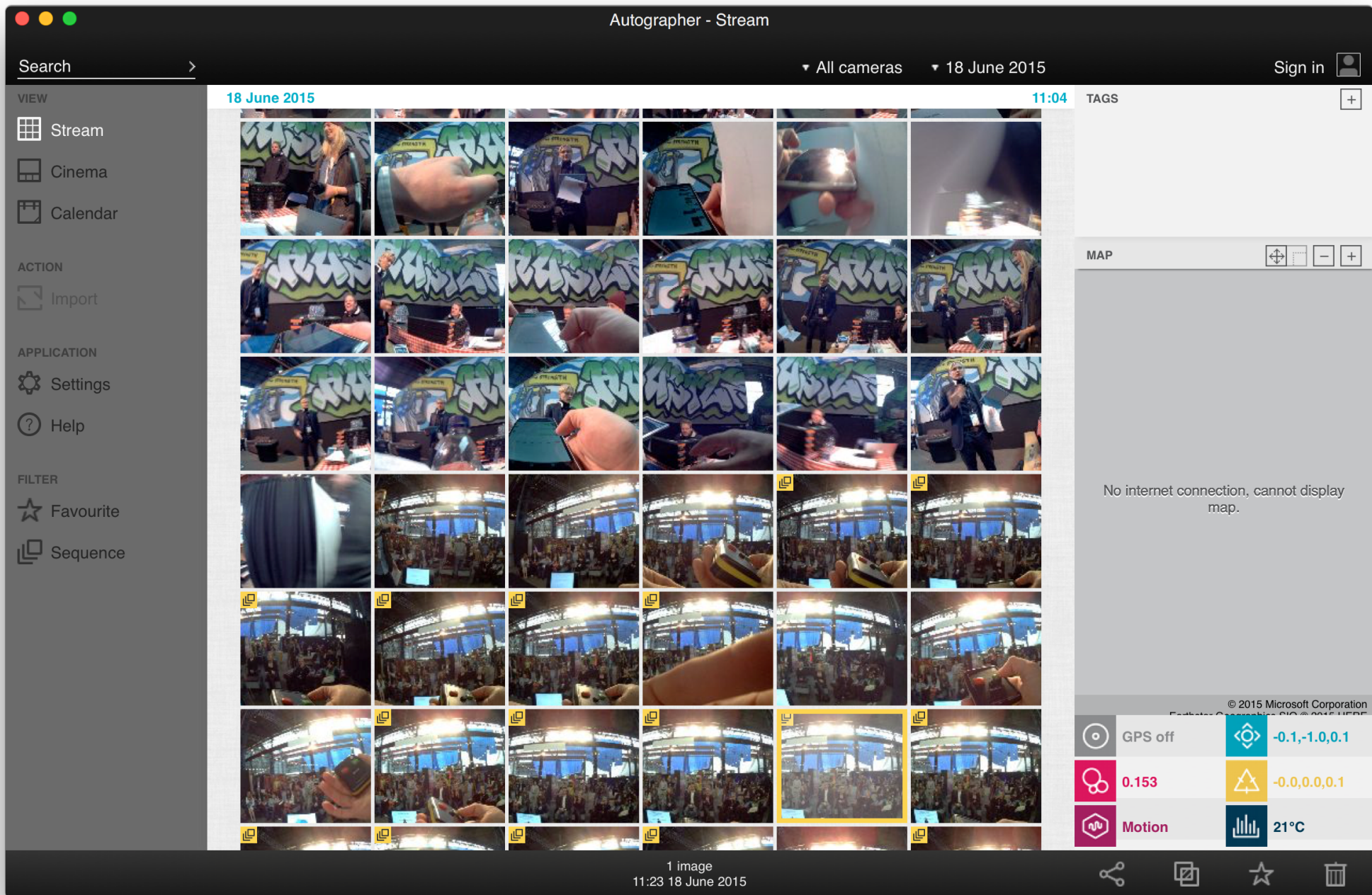
- Favourite
- Sequence

2015

May 2015

Sat 2nd (1157)	Sun 3rd (1421)	Mon 4th (1962)	Tue 5th (2421)	Wed 6th (1105)	Thu 7th (1022)	
Fri 8th (1477)	Sat 9th (1201)	Sun 10th (1335)	Mon 11th (1425)	Tue 12th (1855)	Wed 13th (1496)	
Thu 14th (1170)	Fri 15th (1538)	Sat 16th (1654)	Sun 17th (865)	Mon 18th (1557)	Tue 19th (1552)	
Wed 20th (1577)	Thu 21st (2668)	Fri 22nd (1446)	Sat 23rd (1726)	Sun 24th (1689)	Mon 25th (1599)	
Tue 26th (1597)	Wed 27th (1733)	Thu 28th (1591)	Fri 29th (1680)	Sat 30th (1616)	Sun 31st (1836)	
June 2015	Mon 1st (1504)	Tue 2nd (1671)	Wed 3rd (1609)	Thu 4th (1682)	Fri 5th (1679)	Sat 6th (1721)

OMG Autographer Viewer software



OMG Autographer Viewer software

Narrative Clip

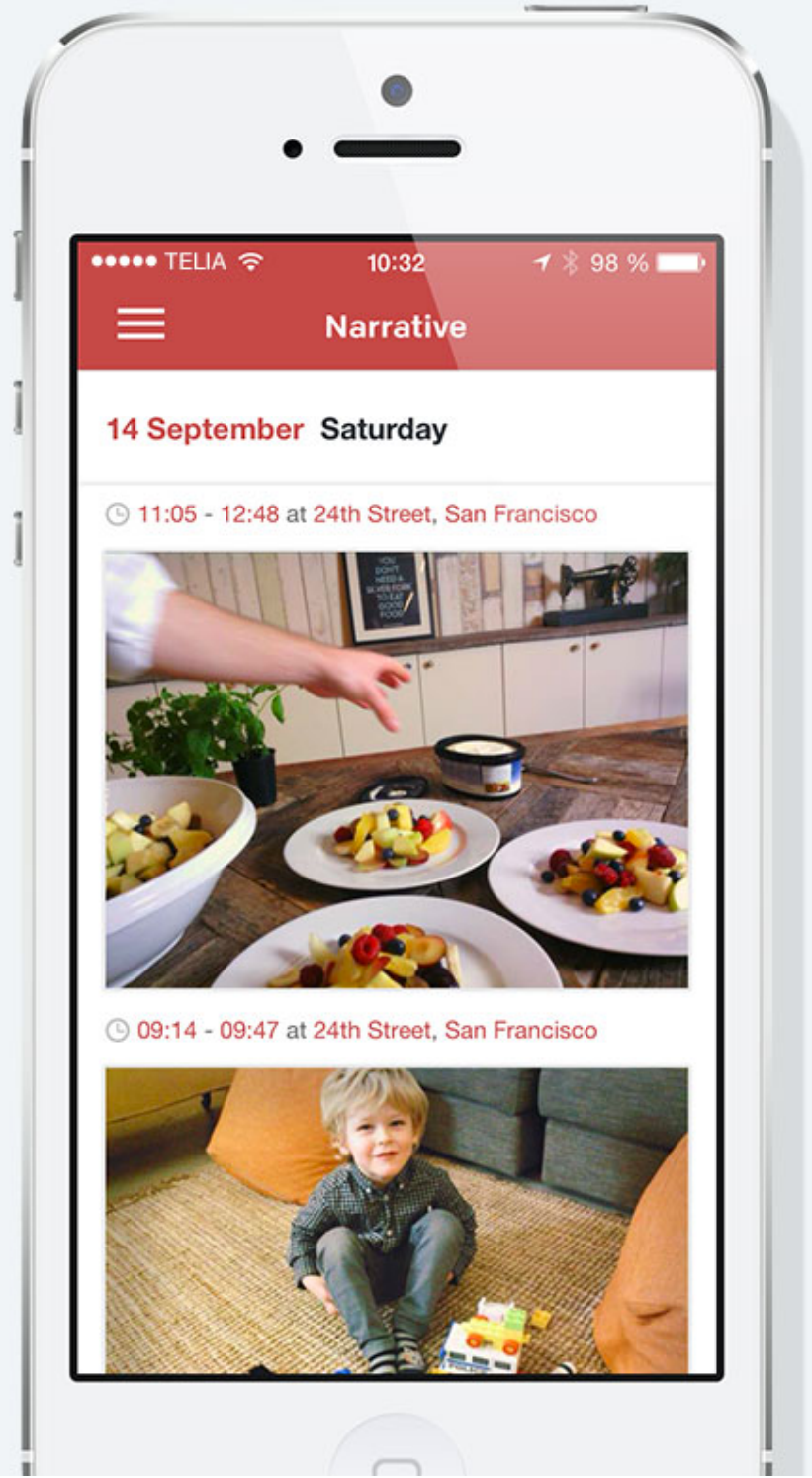
Event Detection

Sharing

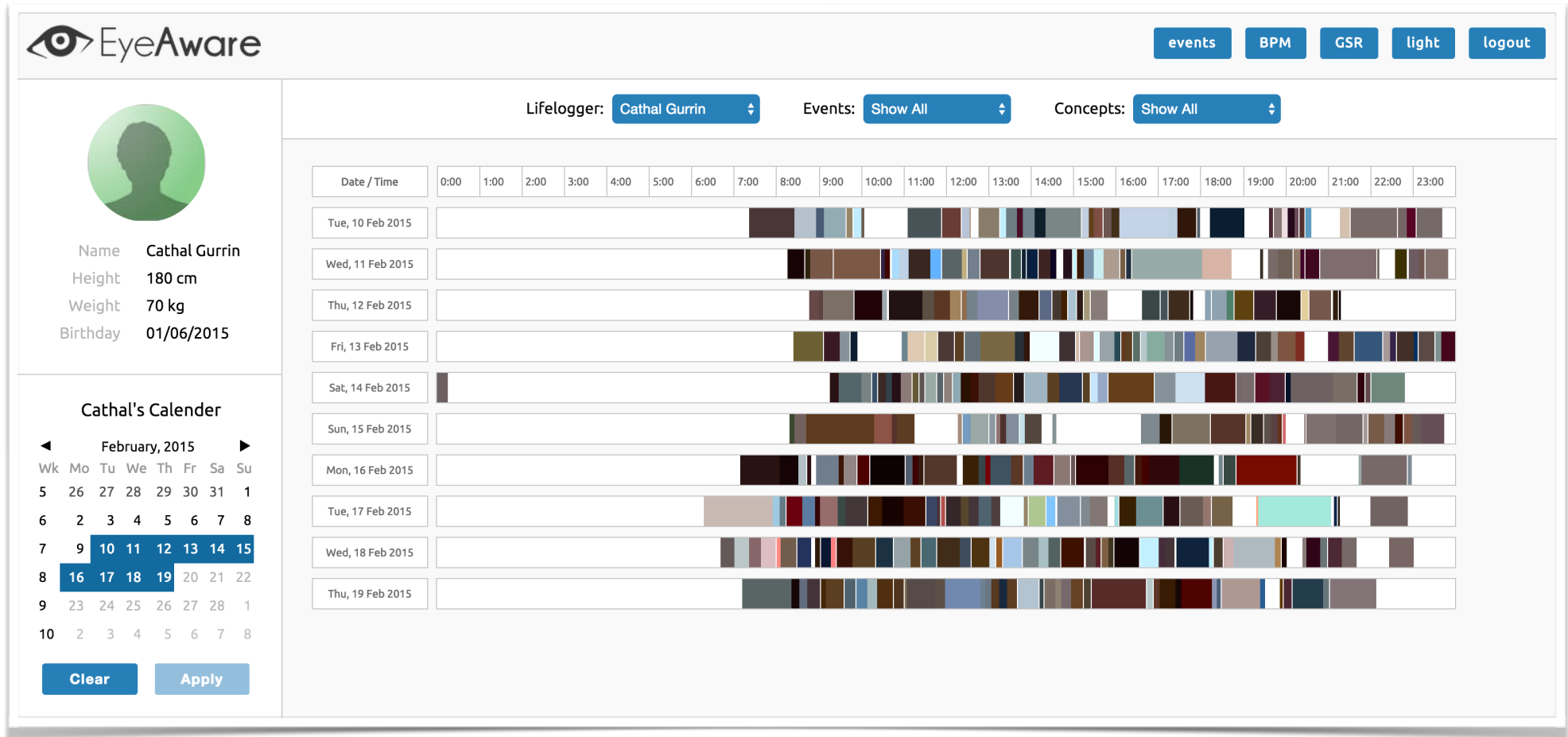
Search

API coming in the next few months

Your Timeline



EYEAWARE PLATFORM




Event Segmentation - Concept Filtering

CONCEPT FILTERING

VISUAL INSIGHTS USING AI (DEEP LEARNING)

```
image
--- 0.140525 mouse, computer mouse
--- 0.126532 laptop, laptop computer
--- 0.047876 desktop computer
--- 0.043066 desk
--- 0.032453 space bar
--- 0.016106 monitor
--- 0.014830 typewriter keyboard
--- 0.007064 screen, CRT screen
>>>>>=====n=e=x=t=====>>>>>

image quality: 0.909002
Top classes :
--- 0.265477 desktop computer
--- 0.261316 monitor
--- 0.198308 screen, CRT screen
--- 0.118786 desk
--- 0.064211 notebook, notebook computer
--- 0.026199 mouse, computer mouse
--- 0.017706 laptop, laptop computer
--- 0.011744 printer
--- 0.006966 web site, website, internet site, site
--- 0.005328 television, television system
```



The image shows a person sitting at a desk in an office environment. The desk is cluttered with several computer monitors, a laptop, and other peripherals. The person is wearing an orange sweater and glasses. The background shows other office desks and equipment. The image is displayed within a terminal window titled 'image'.

EYEAWARE PLATFORM

The screenshot displays the EyeAware platform interface. At the top left is the EyeAware logo. On the right, there are navigation buttons for 'colour', 'BPM', 'GSR', 'light', 'google glass', and 'logout'. The user profile section on the left shows a photo of Cathal Gurrin and his details: Name: Cathal Gurrin, Height: 180 cm, Weight: 70 kg, Birthday: 01/06/1975. Below this is a calendar for October 2014. The main 'Lifelogger' section shows a grid of activity data for Cathal Gurrin from October 3rd to 12th, 2014. The grid has columns for each hour from 0:00 to 23:00. Activity is represented by green bars of varying lengths. Below the grid are three sensor data snapshots from October 3rd, 2014, at 06:25 AM, 06:26 AM, and 06:27 AM. Each snapshot shows a camera view of a person's back and a green bar indicating a value: 19.9, 20.2, and 19.5 respectively.

EyeAware

colour BPM GSR light google glass logout

Lifelogger: **Cathal Gurrin**

Date / Time	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
Fri, 03 Oct 2014																									
Sat, 04 Oct 2014																									
Sun, 05 Oct 2014																									
Mon, 06 Oct 2014																									
Tue, 07 Oct 2014																									
Wed, 08 Oct 2014																									
Thu, 09 Oct 2014																									
Fri, 10 Oct 2014																									
Sat, 11 Oct 2014																									
Sun, 12 Oct 2014																									

Cathal's Calendar

October, 2014

Wk	Mo	Tu	We	Th	Fr	Sa	Su
40	29	30	1	2	3	4	5
41	6	7	8	9	10	11	12
42	13	14	15	16	17	18	19
43	20	21	22	23	24	25	26
44	27	28	29	30	31	1	2
45	3	4	5	6	7	8	9

Clear Apply

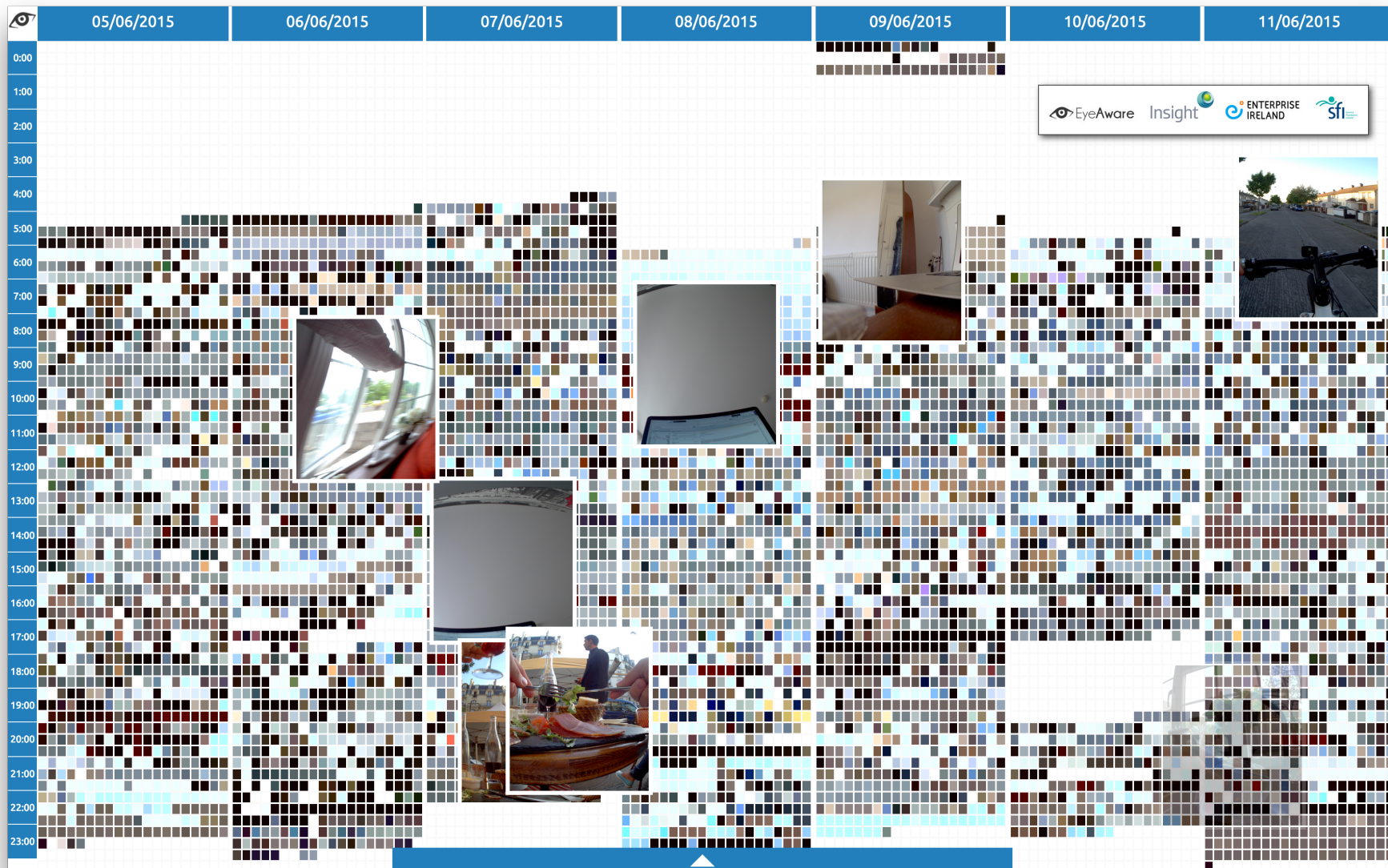
03/10/2014 06:25 AM
19.9

03/10/2014 06:26 AM
20.2

03/10/2014 06:27 AM
19.5

Multi-sensor mapping for insights

EYEAWARE VISUALISATIONS



EXTERNAL MEMORY

NEVER FORGET AGAIN / ALZHEIMER'S SUPPORT

My VISUAL DIARY WITH SENSECAM View: 70,430 photos (25 days)

CALENDAR: MAY 2006

29 May 2006 **19** EVENTS Drag the slider bar to adjust the number of important events

WEEKLY SUMMARY
Selected day is shown below in the context of whole week. Move mouse cursor over to see other similar events in the week.

SIMILAR EVENTS
92 Similar Events have been found. Click on the photo to replay all photos within the Event.

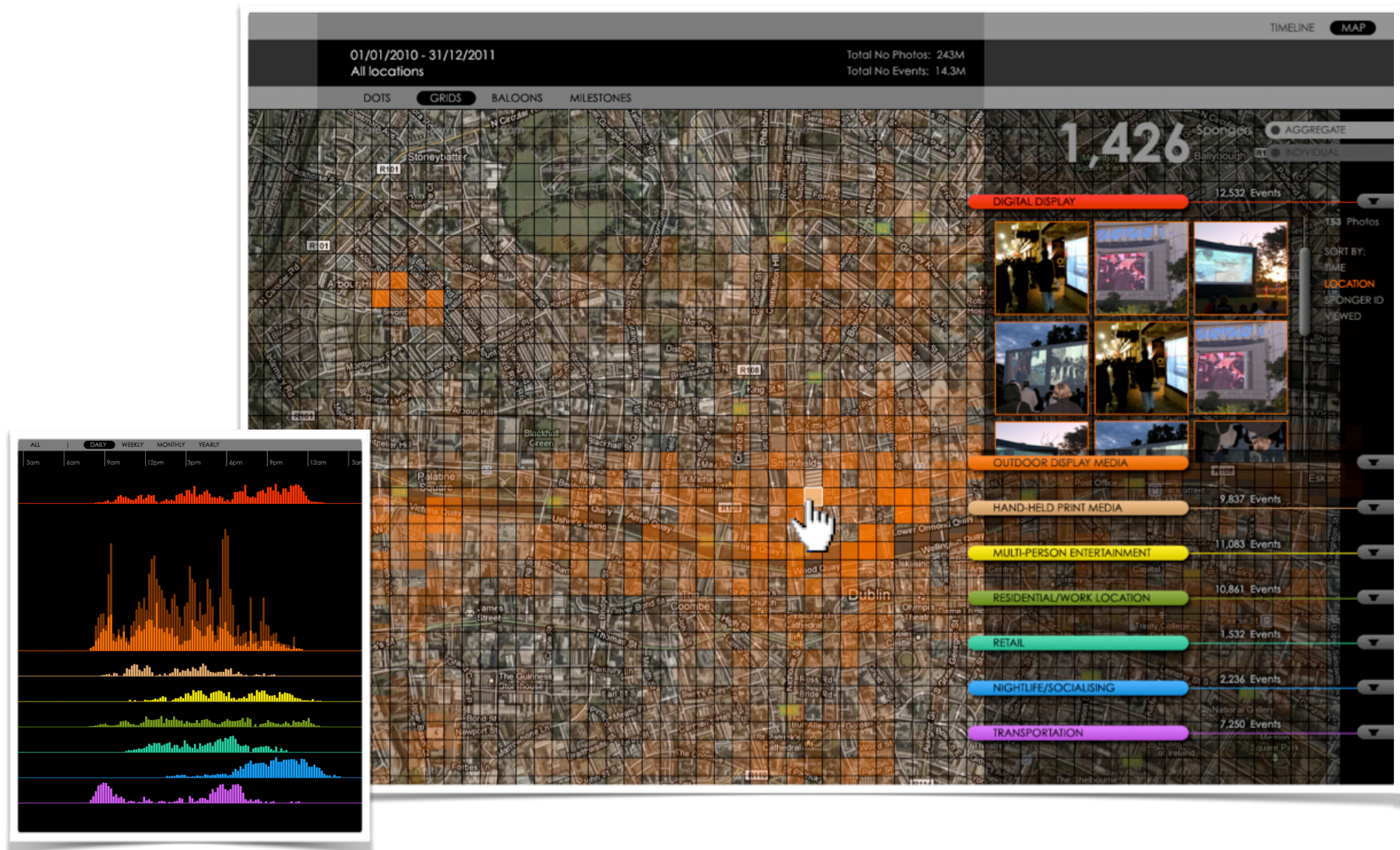
Sort by: **TIME** | SIMILARITY | #PEOPLE

- 15:30 (Duration: 05m-43s) 16 APR 2006
- 13:45 (Duration: 14m-05s) 14 APR 2006
- 10:02 (Duration: 23m-56s) 13 APR 2006
- 14:33 (Duration: 15m-30s) 12 APR 2006
- 11:25 (Duration: 09m-21s) 12 APR 2006
- 09:52 (Duration: 01m-03s) 12 APR 2006
- 15:19 (Duration: 21m-10s)

The interface displays a central timeline of photos from May 29, 2006. A large photo shows a man in a blue shirt sitting at a desk. A caption reads: "I was chatting with Darroth on the conference in July. Quite a few chats today! ☺ X". Below it, another photo shows a man in a blue shirt sitting at a desk. Other photos show various scenes, including a person holding a cup, a person in a white shirt, and a person in a white shirt sitting at a desk. The right sidebar shows a list of similar events with their durations and dates.

POPULATION RESEARCH

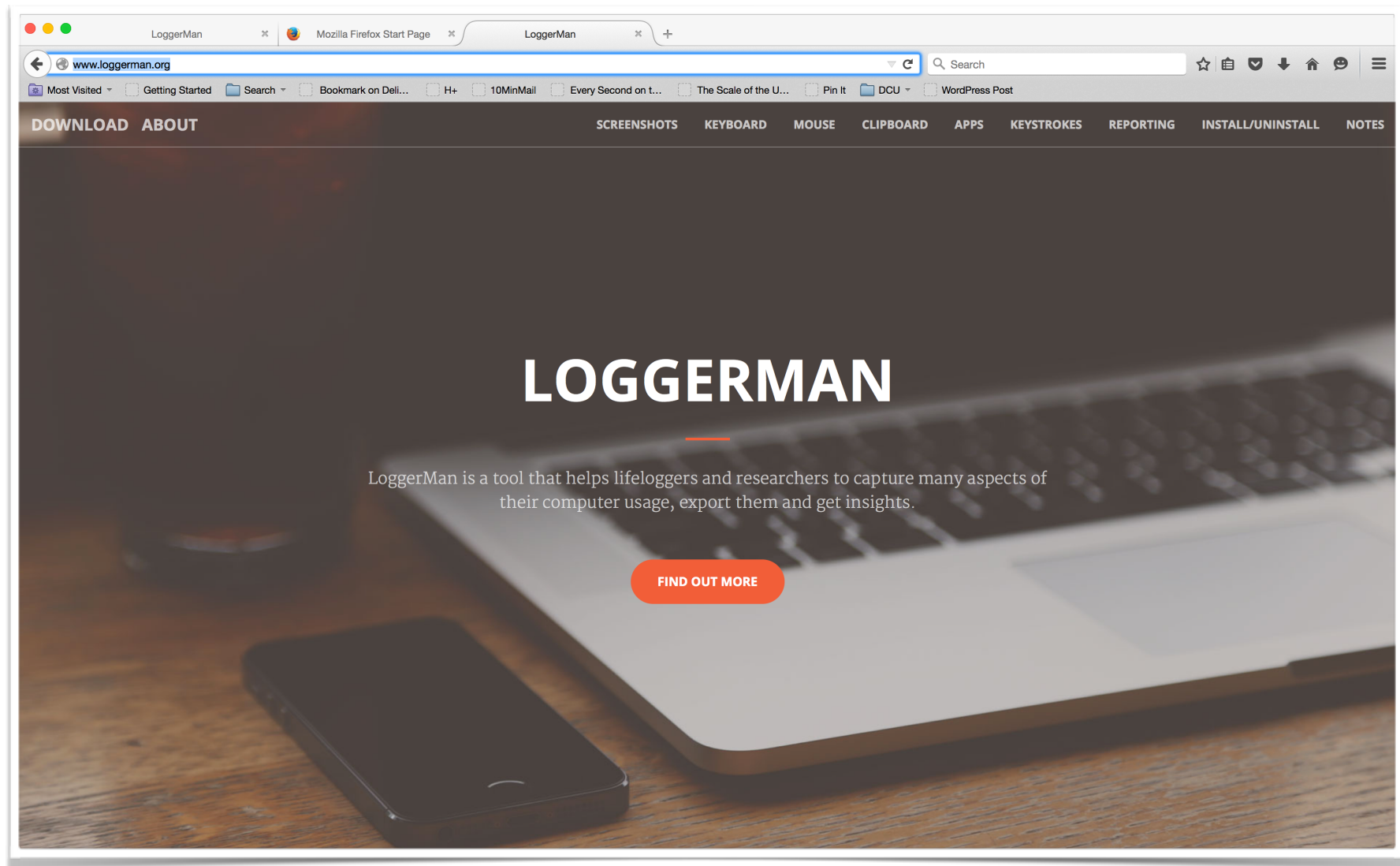
POPULATION-WIDE ANALYTICS - LOOK FOR LOGOS, OBJECTS.

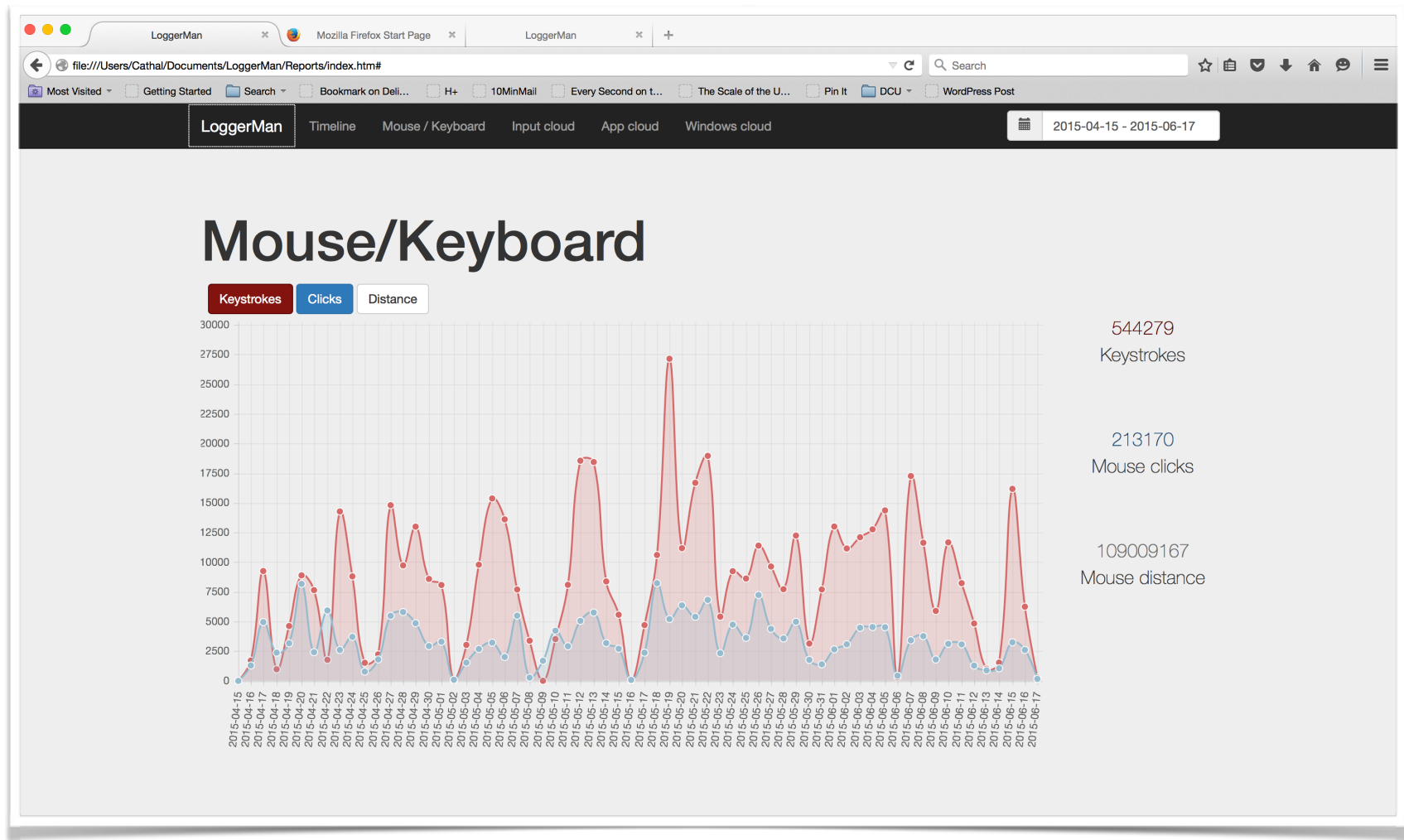


But who do you trust with your data?

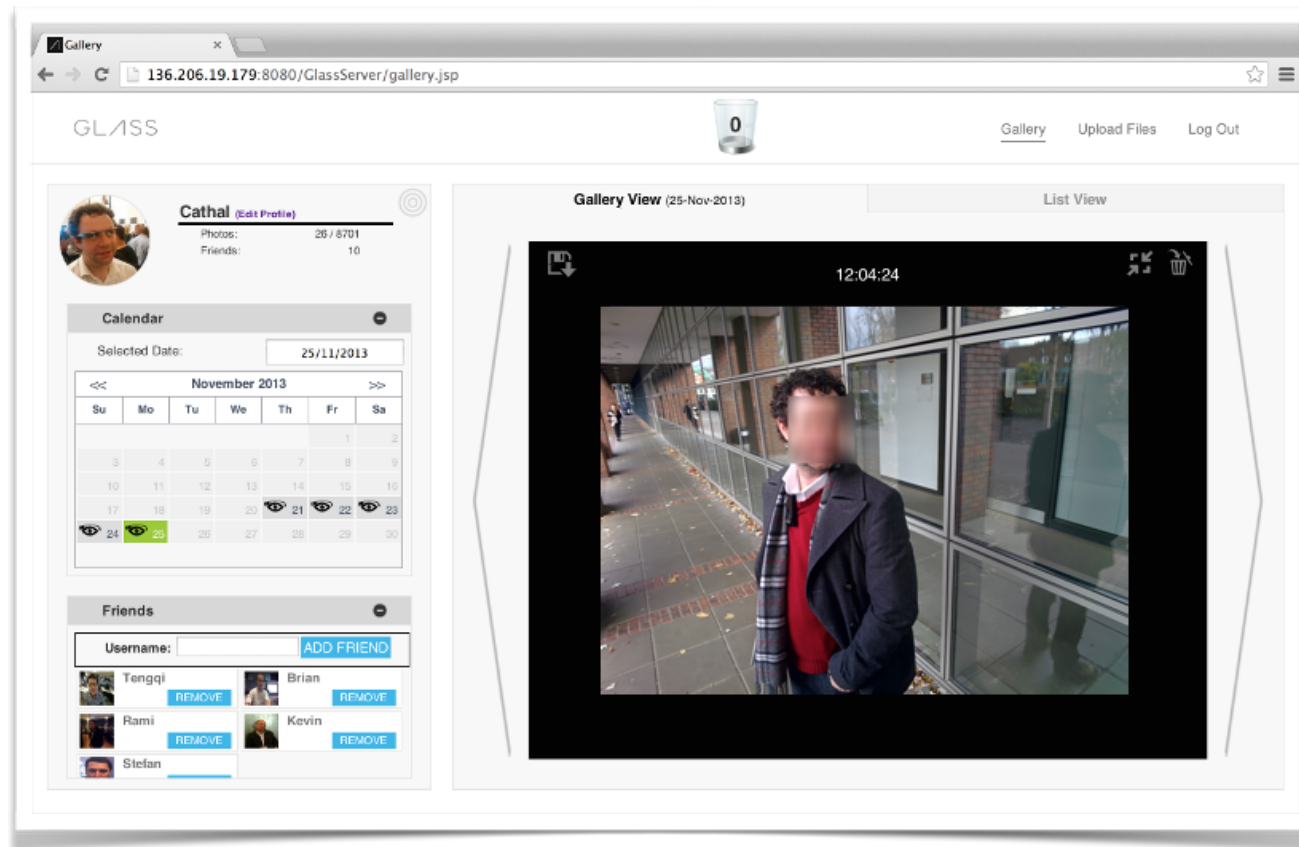
LOGGERMAN

SEMANTIC MEMORIES





Mouse movements, keystrokes, application windows, applications run, clipboard, etc... all stored locally.



Privacy Awareness - Negative Face Blurring

POTENTIAL

New Opportunities

- **Health** - personalised health, new tailored treatments
- **Productivity** - greater understanding of self, enhanced knowledge access, enhanced productivity
- **Personal** - life search engine ←— My Focus
- **Security** - your own security data, self-protection (sousveillance)
- **Societal** - more productive and healthy population, a better understood population
- ... and many more ...

However...

Few devices

Limited software providing rich semantics & effective search

Privacy (lifelogging looks out, QS looks in)

Trust for sharing and storage

EXPERIENCES

An aerial night photograph of a city, likely Reykjavik, Iceland, with the Aurora Borealis (Northern Lights) visible in the dark sky above. The city lights are reflected in the water of a bay or fjord. The text "2006 - 2015" is overlaid in the center of the image.

2006 - 2015

EXPERIENCES

- Get data now, you can not get data retrospectively
- New tools and software will extract value
- Privacy of the data. It will be a target for people
- Storage problems. Where to store it?
- Trust. Who do you trust?
- Few real-world problems
- New insights, more healthy and active lifestyle, less computer time
- Increased social interactions and desire for colour in life wall.

THANK YOU

Cathal Gurrin

@cathal

Any Questions?



Lifelogging - Personal Big Data... from the Foundation and Trends in Information Retrieval series. Free download, ask Google.

