

# *ADA Compliancy for Electronic Communication and Websites*

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AUBURN  

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UNIVERSITY

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# Overview

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- Defining accessibility
- Types of disabilities
- What is the ADA?
- Disabilities and the Web
- Making your site accessible
- It's the right thing to do!

# Defining Accessibility

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- Making things usable by people with a disability.
- Disabilities can include issues related to:
  - Vision
  - Hearing
  - Motor skills
  - Cognition
  - Seizure

# Accessibility:

## Introduction to the Screen Reader

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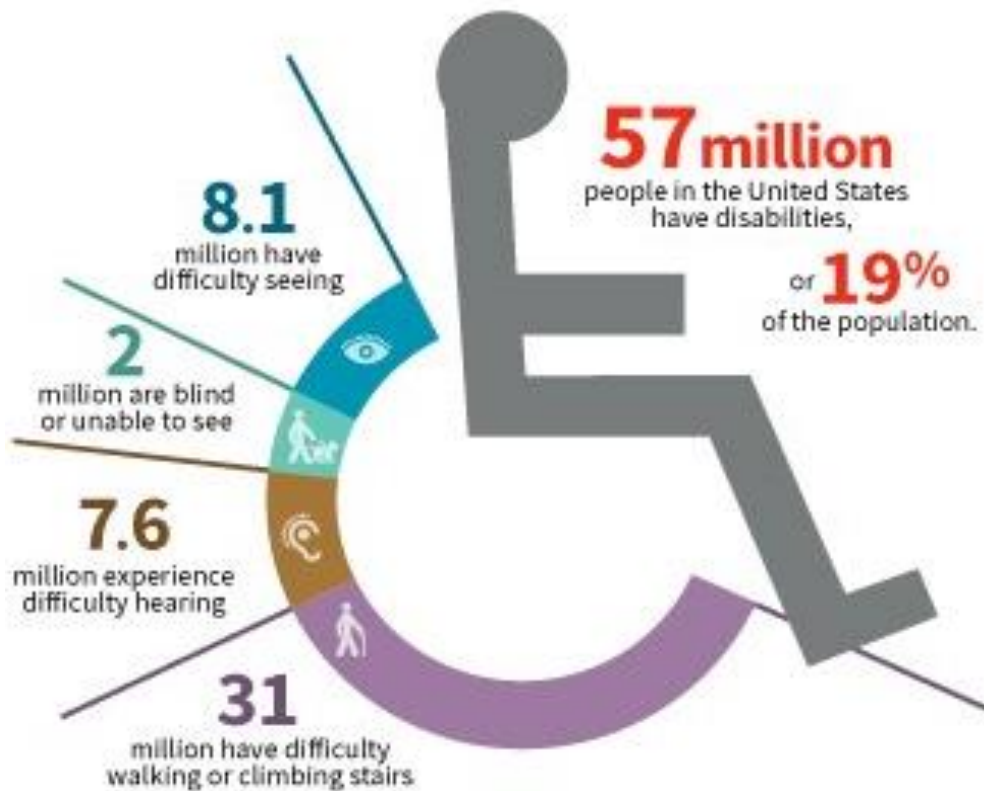


[Learn about screen readers \(YouTube\)](#)

# National Numbers

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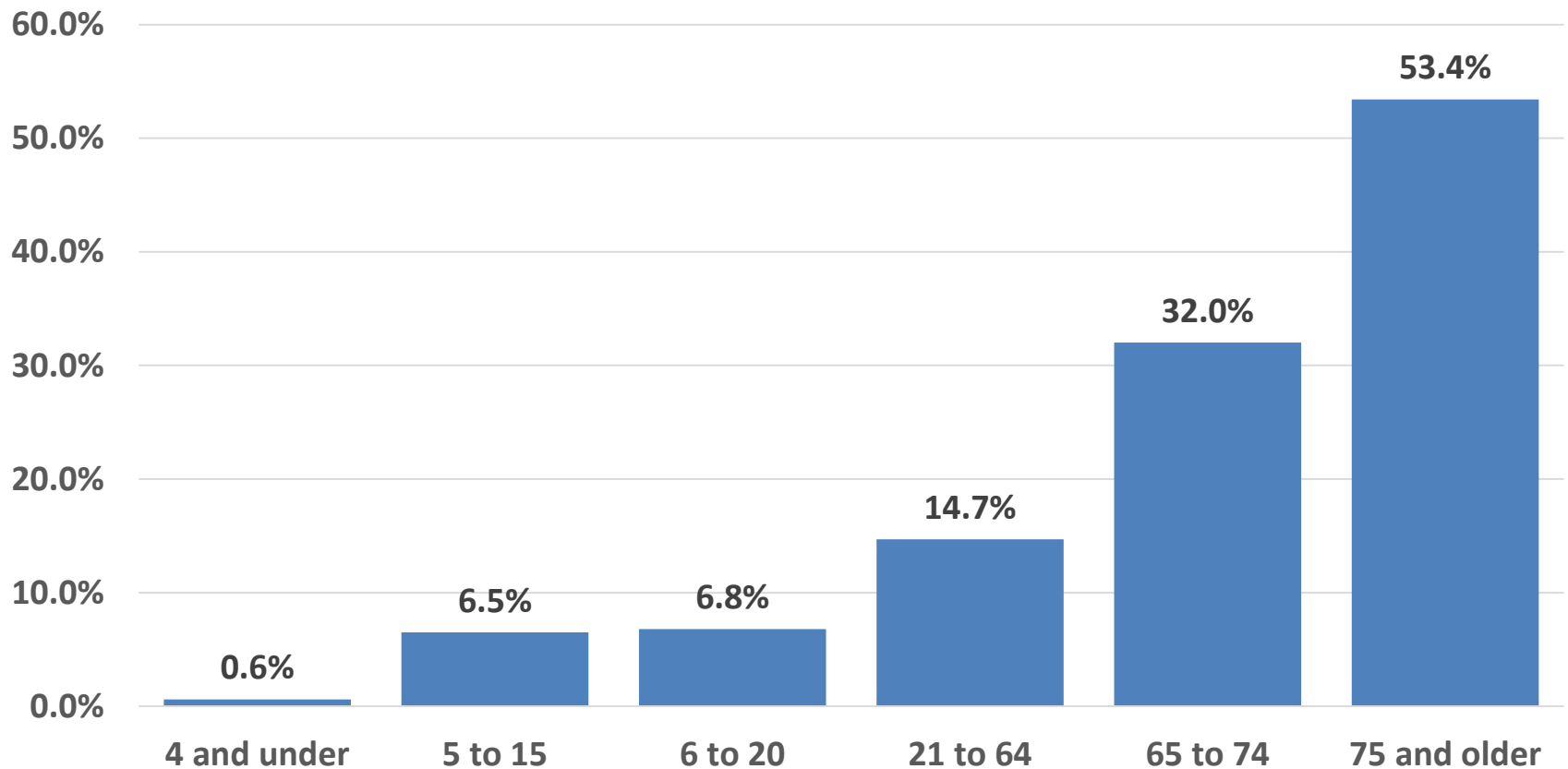
## American Disabilities



# Breaking things down by age

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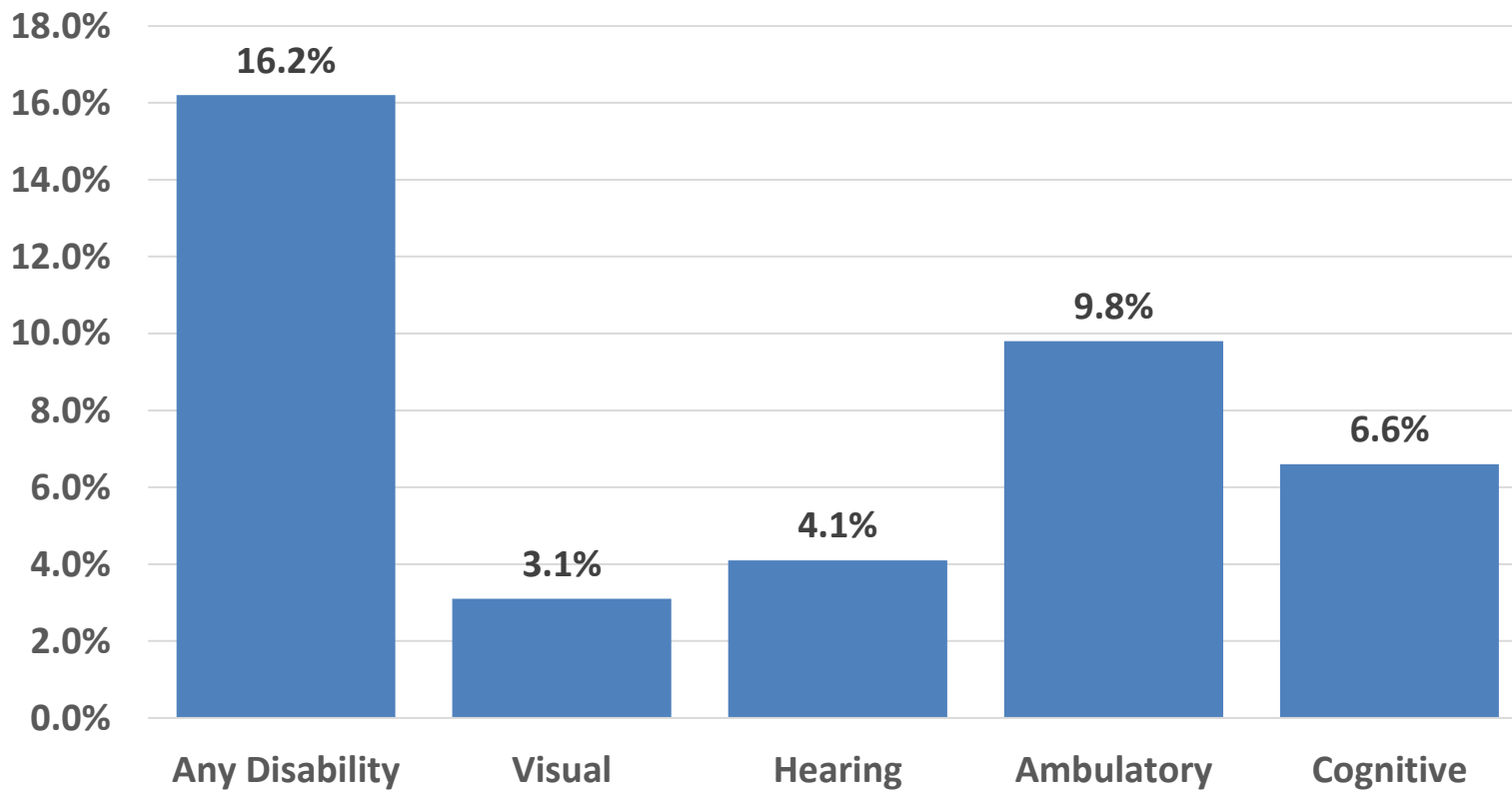
Alabama Disability Prevalence by Age (%)



# By Disability

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Alabama Disability Prevalence Rates: All Ages (%)



# Understanding the population

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- Disabilities are higher among African-Americans and Native Americans
- Disabled workers earn \$4000 less working full time
- \$20,000 difference in household income
- Twice the poverty rate



# Some legislative background

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- Architectural Barriers Act of 1968  
Access to federal buildings
- Rehabilitation Act of 1973  
Prohibits discrimination on the basis of disability
- Section 504 of the Rehabilitation Act of 1973  
Prohibits discrimination in programs receiving federal financial assistance
- Section 508 of the Rehabilitation Act of 1973  
Electronic media standards

# ADA

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- Americans with Disabilities Act (1990)
- Protects civil rights
- Applies to all aspects of public life
- Public places of accommodation
- Geared toward brick-and-mortar world.
- Signed into law about the time the Web starts

# Changes to the ADA (1991)

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- Title II – State and local government accessibility
- Communication issues focus on telephone services and automated attendant services.

# 2010 Title II Rule Change

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- Moves ADA firmly into the virtual world
- State and local government website accessibility, regardless of federal funding
- Accessible sites are needed for citizens “to participate fully in civic life” (Title II: 2010 Guidance)
- Alternative services should be available the same hours as online services.

# Setting Standards

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- Section 508 Amendment to the Rehabilitation Act of 1973 (1998)
- Originally guidelines were U.S. specific
- January 2017 US Access Board adopts W3Cs Web Content Accessibility Guidelines 2.0 AA
- New content must meet WCAG 2.0 AA after January 2018.

# WCAG 2.0: POUR

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- **Perceivable** - Information and user interface components must be presentable to users in ways they can perceive.
- **Operable** - User interface components and navigation must be operable.
- **Understandable** - Information and the operation of user interface must be understandable.
- **Robust** - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

# Website accessibility?

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- How usable a site is for a user with a disability
- Tim Berners-Lee:  
“Access by everyone is an essential aspect.”
- We need to make content available for all our citizens
- Online accessibility, much like brick-and-mortar accessibility can help everyone
- **Think curb cuts**

# When your site isn't accessible

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- 82% of American Internet users have used online government services in the 12 months (2010)
- No or limited access to:
  - Voting information
  - Tax information
  - Government financial information
  - Human resources information
  - Emergency management information



# The Internet offers independence

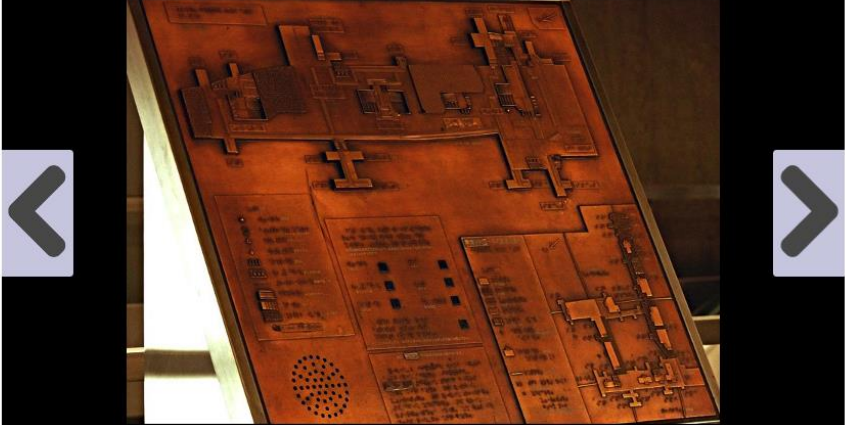
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- Computers read text
- Provide captioned video
- Allow people to fill out forms that they might not be able to do by hand
- Poor accessibility forces people to go to an office where they may encounter more barriers

# How do we read pages?

## Accessible University

[About](#) [Academics](#) [Admissions](#) [Visitors](#)



AU installs universally designed maps at multiple locations on campus.

**Welcome!**

Accessible University (AU) is a fictional university, and this is its fictional home page. This page is designed to demonstrate a variety of common web design problems that result in visitors with disabilities being unable to access the content or features of a web page. Although the heading at the top of this section of the page suggests that AU may be a welcoming institution, the inaccessible design of this page sends the opposite message.

### Apply Now!

(required fields are in blue)

Name:

Email:

City:

State/Province:

Zip/Postal Code:

Country:

**Desired major(s):**

Computer Science

Engineering

Economics


Physics

Psychology

Spanish

**Security Test**

Please enter the two words you see below, separated by a space

-72.9° 

# Using a web page

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## **When we consume a web page, we**

- skim pages
- rely on headings
- look for underlined and colored text to find links
- scan the navigation

**Blind users do essentially the same thing!**

# Low Vision and Colorblindness

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## Low Vision

- Screen Readers
- Screen magnification tools
- Need for resizable text
- Need for responsive design

## Color Blindness

- Color contrast issues

# Blindness

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- Screen Readers and Braille Devices
- Users who are blind **cannot use a mouse**
- Images must have **alternative text**:  

- **Page structure and linked text quality**
- Using **color** for meaning **doesn't work**



# Audio Description for Video

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The video clip with audio descriptions in the presentation was from the Netflix video series, Daredevil. Audio descriptions provide a narration of what is happening on the screen. To enable audio descriptions in Netflix on a computer, hover over the play bar and select the icon for closed captioning. Under the Audio settings, you should see an option for “English–Audio Description.” Other devices will work similarly. The video clip is not included in the PDF due to copyright restrictions.

# Low Vision and Color Blindness

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## Low Vision

- Need for resizable text
- Need for responsive design

## Color Blindness

- Color contrast issues

# Simulating a screen reader



## Filter Results

CATEGORY >>

[All Add-ons](#)

WORKS WITH >>

[Firefox 53.0](#)

[Mac OS X](#)

TAG >>

[All Tags](#)

*2 matching results*

## Search Results for "fangs"

Sort by: **Relevance** | [Most Users](#) | [Top Rated](#) | [Newest](#) | [More](#) ▾



### Fangs Screen Reader Emulator

**REQUIRES RESTART**

Fangs renders a text version of a web page similar to how a screen reader would read it. The ambition is to help developers understand how an assistive device would present a website and thereby increase chances of finding accessibility issues early.

★★★★★ (10) · 3,874 users



### Ecosia — The search engine that plants trees!

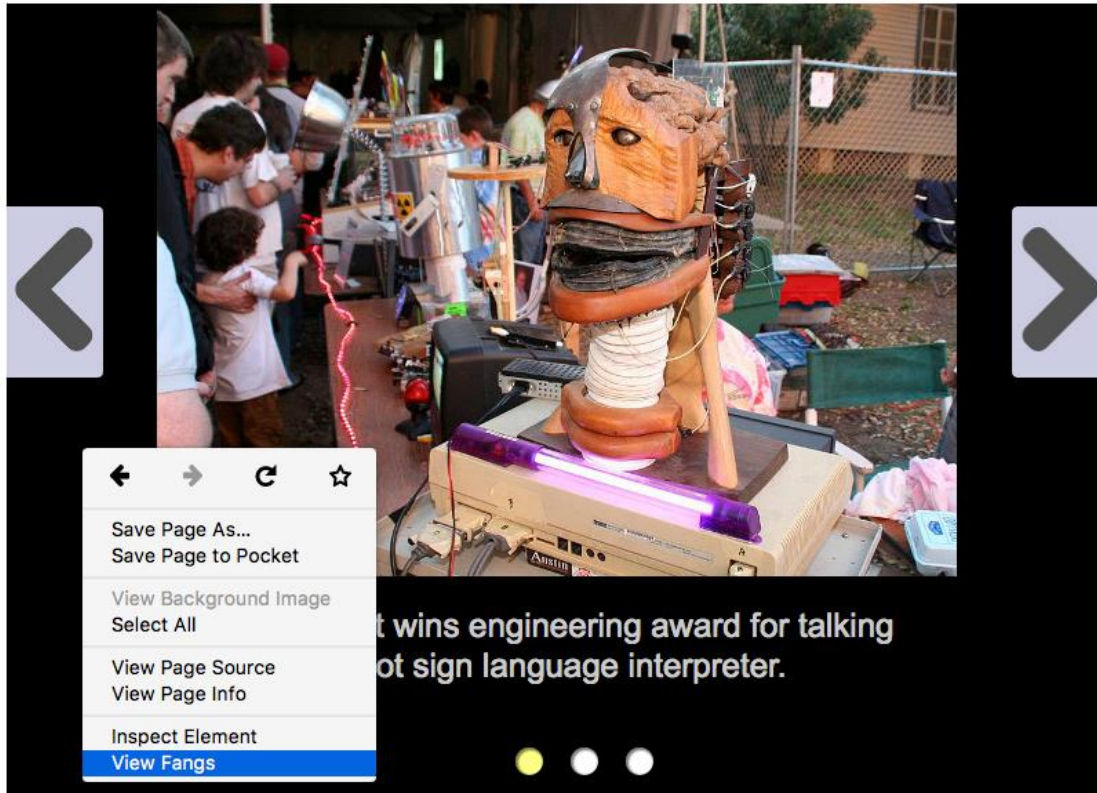
**FEATURED**

Ecosia is a search engine that donates 80% of its surplus income to planting trees. By searching with Ecosia you can help the environment for free. This extension adds [Ecosia.org](#) as the default search engine to your Firefox



# Right-Click to Activate

- About
- Academics
- Admissions
- Visitors



## Apply Now!

(required fields are in blue)

Name:

Email:

City:

State/Province:

Zip/Postal Code:

Country:

Desired major(s):

- Computer Science
- Engineering
- Economics
- Physics
- Psychology
- Spanish

Welcome!

# Screen reader output

chrome://fangs - Fangs: Accessible University Demo Site - Inaccessible Version (http://www.washington.edu/accesscomputing/AU/before.html)

Fangs output for: Accessible University Demo Site - Inaccessible Version

Reload Preferences Help and tutorial ?

Screen reader output Headings list Links list


Screen reader output

Page has twenty-eight links Accessible University Demo Site dash Inaccessible Version dash Internet Explorer List of four items bullet This page link About List of four items List end bullet This page link Academics List of four items List end bullet This page link Admissions List of four items List end bullet This page link Visitors List of three items List end List end Link Graphic slash slideone .jpg AU student wins engineering award for talking robot sign language interpreter. List of three items bullet bullet bullet List end Welcome! Accessible University left paren AU right paren is a fictional university, and this is its fictional home page. This page is designed to demonstrate a variety of common web design problems that result in visitors with disabilities being unable to access the content or features of a web page. Although the heading at the top of this section of the page suggests that AU may be a welcoming institution, the inaccessible design of this page sends the opposite message. Graphic horizontal line graphic Bienvenido! Accesible Universidad left paren UA right paren es una universidad ficticia, y esta es su página de ficción. Esta página está diseñada para demostrar una variedad de común de diseño web que se traducen en problemas de los visitantes con discapacidad no poder acceder al contenido o las características de una página web. Aunque el título en la parte superior de esta sección de la página sugiere que AU puede ser una institución de bienvenida, el diseño inaccesible de esta página envía el mensaje opuesto. Graphic horizontal line graphic Can you spot the barriers? There are at least eighteen accessibility issues on this page. To see a list of all known issues, Link click here . To see a more accessible version of this same page, Link click here . For a cheat sheet of accessibility issues, Link click here . Graphic horizontal line graphic AU Enrollment Trends Table with three columns and five rows two thousand seven dash eight two thousand eight dash nine CS Eng Eco Phy Psy Spa CS Eng Eco Phy Psy Spa Total eighty-four one hundred twenty-six forty-three thirty-two one hundred twelve fifty-nine eighty-two one hundred forty forty-five thirty-four one hundred one sixty-four percent Male eighty-nine

# Links List & Heading List

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chrome://fangs - Fangs: Accessible University Demo Site - Inaccessible Version (http://www.washington.edu)



Fangs output for: Accessible University Demo Site - Inaccessible Version

Reload Preferences

Screen reader output Headings list **Links list**

**Links list**

- About
- Academics
- Admissions
- Visitors
- AU student wins engineering award for talking robot sign language interpreter.  
click here  
click here  
click here
- University of Washington
- Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

# Deafness/Hard of Hearing

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## Assistive Technology

- American Sign Language Interpreter
- Transcripts
- Captions
- Captions help a wide range of people
- 80% of caption users have **NO** hearing issues (2006)

# Mobility Issues

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## Assistive Technology

- Sip-and-puff controllers
- Mouth and head sticks
- Eye tracking
- Voice recognition

**Most devices interact with or emulate a keyboard**

# Cognition Disabilities

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## Assistive Devices

- Screen Readers
- Turning off images to limit distractions

## Making it Better

- Well structured content
- Consistent navigation
- Progress bars and error detection
- Short forms
- Use plain languages & omit unneeded information
- Stop animations and avoid distracting backgrounds

# Seizure Disorders

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- Avoid flickering images
- Be careful about optical illusions, particularly those in which lines appear to move

# Making your site accessible

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**It's not just enough to say, "Make the site accessible."**

1. Set clear policies and guidelines
2. Set clear penalties
3. Anyone adding content needs training and probably a checklist of critical items



**Remember:  
It just takes one mistake**

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# Fixing your existing site

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- Accessibility checks are like proofreading
- You still need to manually check things
- (Automated tools are still pretty cool though)

Accessibility, is the **write** thing to do!

# WAVE

**WAVE**  
web accessibility evaluation tool

http://www.washington.edu/accesscomp

Styles No Styles Contrast

Details

Filter: Full

**Errors (21)**

- 7 X Missing alternative text
- 13 X Missing form label
- 1 X Document language missing

**Alerts (7)**

- 3 X Suspicious alternative text
- 1 X No heading structure
- 3 X Suspicious link text

**Features (1)**

- 1 X Linked image with alternative text

**Structural Elements (8)**

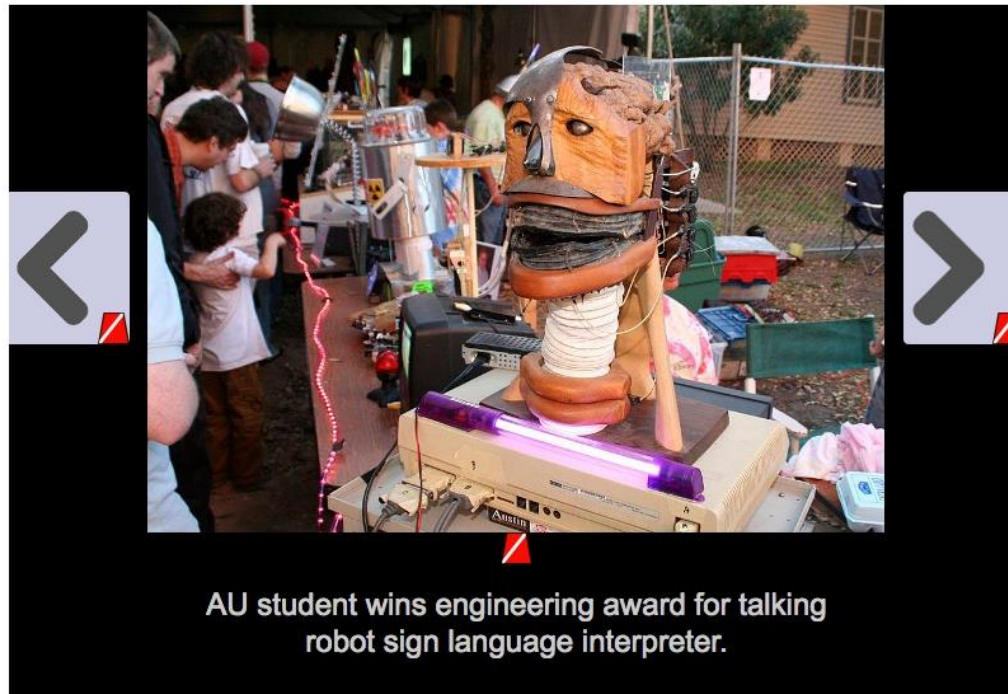
- 1 X Layout table
- 1 X Ordered list

The following apply to the entire page:



## Accessible University

About Academics Admissions Visitors



AU student wins engineering award for talking robot sign language interpreter.

### Apply Now!

(required fields are in blue)

Name:

Email:

City:

State/Province:

Zip/Postal Code:

Country:

# AChecker.ca

[Login](#) [Register](#)

**Web Accessibility Checker**

ACHECKER®

Web Accessibility Checker

**Check Accessibility By:**

**Web Page URL** **HTML File Upload** **Paste HTML Markup**

Address:

**Options**

Enable HTML Validator     Enable CSS Validator     Show Source

**Guidelines to Check Against**


BITV 1.0 (Level 2)     Section 508     Stanca Act

WCAG 1.0 (Level A)     WCAG 1.0 (Level AA)     WCAG 1.0 (Level AAA)

WCAG 2.0 (Level A)     WCAG 2.0 (Level AA)     WCAG 2.0 (Level AAA)

**Report Format**

View by Guideline     View by Line Number



**Sell SEO Under your Name**

Our Specialised Dashboard Tools and Services help you Beat even the Highest-Ra...

**Welcome to AChecker.** This tool checks single HTML pages for conformance with accessibility standards to ensure the content can be accessed by everyone. See the Handbook link to the upper right for more about the Web Accessibility Checker.

# AChecker Output

Accessibility Review (Guidelines: [WCAG 2.0 \(Level AA\)](#))

Export Format: | PDF | Report to Export: | All | [Get File](#)

**Known Problems (63)** **Likely Problems (3)** **Potential Problems (137)** **HTML Validation** **CSS Validation**

## 1.1 Text Alternatives: Provide text alternatives for any non-text content

### Success Criteria 1.1.1 Non-text Content (A)

#### Check 1: [img element missing alt attribute.](#)

**Repair:** Add an alt attribute to your img element.

✘ **Line 25, Column 7:**

```

```



✘ **Line 68, Column 15:**

```

```



✘ **Line 76, Column 15:**

```

```



✘ **Line 84, Column 15:**

# There are also site-wide Tools

## Example: SortSite by PowerMapper

Site quality report for <https://www.washington.edu/accesscomputing/AU/v2/before.html> - SortSite

file:///private/var/folders/b2/r1rr7d12j976s\_fp4jqyb6r0000gs/T/SortSite61138/PowerMapper/Map3/map.htm

★ Summary   Issues   Pages   <https://www.washington.edu/accesscomputing/AU/v2/before.html>

Dashboard   Site Map   What was Tested

Category	Issues	Pages	Benchmark
Overall Quality		4 pages with quality issues	⊗ 15% have issues, worse than average
<a href="#">Errors</a>		3 pages with broken links or other errors	⊙ 12% have issues, better than average
<a href="#">Accessibility</a>		3 pages with accessibility problems	⊙ 12% have issues, better than average
<a href="#">Compatibility</a>		3 pages with browser specific issues	⊗ 12% have issues, worse than average
<a href="#">Privacy</a>		3 pages with privacy issues	⊗ 12% have issues, worse than average
<a href="#">Search</a>		4 pages with search engine issues	⊗ 15% have issues, worse than average
<a href="#">Standards</a>		2 pages have W3C standards issues	⊙ 8% have issues, better than average
<a href="#">Usability</a>		3 pages with usability issues	⊙ 12% have issues, better than average
Totals		27 pages and files checked	

Start Check

- Entire Site
- Current Folder
- Current Page
- Page and Links

Scan Options

Save Report

# Make a plan

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## Evaluating the site

- Start with automated analysis
- Identify and fix the easiest problems
- Evaluate specific tasks for problems
- Involve people in the testing process
- Be careful about site templates
- Include accessibility in your website style guide

# Mistakes are not always obvious

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# See what I mean?

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# Major issues to watch for

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- Images
- Page structure
- Easy to understand links
- PDFs - Don't use scanned PDFs
- Move PDF forms to online submission
- When needed offer an HTML and PDF version of a document

# What if you get caught?

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- Section 504 violations handled through a lawsuit
- Section 508 violations handled by the DOJ
- Vision Technology Solutions estimates around \$750,000 over four years including legal fees, required consultants, and required hires
- Does not include the staff time for remediation
- It shouldn't require a law to make it accessible
- It's the right thing to do

# Resources and products mentioned

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- ADA Information Line
  - 800-514-0301 (voice)
  - 800-5124-0383 (TTY)
- [ADA.gov](http://ADA.gov)
- [Section508.gov](http://Section508.gov)
- [U.S. Access Board](http://U.S. Access Board)
- [W3C's Web Accessibility Initiative](http://W3C's Web Accessibility Initiative)

# Resources (continued)

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- [WebAIM](#)
- [AChecker](#)
- [Alabama Interactive](#)
- [PowerMapper/SortSite](#)
- You can listen to a screen reader version of this PDF in Acrobat by using the “Read out Loud” option in the View menu. This option may vary by Acrobat version and operating system
- Inclusion of companies and products on this list is not an endorsement of services.

# Questions

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