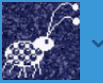




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AEASEA 2016 - Adapting to Input

Notes from Jason Grigsby's presentation on the many many sensors we need to plan for when designing today. Presented at An Event Apart Seattle 2016

by  Anne Gibson a year ago



Anne Gibson
@perpendicularme

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“Good morning to you all!” “mumble” “More coffee, people!”
[#AEASEA](#)

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Jason Grigsby - [@grigs](#) - up next [#AEASEA](#)

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The web was created for less. Tim Burners-Lee just needed documents, and that had no form. [#AEASEA](#)

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Christa Dickson
@IowaCodeNinja

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In the beginning, the web was formless. When the web became commercial, we added form. [@grigs](#) [#aeasea](#)

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We told ourselves the web was a particular size - 640x480, then 800x600, then 1024x769 and we created 960 grids #AEASEA

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Then mobile came out and we realized that the web's size was a consensual hallucination. #AEASEA

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It's not that somebody tricked us, we lied to ourselves because it made our lives easier #AEASEA

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The web has always been fluid, formless, responsive — until we broke it #AEASEA

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Our concept of the web as a fixed canvas was always a consensual hallucination. (Hat tip to William Gibson via [@adactio](#)) [@grigs](#) [#aeasea](#)

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We're working on that. But there's another consensual hallucination that desktop = keyboard/mouse, phone = touch [#AEASEA](#)

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We try to strike language of "mobile" from our designs, but some folks believe desktop UI is fundamentally different [#AEASEA](#)

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If your vision of a desktop is a cubical with a tower or laptop, keyboard, mouse, etc. sure, it's different [#AEASEA](#)

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4 truths about input.

1. Input is exploding.

(Focus on broad adoption, using apple as a lens.) #AEASEA

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1874, first mass use of the qwerty keyboard by Remington.

Hasn't changed since 1874, really #AEASEA

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1984: Apple Macintosh mouse. (Yes Xerox had one earlier.)

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many alternatives to mice: trackpads, trackballs, etc. did the same thing as a mouse. #AEASEA

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1996: scroll wheel mouse. Starts to control something other than just the cursor #AEASEA

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2005/6: cameras are on phones and computers #AEASEA

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2007: Apple releases the iPhone #AEASEA From an input perspective, everything really did change

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MacBook Air 2008 with multitouch trackpad
2008 iPhone has gps
2009 voice control
2010 gyroscope, another camera #AEASEA

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2010: multi-touch trackpad on Bluetooth
2011: Siri, Bluetooth LE come to iPhone
2013: fingerprint sensor#AEASEA

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1 2



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2014: NFC and a barometer (iPhone 5s)
Barometer to measure elevation! #AEASEA

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2015: 3D Touch iPhone 6s

Pace of new sensors is definitely accelerating! #AEASEA

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Resistosaurus Max
@JeremyWard33

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Input is exploding. Pace of innovation is astounding. Every single year we get new sensors, new sensibilities. #aeasea

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3 3



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@IowaCodeNinja

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Between keyboard & mouse was 142 years. Between mouse & scrollwheel: 12. 11 yrs to the iPhone. Then every year a new sensor. @grigs #aeasea

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Voice products: Apple, Microsoft, Google have voice products, some of which have a lot of promise #AEASEA

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Voice input has interesting implications for link text. You shouldn't have to recite the Gettysburg Address to go to a new page. #aeasea

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How should web pages change to support voice control? (AAAH! SharePoint links!) #AEASEA

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Gestures: Microsoft Hololens uses the gaze and a tap or tap and hold gesture to interact with mixed-reality content [#AEASEA](#)

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@JeremyWard33

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HoloLens = "mixed reality content". Is it OK to be scared now?
[#aeasea](#)

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Gestures map to the mouse, but the mouse isn't an intuitive interface (touch is closer). [#AEASEA](#)

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Leap Motion was a way to interact with laptops. Now they work with oculus rift in VR. Much more natural interactions: push, grab
[#AEASEA](#)

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Gestural control: we're back in Minority Report territory, only with super-sexy VR headsets. @grigs #aeasea

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[youtube.com/watch?v=LJPxyW...](https://www.youtube.com/watch?v=LJPxyW...) for a great video of Leap and Oculus Rift #AEASEA

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2. Input is a continuum. We've always had phones with pointers (stylus or trackball), and keyboards (hardware or Bluetooth)

#AEASEA

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Laptop/tablets blur the line. Desktop computers have touch screens. Lumia 950 is a full computer if docked, phone otherwise [#AEASEA](#)

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We can no longer make assumptions about input based on screen size or form factor. We never should have. [@grigs](#) [#aeasea](#)

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We can't reliably detect touch screens from within a browser. [@grigs](#) [#aeasea](#)

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If you're using the presence of touch events to detect "mobile" you're breaking your pages everywhere else [#AEASEA](#)

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We can't reliably detect a mouse or a keyboard. #AEASEA

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In fact, we can't reliably detect any input method from within a browser. @grigs #aeasea

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We should be thankful. This saves us from ourselves. #AEASEA

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On a laptop someone might switch between touchscreen and keyboard — the interface changes for each input #AEASEA

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You have to tap on the touchscreen to tell the laptop you're using touch, then tap again. That's annoying #AEASEA

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James Cliburn
@JCFGD

 Follow

Touch does not mean mobile - touch can occur anytime, anywhere, and isn't a specialized experience / means of input @grigs #aeasea #aea16

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@IowaCodeNinja

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My favorite Schrodinger's cat meme, as used by @grigs #aeasea imgur.com/veoWbmL

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Suck it, Schrodinger!
Imgur: The most awesome images on the Internet.
imgur.com





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We can only detect input when it's used and that's too late for our user interfaces. Input is transient! #AEASEA

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Knowing what's being used right now doesn't tell you about what will be used in a moment #AEASEA

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People switch between input modes constantly. we have no way of knowing. #AEASEA

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Input is

1. Exploding
2. A continuum
3. Undetectable
4. Transient#AEASEA

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Mike Finch
@mkfnch

 Follow

The master of web accessibility @feather at @aneventapart.
[#AEASEA](#)

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  2  6



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@IowaCodeNinja

 Follow

Input is like a quantum particle: it's impossible to predict/detect what will be in use and for how long. @grigs [#aeasea](#)

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Time to rewire our brains and adapt to input [#AEASEA](#)

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Design for the largest target by default. Design for touch (or hey Andre the Giant's touch, per yesterday). #AEASEA

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Fitt's law: the time to acquire a target is a function of the distance to and size of the target. #AEASEA

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 Follow

Big touch targets are good for mice. "When anything could have a touch interface, proceed as if they all do" @bigmediumjosh #AEASEA

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@IowaCodeNinja

 Follow

Any desktop machine could have a touch interface now, so we need to assume that they all do. @bigmediumjosh @grigs #aeasea

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2. Design for modes of interaction instead of inputs. Gmail has display density settings called “Comfortable, cozy, compact”
[#AEASEA](#)

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You can opt in to “compact” even if you’re on a touchscreen, Gmail doesn’t force by device [#AEASEA](#)

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Vimeo has “couch mode” which is better for using a remote and TV, but it’s not forced to TV mode. [#AEASEA](#)

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Design for user need, not for a specific input or form factor
[#AEASEA](#)

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3. Make things accessible. @grigs looked at remote controls and d-pads #AEASEA — d-pads are arrow keys in the interface #AEASEA

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Building accessibility increase the likelihood of support for future unknown inputs @grigs #AEASEA #a11y

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All the browser stuff that we're familiar with is built in to voice input on Voiceover already #AEASEA #a11y

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Follow

4. Design for multiple concurrent inputs. An input isn't binary. #AEASEA

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User might use the trackpad to pan and zoom a map while using touch to drop pins on the map [#AEASEA](#)

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At minimum, don't assume that if one input is present the person doesn't have access to other types of input [#AEASEA](#)

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It's not mouse OR touch. And we should look for options for when it IS both [#AEASEA](#)

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Abstract baseline input. "Mobile, tablet, desktop" set expectations in our and our clients' heads [#AEASEA](#)

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We have images in our heads of “tap” and “click” - we might want to use “point” and “select” (and “activate”). #AEASEA

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Pointer Event specification will normalize touch, mouse, and stylus into an abstracted form of contact #AEASEA

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The jQuery team is building a pointer event polyfill #AEASEA

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6. Progressively enhance input. Slack uses all different types of input, for example #AEASEA

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Zip code progressively enhances to geolocation. #AEASEA
Warby Parker uses gyroscope to turn a model's head to see glasses

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Christa Dickson
@IowaCodeNinja

 Follow

Start thinking about cool new ways to use new inputs. Not just geolocation, camera, etc. but compass, gyroscope (e.g. Warby Parker). #aeasea

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Zeldman 
@zeldman

 Follow

Jason Grigsby (@grigs) on the ins & outs of inputs in a multi-device world. #aeasea #design #web #mobile

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  2  3



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You can use the camera as input — copy keys, scan your credit card to fill out a form, #AEASEA

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Follow

Browser auto-fill is a form of input. We don't think about that one to test. If we want people to input quickly we should #AEASEA

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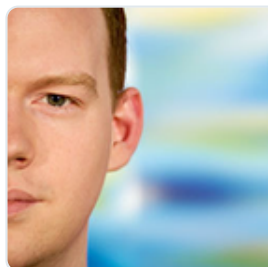
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Follow

RequestAutoComplete html5rocks.com/en/tutorials/f... - much faster e-commerce entry for forms #AEASEA

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requestAutocomplete - take my money, not ...

Optimizing website payments using the requestAutocomplete API

html5rocks.com





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Autocomplete not a form of input (well I'd say it is) but it's got features we should test [#AEASEA](#)

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mike

@mandrewnz

 Follow

Woah, Safari has scan your credit card to autocomplete your ecommerce details on checkout. Don't forget to test this on your site [#aeasea](#)

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HTML Media Capture for adding files, getUserMedia is coming to most browsers for camera actions too [#AEASEA](#)

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Speech recognition API support in chrome and Firefox [#AEASEA](#)

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Web Bluetooth, low friction, no install, no worries afterward.
Pairing isn't quite input. combined with physical web has
promise #AEASEA

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Physical Web to find interfaces, then Web Bluetooth to control -
much faster than downloading an app and pairing and
controlling #AEASEA

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Make input part of the test plans. Does your device lab have a
stylus? (Or the carrier store / Apple Store / community lab)
#AEASEA

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Opendevicelab.com for finding a lab in your community, or start
one. #AEASEA

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Resistosaurus Max ⚡⚠️

@JeremyWard33

Follow

Don't have a community device test environment? Yes you do.
It's called the Apple Store, Verizon outlet, mobile outlets
everywhere [#aeasea](#)

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2 1



Heather

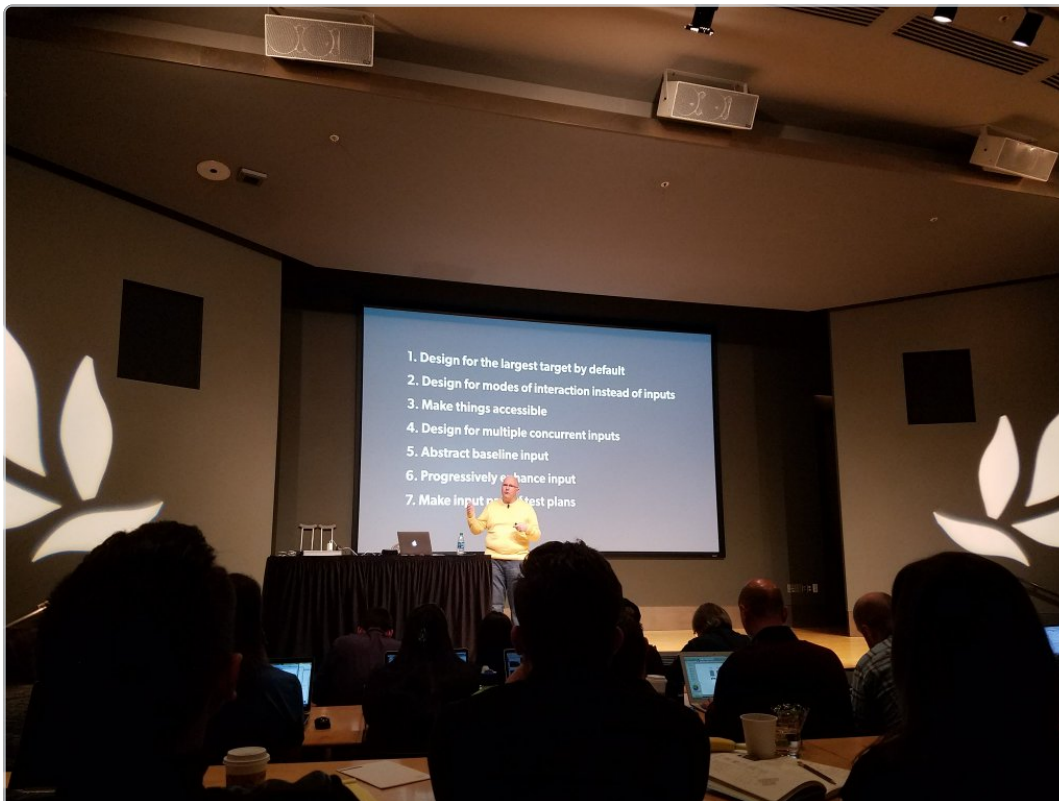
@_hmig

Follow

“Building accessibly increases the likelihood of support for
future, unknown inputs.” [@grigs](#) [#aeasea](#) [#a11y](#) 🥰👏

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18 22



Forrest Corbett

@forrestcorbett

 Follow

7 rules for designing and adapting to inputs [#uxdesign](#) [#aeasea](#)

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  1  2



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Learn from our early mobile context mistakes. We believe things about our own services “they won’t X” but do the opposite

[#AEASEA](#)

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 Follow

We judged phones to be inferior because we had desktop computers. One form of input isn't better than another.

[#AEASEA](#)

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"Nobody will do X because they don't have a physical keyboard" is not true. And some folks text all day long but don't keyboard

[#AEASEA](#)

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Andrea 🐾 🎨 & 🐕 🖼️
@amcvittie

 Follow

A fair number of folks I'm acquainted with OUTSIDE the tech bubble ONLY have online access on their older phones.

[#AEASEA](#)

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We can't judge what type of input is better for somebody and it's dangerous to do that. We need to learn to adapt to users

[#AEASEA](#)

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When we let go of illusions that comfort us we open up a world of opportunity. #AEASEA

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(Shameless plug: @grigs is making all the points I tried to make in alistapart.com/article/refram... for accessibility inputs, only better) #AEASEA

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Reframing Accessibility for the Web

If you've been treating "people with disabilities" as an edge case for your websites, consider this a reckoning. Web accessibility means that alistapart.com



James Cliburn
@JCFGD

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Insightful talk from @grigs, definitely makes me rethink my views on interactions, especially those on 'what device is being used' #aeasea

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