

Accessibility and web innovation.

HTML5 accessibility

**A work in progress:
March 2011**

Summary



Poor +



Getting better



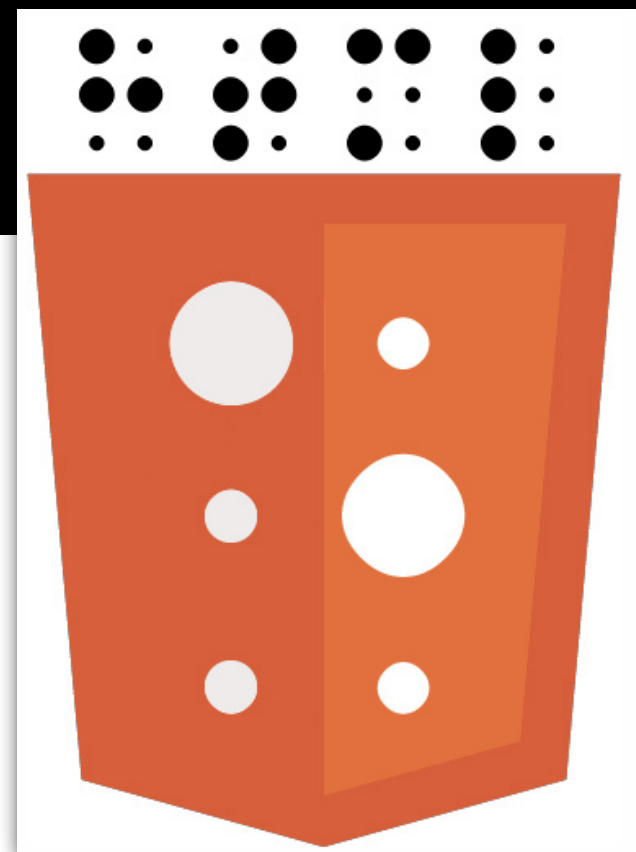
Poor



Poor -



Poor



Hello there...



Chris Heilmann
@codepo8
wait-till-i.com
#html5

Worries about accessibility



I am a bit worried about accessibility as a community and as an idea in web development.

Disconnect



My main worry is that there still is a massive disconnect between bleeding edge web development and the accessibility world.

The big web **re-boot**.



HTML



RESET

<http://www.flickr.com/photos/gergtreble/4462755376/>

Right now we are in the middle of reinventing the web. There are so many very cool things happening I would need two hours to tell you all about them.

Accessibility the **show-stopper**?



Accessibility, however is always considered a bit of a downer. When you start talking about accessibility, then you most likely hear something about "graceful degradation" or even the dead horse that is the "extra version for disabled users".

Accessibility tech is **falling behind**



This is to a degree understandable. The technologies we praise in the accessibility world are not up to speed with what is happening right now.

Figure and Figcaption

```
<figure>  
    
  <figcaption>  
    Figure 1: A search result page  
  </figcaption>  
</figure>
```

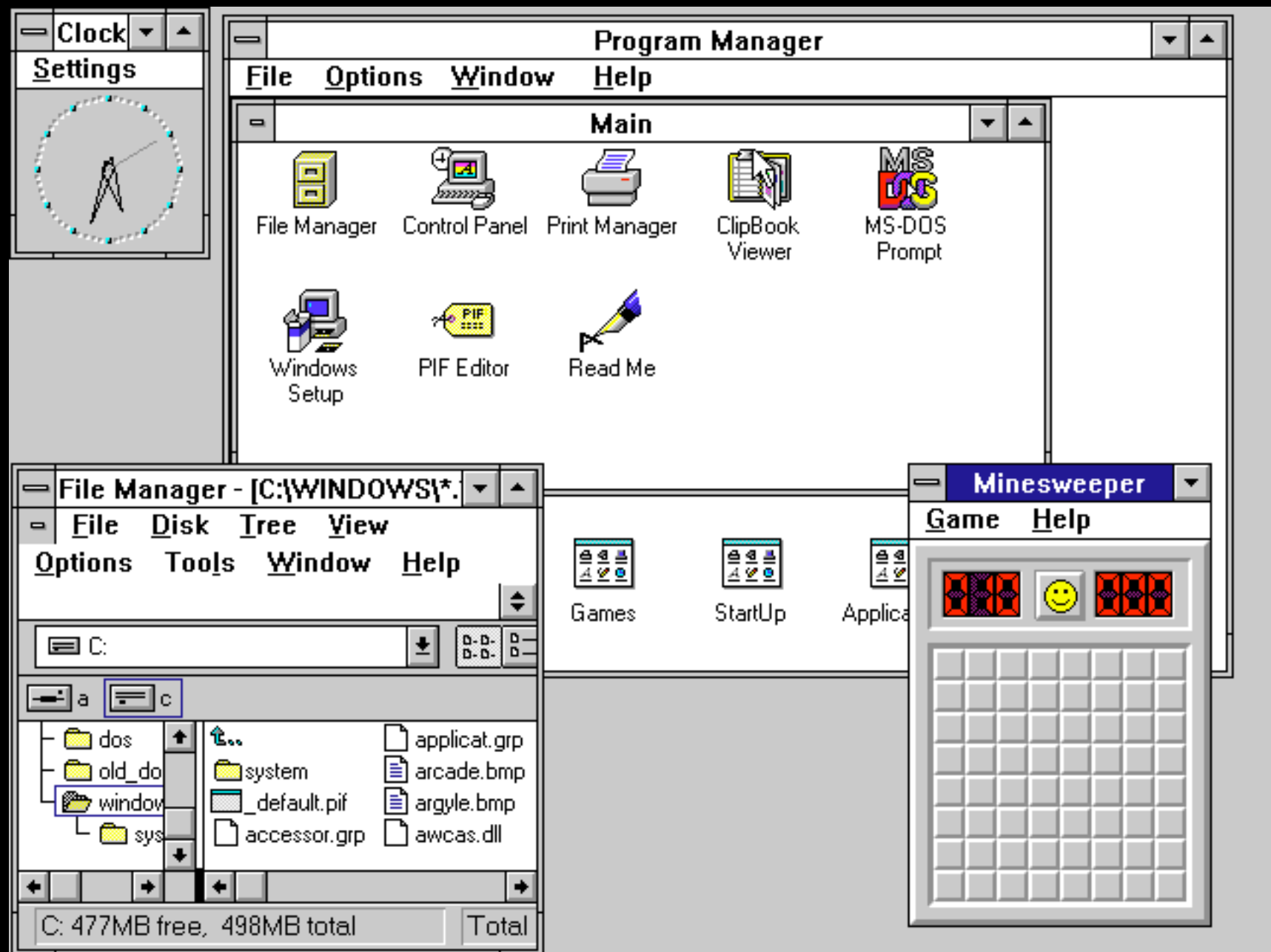
Take for example the wonderful concept of caption and figcaption in HTML5. We finally have a way to connect an image with a caption – something every book layout for example needs.

ARIA needs IDs

```
<figure>  
    
  <figcaption id="figurecap0">  
    Figure 1: A search result page  
  </figcaption>  
</figure>
```

In order to make it accessible though we need to add ARIA roles and give each caption a unique ID. This is not maintainable.

ARIA needs to move on, too...



ARIA is amazing but frozen in time in interfaces we build in the 90ies. ARIA is a stop-gap solution, true, but if we don't make it easier to use, people will just not care.

You need to be accessible - **it is the law!**



Another issue is that accessibility is considered something that needs to be done to a product to make it legal to release - not to make it better or interesting.

Accessible products are **better** products

A photograph of a white paper slip with blue text, held by a hand. The text reads: "Fortune Not Found: Abort, Retry, Ignore?". The slip is held against a dark background, and a bright light source is visible in the upper left corner.

Fortune Not Found: Abort, Retry,
Ignore?

And this is where we need to stand up and shout and make a change.

Those **crazy kids** and their ideas - **it'll never work!**



In general I get the feeling that the accessibility community as a whole is not as open to tech evolution as the rest of the web communities.

It is **new**! Everybody duck!



<http://www.flickr.com/photos/publicenergy/4222279663/>

Every new thing is considered a massive step for all of us to take and if it doesn't work 100% it is discarded as "not ready for use yet" very quickly. After all it is much harder for a person with a disability to upgrade their environment, right?

Painting a **wrong image** of accessibility



This grumpy old men image of the accessibility community doesn't help us with winning the hearts and minds of the developer community.

Accessibility is **everywhere!**



http://www.flickr.com/photos/the_girl/24593210/

If you take a look at the real world, we have a lot of accessibility enhancements (we fought for over the years) that do not only help people with disabilities but make it easier for everybody.

Lowering the kerb for people who want to like accessibility



Kerbs on roads have lower parts to allow for wheelchairs to get onto the sidewalk. This is also very useful for people with pushchairs or cyclists like me who like to celebrate their higher mobility in comparison to cars.

Digitising the world for conversion




<http://www.flickr.com/photos/linnybinnypix/1189018851/>

OCR scanning allows us to turn printed matter which is deteriorating into formats that can be converted and archived much easier. It was invented for a blind person.

Structuring allows **conversion**

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Google translate

From:  To:

Try a new browser with automatic translation.

[Download Google Chrome](#)

You have beautiful eyes, I am not rich but I am honest...|






English to Swedish translation

Du har vackra ögon, jag är inte rik men jag är ärlig ...

 Listen

New! Click the words above to view alternate translations. [Dismiss](#)

 Listen

Google Translate for my:  [Searches](#)  [Videos](#)  [Email](#)  [Phone](#)  [Chat](#)  [Business](#)

[About Google Translate](#) [Turn off instant translation](#) [Privacy](#) [Help](#)

This can apply to anything – a text that is properly structured for assistive technology to understand is also easier to style and to index for a search engine or crawler. It can also – to a degree – be translated on the fly.

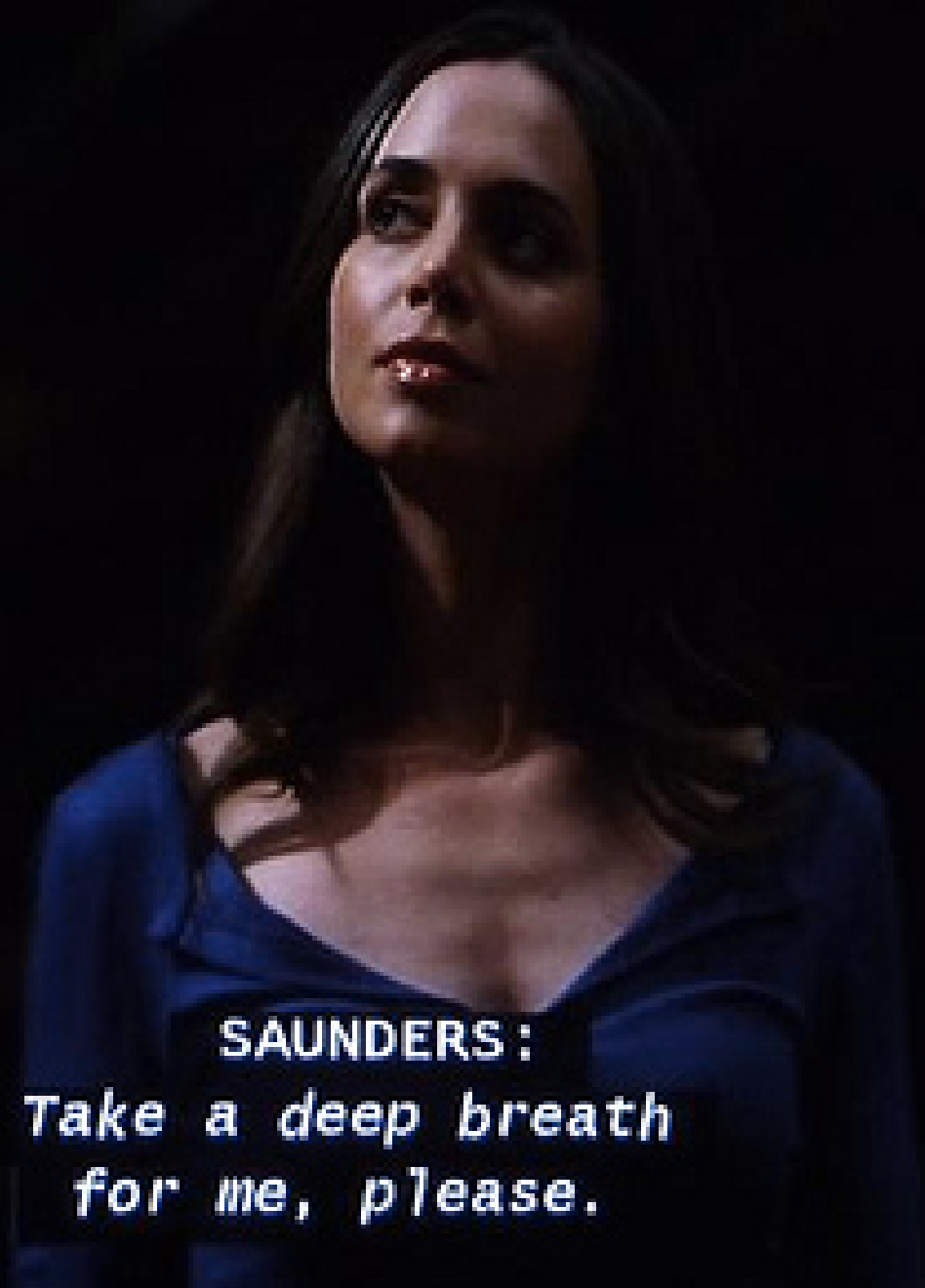
Being **loud and proud** and communicating across borders



<http://www.flickr.com/photos/xakaxunknownx/46196787/>

The speaker and subsequently the phone was invented for someone who was hard of hearing. Now it allows us to get ourselves heard and to speak people world-wide. I work in London and work with people in 7 countries and 6 time zones. I love that freedom.

Don't just tell me, **show me!**



SAUNDERS:

*Take a deep breath
for me, please.*

Closed captioning on TVs was originally meant to be for the hard of hearing. If you look at where it is used mostly right now you'll find that it allows people to follow a TV show without disturbing others. You find TVs with captioning turned on in gyms and in sports bars.

Right now, the web **doesn't work** that way.



The Shop Mob
Click [HERE](#)



Website Text [Size 1](#) [Size 2](#) [Size 3](#)

- Home
- Help
- Contact Us
- Shopmobility Directory
- Key to Symbols
- How do I use Shopmobility?
- What, Who, Why, How much?
- Safety Considerations
- Some customer views
- About the Federation
- News Items
- Useful Links
- Affiliates Only

WELCOME TO THE NFSUK WEBSITE ...

The National Federation of Shopmobility UK (NFSUK) is a UK registered Charity. It exists to support and promote its affiliated Schemes to existing and potential customers, and encourage the development of new Schemes. In addition NFSUK will do whatever it can to facilitate public access and offer related guidance and information.



[Please scroll down this page for the latest information or click on the buttons on the left for more general information and guidance.](#)

STOP PRESS!! Information about NFSUK's Spring National Conference has been published and is available under the "News Items" link

WARNING ...

Make sure that you check any Shopmobility Scheme you use is affiliated to NFSUK before you use them.

On the web, however we still see accessibility as something that needs to be tacked on. Something that needs extra work and follows rules the normal developer doesn't understand.

Bad interfaces with **broken promises**



This leads to us building interfaces that look flashy and promise us some functionality but don't work. Like the buttons in the lift in Heathrow Airport un London. They are raised, they are big and they are easy to read – and they do exactly nothing.

Accessibility enhancements as a **pacifier**



This is a very common thing in lifts though – there is the concept of a pacifier button. This is for example the button that closes the door – which normally does not make the door close faster. What it does though is give people the idea that they are in control and calms them down. After all being in a very small closed space can be scary

“we added stuff for accessibility!”

Change Text Size



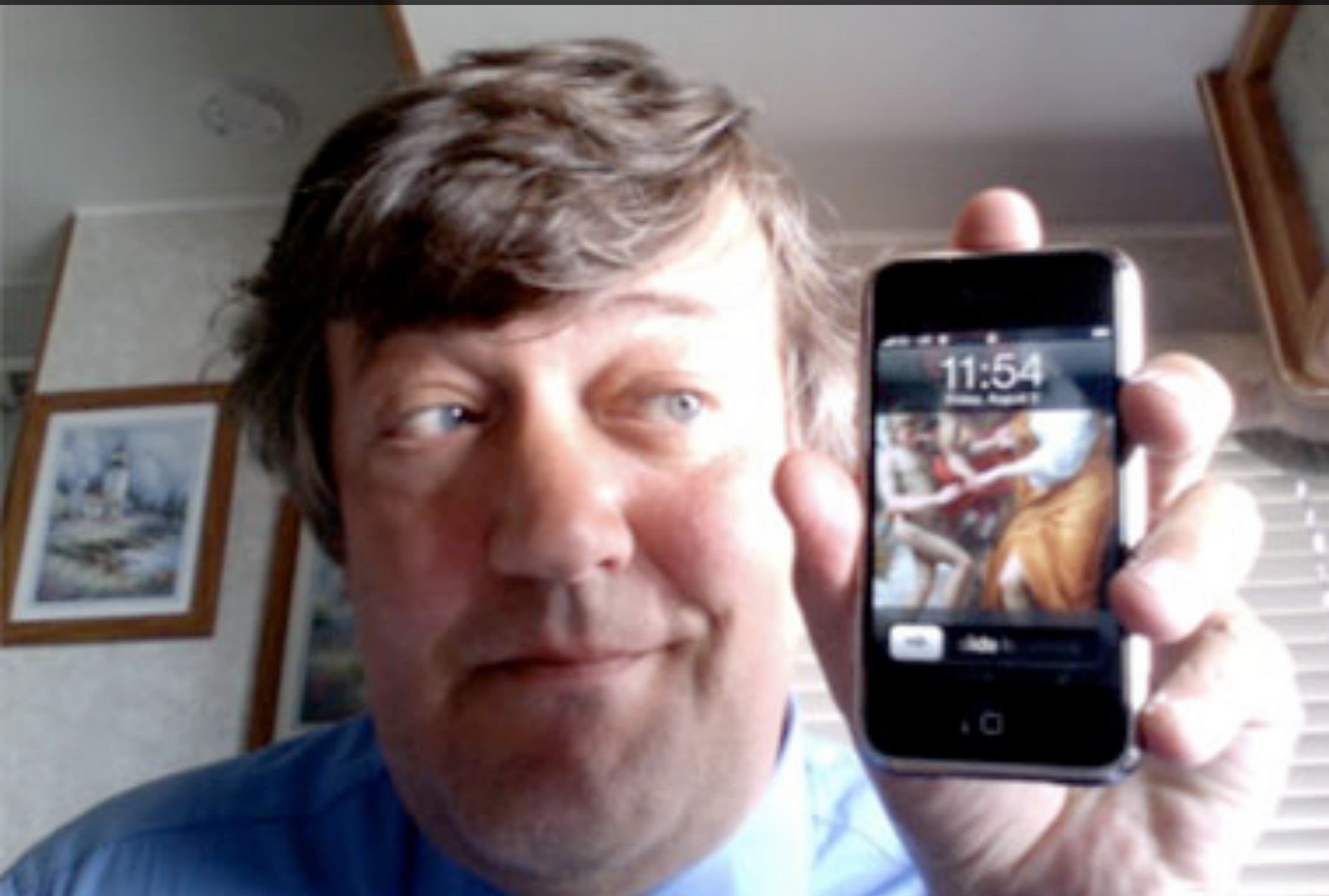
On the web a lot of developers add these kind of enhancements to their web sites to feel that they have done "something" for accessibility. Font resizing widgets for example.

Truth is - accessibility is **hot** right now



If you stop thinking about building things for the disability community and you consider what it means to build these interfaces you will find that we are already in the middle of a renaissance of accessibility needs.

Mobile needs are accessibility needs.

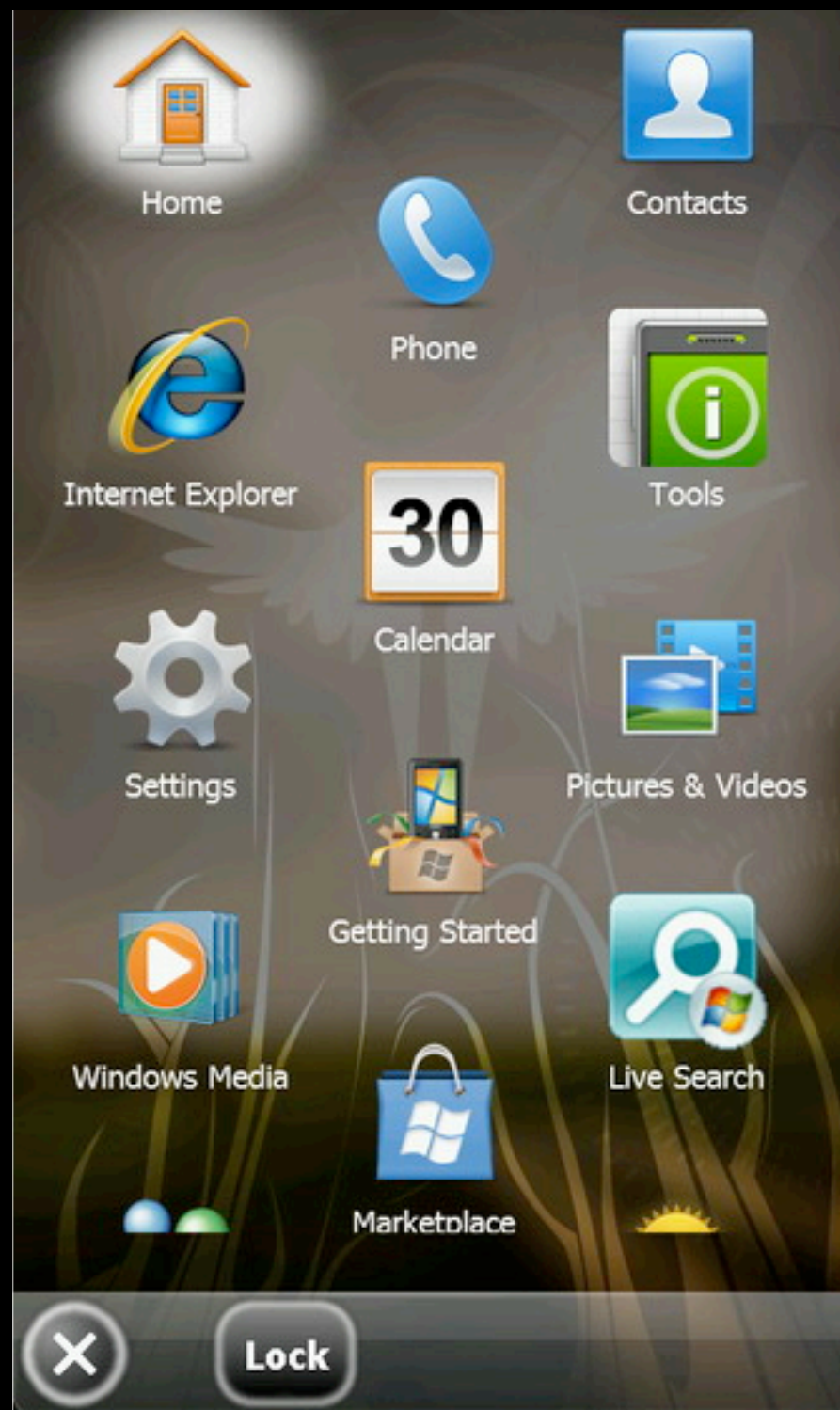


Mobile devices are hot and cool and they also spell the end of really bad interfaces we used in the past:

Structured documents can be redesigned



Properly structured documents are easy to redesign for different screen sizes.



Larger buttons are needed for touch interfaces.



Hover interaction doesn't work on mobile devices



Roll over and click right side of image to move forward.

Image 1 of 4

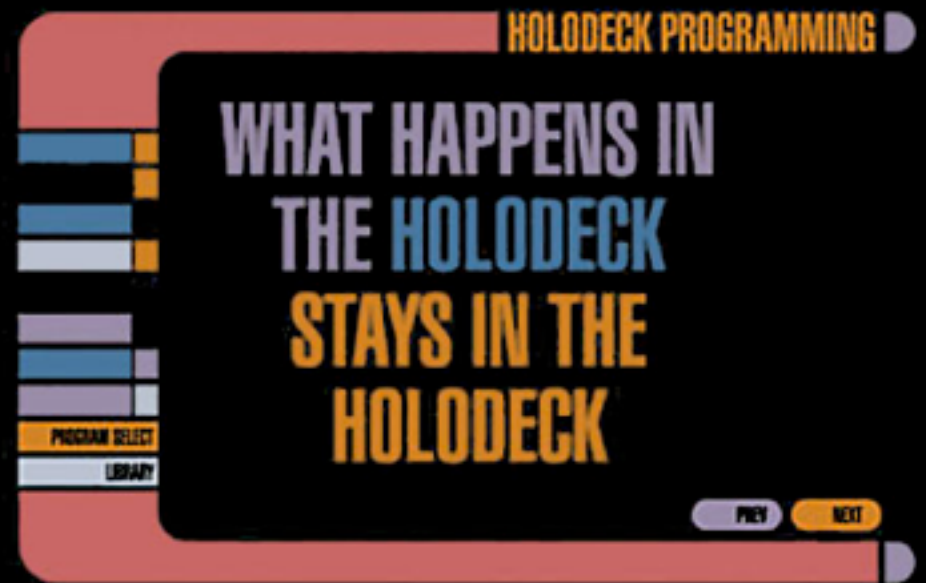
CLOSE X

Lightboxes are very confusing on small screen devices

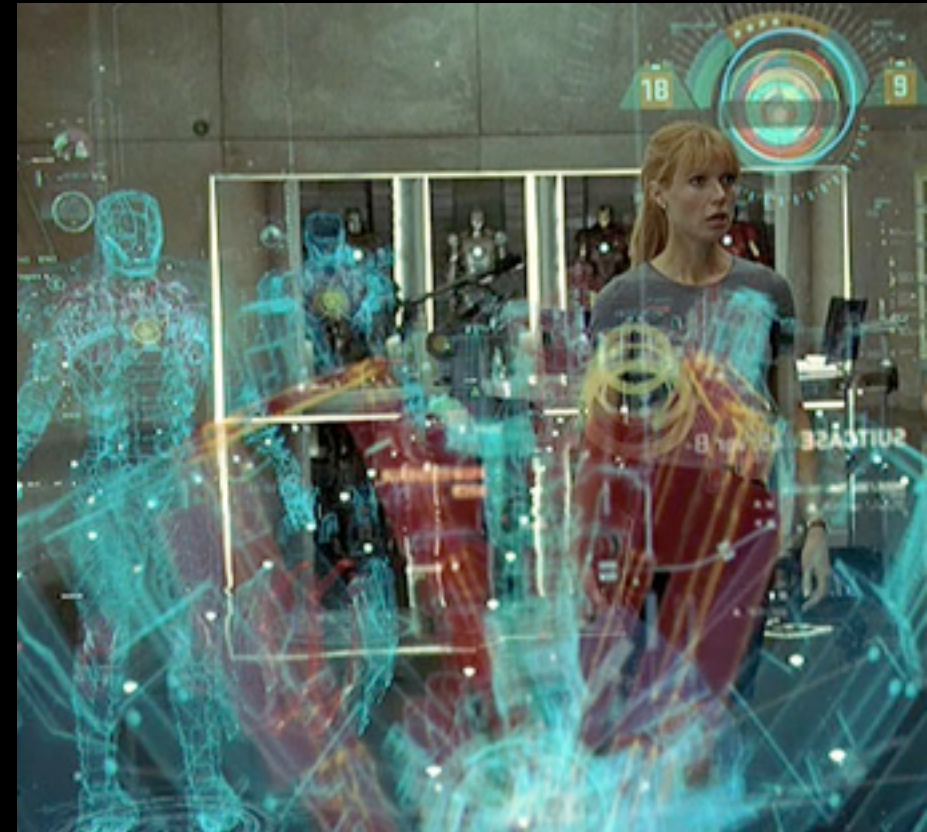
Science fiction shows us what could be done.



In Sci-Fi movies in the past we dreamt of interfaces that are human. Instead of moving a mouse and typing in cryptic commands computing is ubiquitous.



Star Trek had voice recognition.



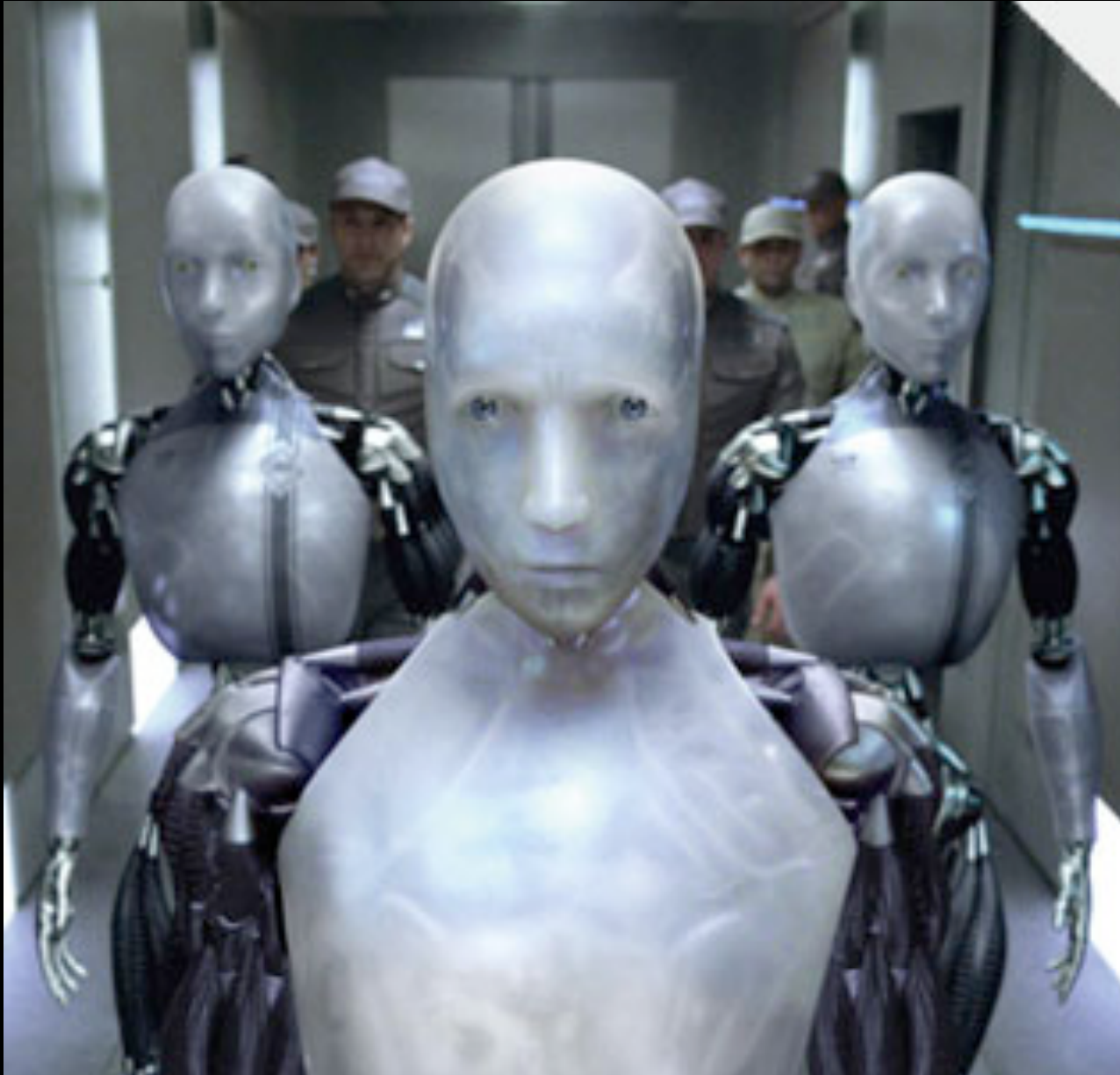
Iron man is a great example of what you could have as amazing interfaces.

You and I can be Iron Man!



Actually none of this is really fiction any longer.

Emerging technologies are **human** and **more accessible**



If you haven't realised it yet – computers are becoming more human accessible.

Speech recognition.



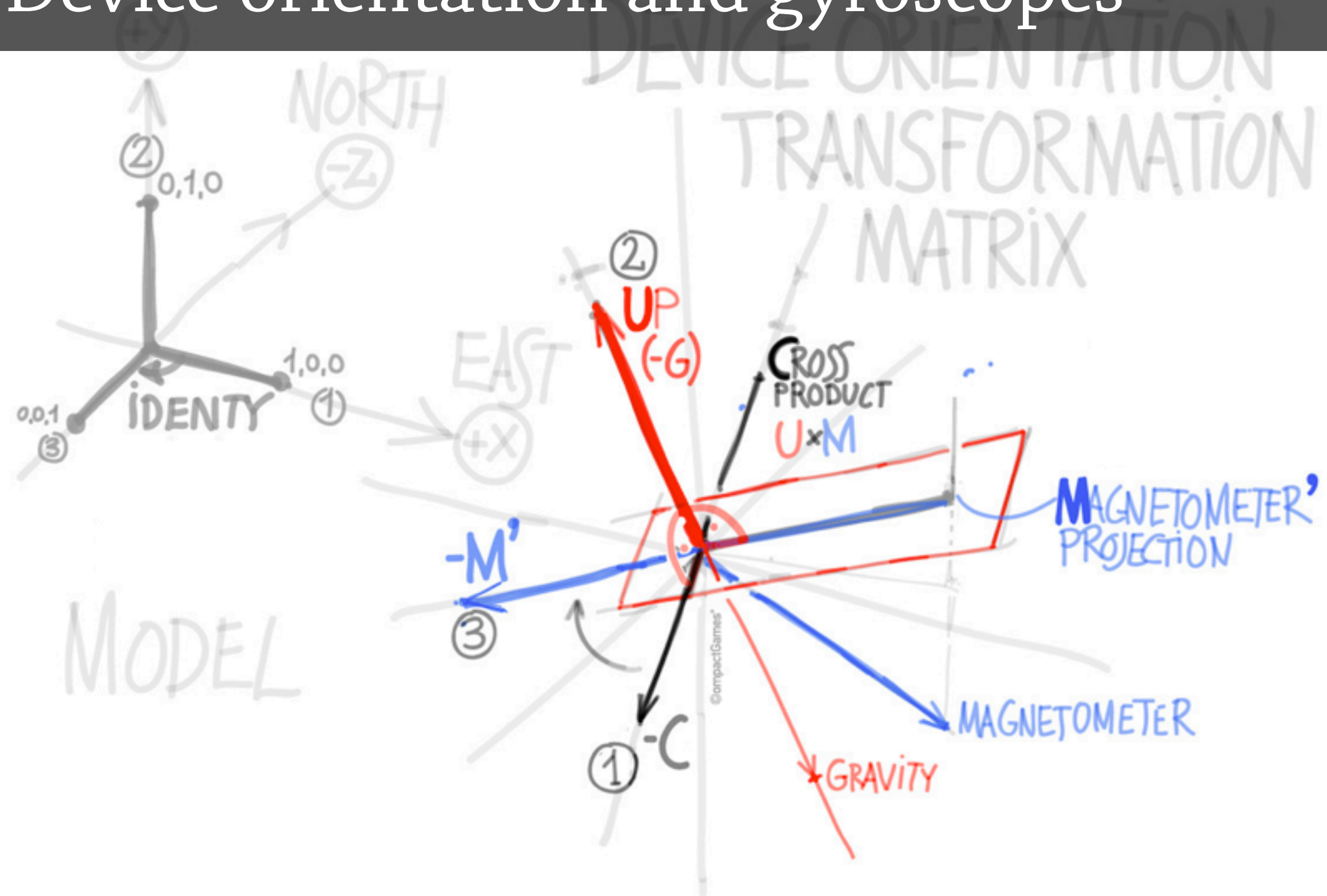
Speech recognition help us communicate with devices whilst we are on the go.

Touch interfaces.



Touch interfaces are much simpler to grasp (literally) for humans and are becoming a de-facto standard.

Device orientation and gyroscopes



Device orientation is already used in games – why not in other interfaces?



Glenda Watson Hyatt



About Glenda Watson Hyatt

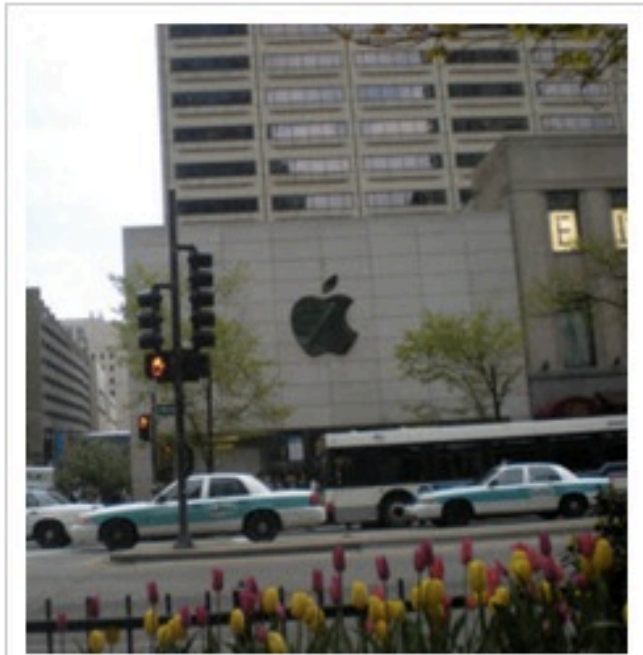
I'll Do It Myself: The Book

Work with Glenda

The iPad as an Affordable Communicator: Initial Review

Filed under: Living with a disability — by Glenda at 2:22 pm on Saturday, May 15, 2010

While in Chicago, I made a short trek to the Apple Store. My mission was to try out an iPad, which are still unable here in Canada until May 28th, to see if I could reliably use



204 tweets

retweet

Glenda Watson Hyatt shares her experiences living with cerebral palsy to motivate and inspire others to think about how they perceive their own situation and their own world around them. She does all this by typing with only her left thumb!

Read Glenda's Book:



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How POUR is Your Blog?



Take the example of <http://www.doitmyselfblog.com/2010/the-ipad-as-an-affordable-communicator-initial-review/> Glenda Watson Hyatt – a lady bound to a wheel chair who could only communicate with a massively expensive piece of hardware and replaced it with a much cheaper iPad with more flexible software.



<http://www.flickr.com/photos/ginnerobot/3554231094/>

The Wii blew the whole concept of gaming out of the water. Instead of pressing a random sequence of buttons and arrows you played tennis to, well, play tennis. This lowers the barrier of entry immensely.



The Wii is in use in homes for the elderly to make them move instead of vegetating in front of the TV. Awesome!



The Kinect goes even further with this. Instead of having to play with any controller it recognises your shape and reacts to your movements. This could be used for accessibility interfaces.

Sorry

WE'RE

CLOSED

It is true, none of this is free and open, but here is where geeks come in – what isn't open will be made open.

Hidden functionality for those in the know



I lied though when I said that the close door buttons don't work. In the US they do have a special functionality. If you go into a lift and press the close door button and then the floor you want to go to whilst keeping the button pressed the lift will go directly to that floor and not stop in between – regardless of people requesting it on other floors. This is for firemen and the police to get there quickly.

APIs



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3086

APIs

5718

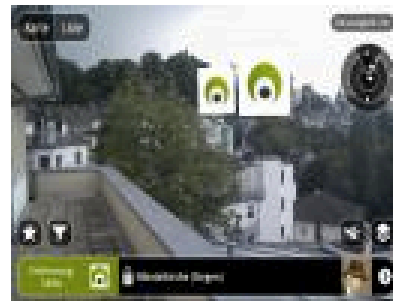
Mashups



New APIs

- [messagingPeople](#)
- [TYPOGRAFFIT](#)
- [Untiny](#)
- [Viewbook](#)
- [WattzOn](#)
- [Pixmac](#)
- [See more APIs](#)

Mashup of the Day



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New Mashups

- [Twick.it on Layar](#)
- [Sky Map](#)
- [Nuclear Anxiety](#)
- [Memolane](#)
- [Corobot](#)
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- [See more mashups](#)

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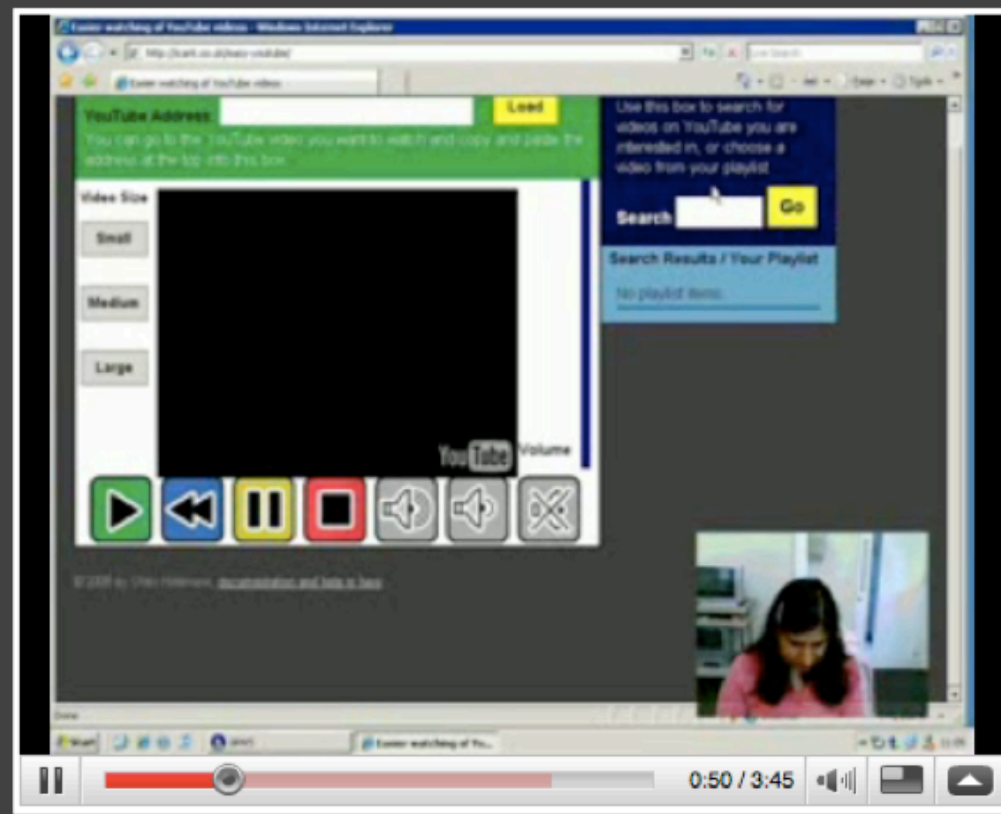
On the web this kind of inside knowledge means in most of the cases using an API. Clever companies don't just build interfaces – they also offer the data of their systems to allow people to build interfaces.

Opening up YouTube

The screenshot shows a user interface for watching YouTube videos. At the top, there is a green bar with the text "YouTube Address:" followed by a text input field containing "http://www.youtube.com/watch?v=vk" and a yellow "Load" button. Below this is a green box with the instruction: "You can go to the YouTube video you want to watch and copy and paste the address at the top into this box." To the left of the video player, there is a "Video Size" section with three buttons: "Small", "Medium", and "Large". The video player itself shows a landscape scene with a concrete wall in the foreground and a body of water in the background. Below the video player is a row of seven large, colorful control buttons: play (green), previous (blue), pause (yellow), stop (red), volume (grey), mute (grey), and full screen (grey). To the right of the video player is a blue bar with a search input field and a yellow "Go" button. Below the search bar is a section titled "Search Results / Your Playlist" with a list of search results: "Officer Stops Rush Hour Traffic for Ducks Crossing", "Duck and 9 ducklings", "It had to be done, and I am sorry", "Panda Cubs On A Slide", and "A deaf choir singing a song in sign language".

One example of a use of an API that I did in the past is [Easy YouTube](http://icant.co.uk/easy-youtube). This is an interface catered for people with learning disabilities. YouTube now has big friendly buttons and not a lot on the screen. Incidentally and without knowing I also made YouTube available for blind users.

Opening up YouTube



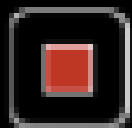
<http://www.youtube.com/watch?v=CwsDKaalqg8>

<http://www.youtube.com/watch?v=QiuT0y0KR6I>

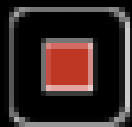
Here are a few of the results this had – a video of a blind user who said she hated the web being happy as punch to be able to control a video and a singer with a learning disability being able to watch music videos for the first time.

Geek pride can be yours

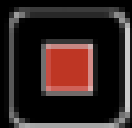
Players and layout



Great elements of different players but not coming together as one player for people with learning disabilities.



Many people need to take time over what they are doing but don't want to use assistive technology.

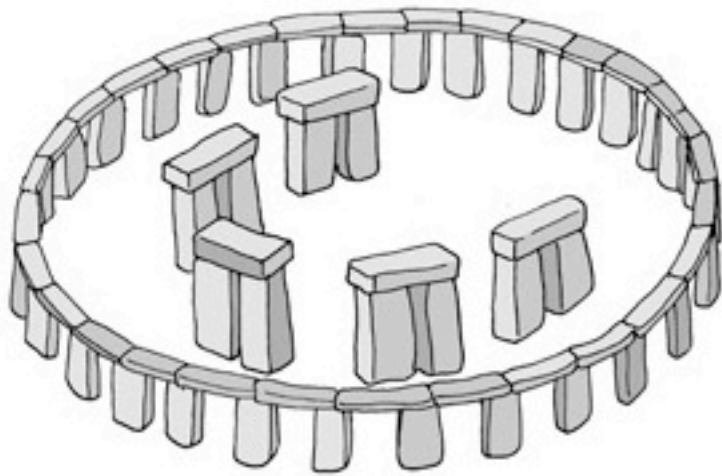
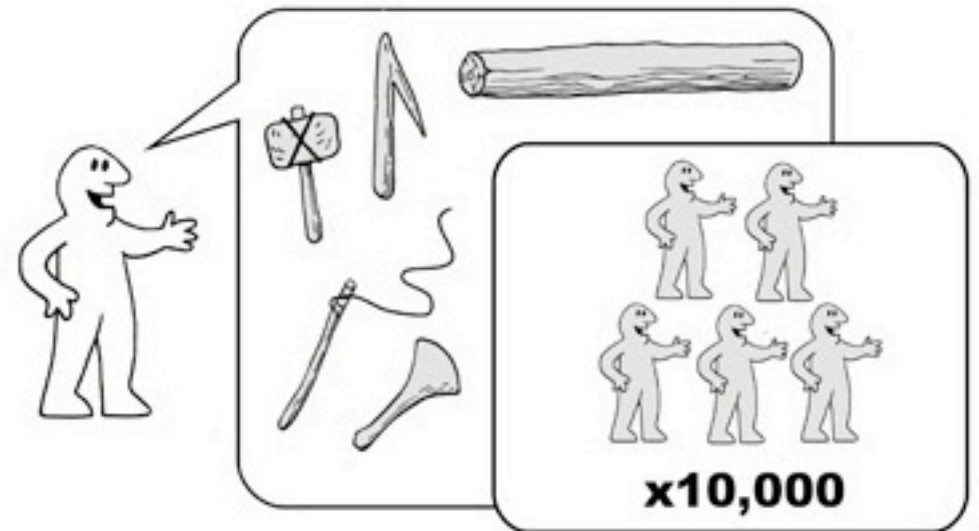


Lots of people need to repeat information to understand it. Often there is no option to repeat (slider).

Enabling these people made me very proud indeed. And it only happened because someone with tech knowledge like me got a detailed list of requirements by someone who had a problem with current technology.

Give simple instructions

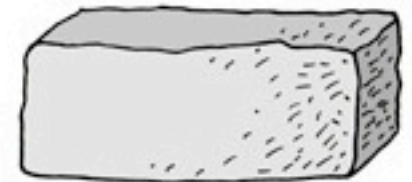
HËNJ



80x



30x



30x

Antonia Hyde had asked at a conference to build a video player like Easy YouTube and I started building it right away.

Setting technology free



The main issue of YouTube was that it is Flash based and only gives me limited access. Now with open technologies we don't have that problem.

Native video and audio

Transforming HTML5 video with CSS3



Native HTML5 video is by default keyboard accessible and can be styled in any way.

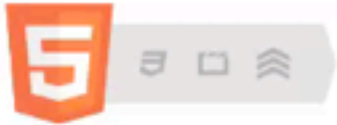
Syncing video and other content

SYNCING PAGE CONTENT WITH HTML5 VIDEO



Play the video above and see how the different connected content sections in the page appear at the right moment. Feel free to jump forward and backward

 Syncing page content with HTML5 video by [Christian Heilmann](#) is licensed under a [Creative Commons Attribution-ShareAlike 3.0 Unported License](#). Based on a work at [isithackday.com](#).



You can read out the current time and react to it. This allows you for example to sync HTML content around the video with what is happening in the video. Yes, you might have guessed it – that makes for very simple captioning interfaces.

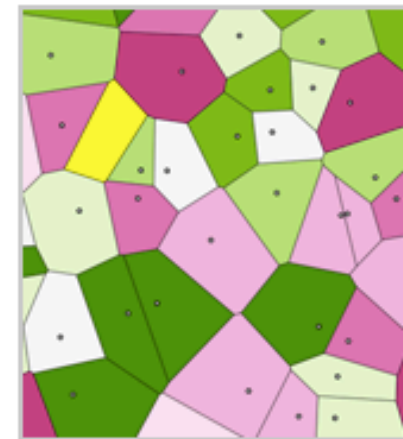
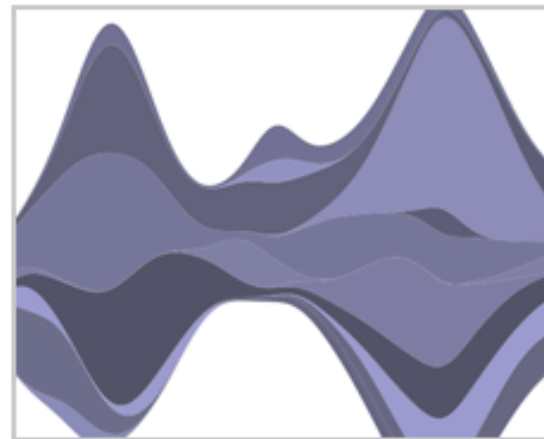
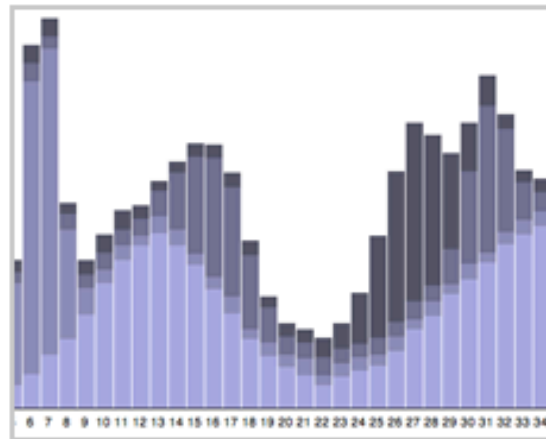
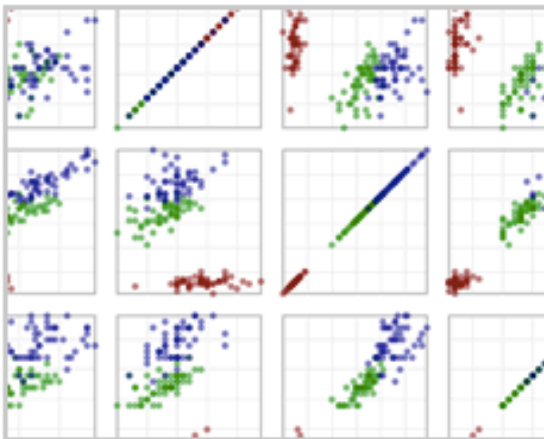
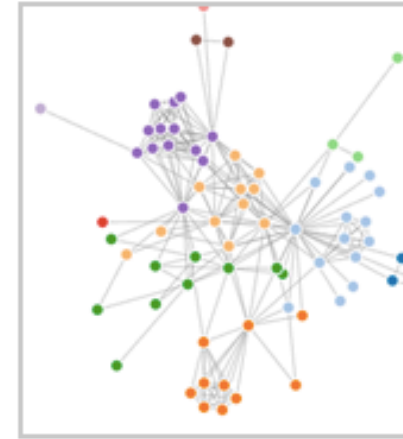
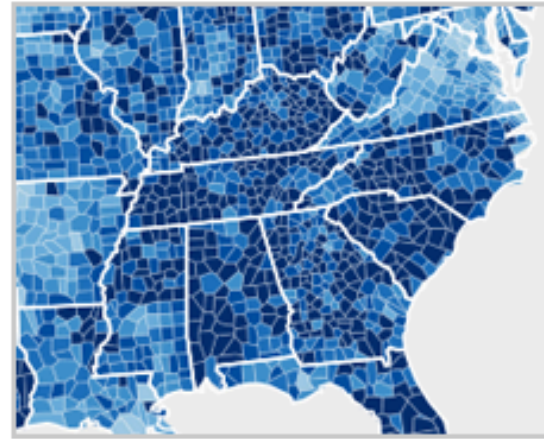
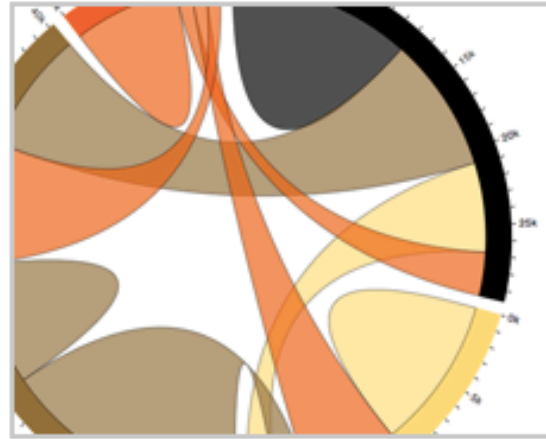
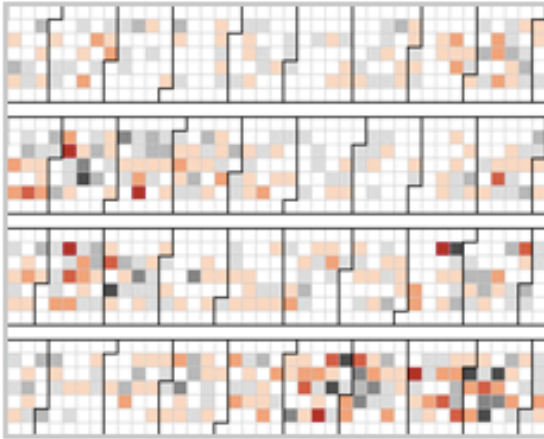
Native rich interaction and styles

[Overview](#) [Examples](#) [Documentation](#) [Download](#)

d3.js

Data-Driven Documents

D3.js is a small, [free](#) JavaScript library for manipulating documents based on data.



[Selections](#)
[Dynamic Properties](#)
[Enter and Exit](#)
[Transformation](#)
[Presentation](#)

D3 allows you to bind arbitrary data to a Document Object Model (DOM), and then apply data-driven transformations to the document. As a trivial example, you can use D3 to generate a basic HTML table from an array of data, or a bar chart with smooth transitions.

<http://mbostock.github.com/d3/>

Using technologies like [Canvas](http://mbostock.github.com/d3/) and [SVG](#) you can create beautiful visualisations of data in the current document. Native to the browser, accessible for translation and reading by assistive technology and beautiful.

Input and output

Trying out webkit speech input

```
<input type="text" x-webkit-speech />
```

Voice recognition is not far away – same as face recognition. We have cameras and microphones in our computers, why not use them?

Stop thinking in **limits**



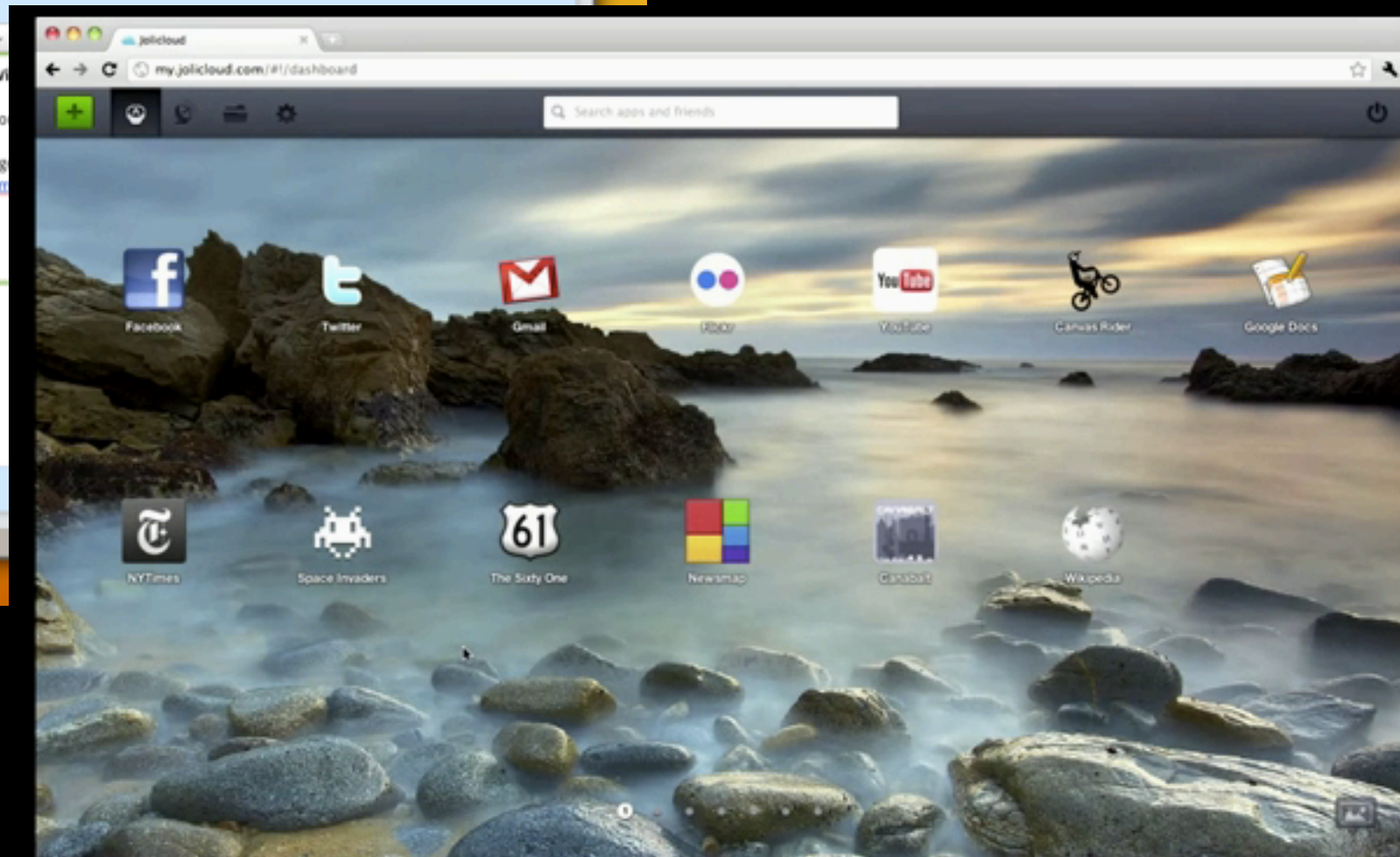
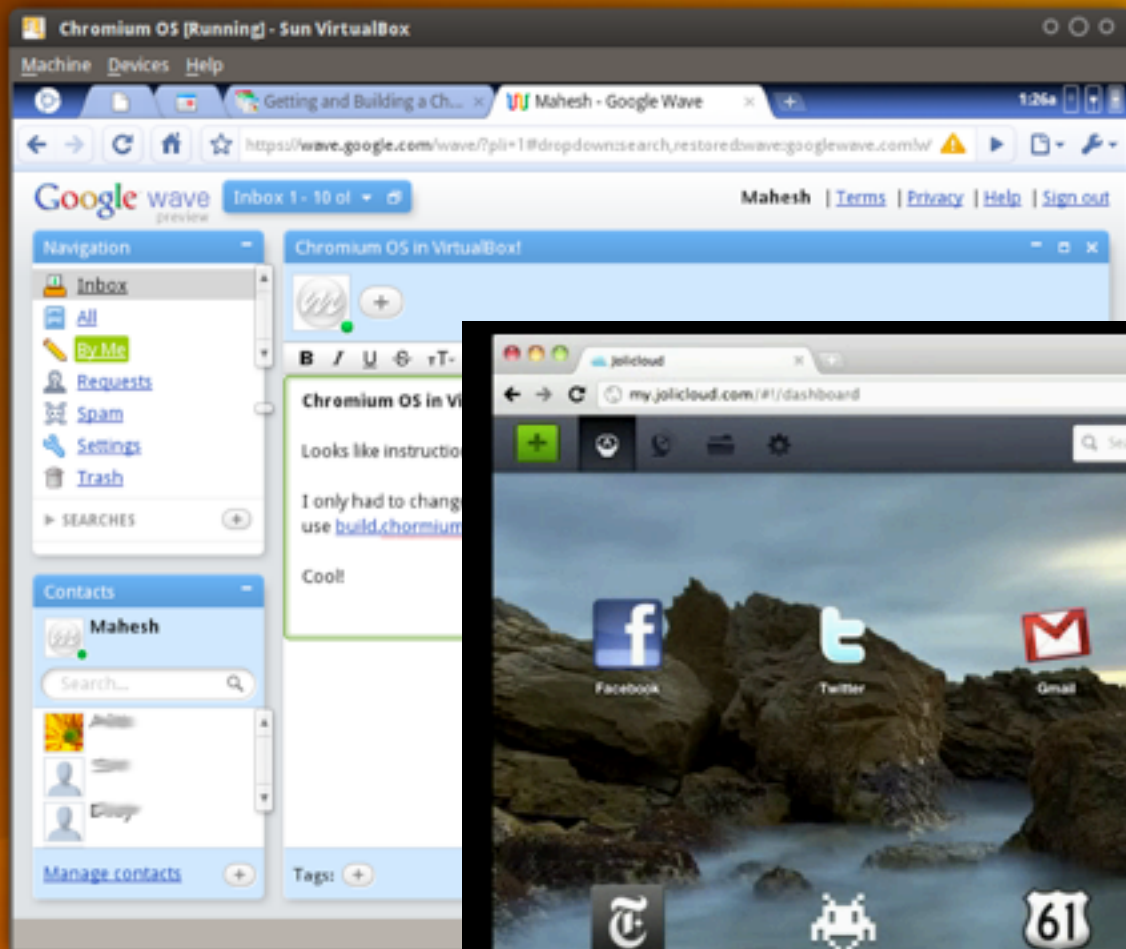
The main thing we need to do to marry the crazy cool innovation we have now in development with accessibility concerns is to stop thinking in limits and use disability needs as an opportunity to build better products. For this, above all, we need to embrace the web.

The **web** is the **platform**



Imagine no need to buy Windows and upgrade your JAWS. Imagine not having to worry about security patches. Imagine computers booting up in seconds rather than minutes with dozens of security questions and barriers.

The web is the platform



We can have that! Systems like Jolicloud and Chrome OS totally do away with the need for an operating system layer – you boot into the web. If you are offline you can still use the machine to write and store but all your work is on the web.

The **web** is the **platform**



Let's not leave this as the playground for a selected few – let's make this the accessible layer of the web.

web visum (vision, in latin) is your eyes for the web

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Welcome to Webvisum

WebVisum is a unique browser add on which greatly enhances web accessibility and empowers the blind and visually impaired community by putting the control in your hands! Its aim is to allow you to better enjoy surfing the net and be significantly less dependent upon outside help. Now available in English, German, Russian, Italian, Slovak, Bulgarian, Dutch, Croatian, Romanian, Portugese, Turkish and Spanish! If you want to help, login into your account and visit the Community page!

Just a few exciting features that we already offer:

- **Community driven tagging and page enhancements.**
- **Automated and instant CAPTCHA image solving, sign up to web sites and make forum posts and blog comments without asking for help!**
- **Built in helper functions for easier page navigation and less confusion.**
- **Numerous under the hood page tweaks designed to help screen reader users.**
- **Visually Impaired users benefit from features such as high contrast page viewing, link and focus highlighting, and more.**

It is only available for the Firefox browser. If you have not used Firefox, or used an old version, we highly recommend that you [Download Firefox version 3.5](#) which is probably the most accessible, fast and overall best web browser on the Internet. You won't regret it!

Start using the service straight away by first creating an account with us through the [Register](#) page and then installing the add on in your Firefox. For more information on how to use the service, please read the [Tutorial](#) through. Once you are running Firefox with Web Visum installed you can press **Ctrl + F1** at any time for the quick help screen.

<http://webvisum.com/>

Instead of complaining that the people on the web do not care about accessibility let's use them to make the web more open to everyone

Easily caption and translate your videos, with help from your viewers.



Increase video views by reaching global audiences and being accessible to the deaf and hard-of-hearing.



It's powered by viewers and other volunteers: it's collaborative editing and translation, like a wiki.



It's the world's easiest subtitle creator - type and tap.



The fastest way to add subtitle functionality to a single video or a whole site. Super easy to integrate with no software to install.

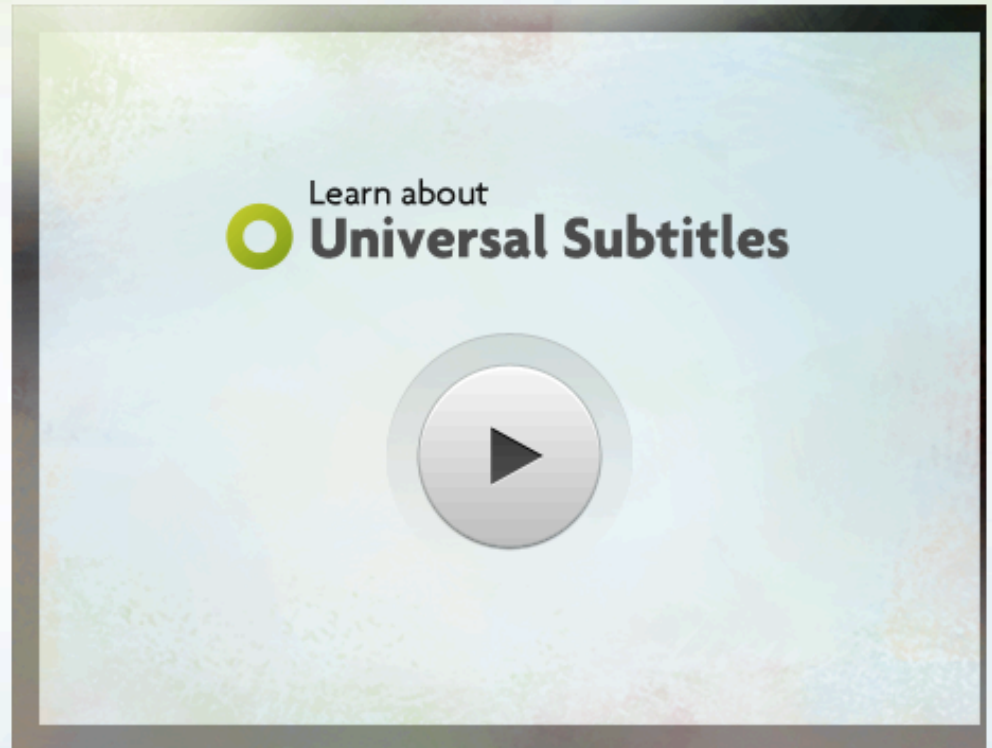


Free, open-source, and non-profit!

17243 videos use **Universal Subtitles**

Add this subtitle tab to

For an individual video



English

* = Missing sections translated by Google Translate

Subtitles Off

Original Language (19 lines) ✓

Arabic 100%

Bulgarian 100%

Bengali 10%

 **Universal Subtitles**

THIS VIDEO

+ Add New Translation

✎ Improve These Subtitles

📄 Subtitle Homepage

🔗 Get Embed Code

⬇️ Download Subtitles

<http://www.universalsubtitles.org/en/>

Take Universal Subtitles for example. This is a small JavaScript you can put into any web site that adds a subtitling interface to any video in the page – people can write subtitles for a part of the video and can also translate it.



Join our ARMY OF AWESOME

Love Firefox and have a few moments to help?
Help other Firefox users on Twitter. Good things
will come to those who tweet!

1. Choose a
TWEET BELOW

2. Sign in with
TWITTER

3. Respond to
THE TWEET!



Choose a tweet to help

Sign in

Refresh

Most Recent



clouddancefest

Trying Firefox 4 in case it's more stable. So far it's crashed twice in less than a minute.
#endlessfirefoxwoes

1 minute ago
Reply now

We need more of these tools – let's make accessibility a concern for all, not a thing to make a lot of money with by offering bespoke services.

Stop preaching to the choir



Stop staying in your comfort zone of accessibility mailing lists and conferences. Go out and infiltrate the main conference circuit and discussions about cool new technology. Tell the world about our needs and demand them to consider them.

Stand **proud and tall** - we can be a **butterfly!**



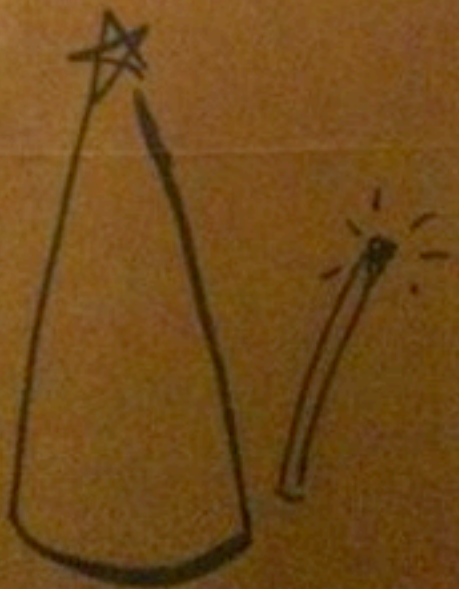
Accessibility doesn't have to be the ugly duckling of development and IT solutions. It could be the beautiful butterfly leading us to a much more human interface future. Go for it.

CAMP

" F---K YOU
I'M A
WIZARD "

CAMP RULES:

1. DRINKING
2. MAGIC



Thanks!

Chris Heilmann

@codepo8

#mozilla

#html5/freenet