Georgia Tech Center for Inclusive Design and Innovation

The Basics of WAI-ARIA

Presenters:

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Tips for Today's Session

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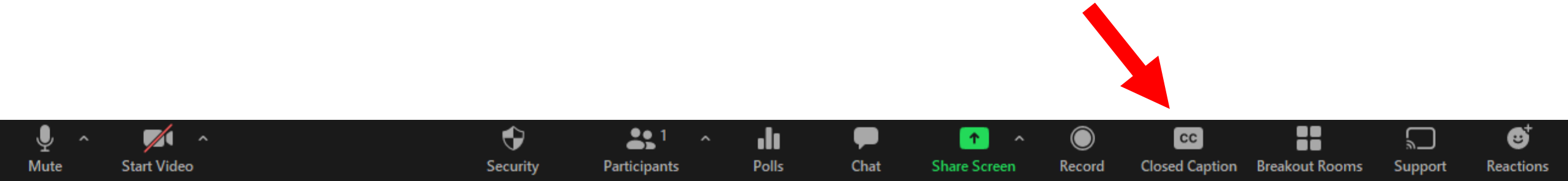

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- Accessibility Consulting – ICT and UX
- Braille Services
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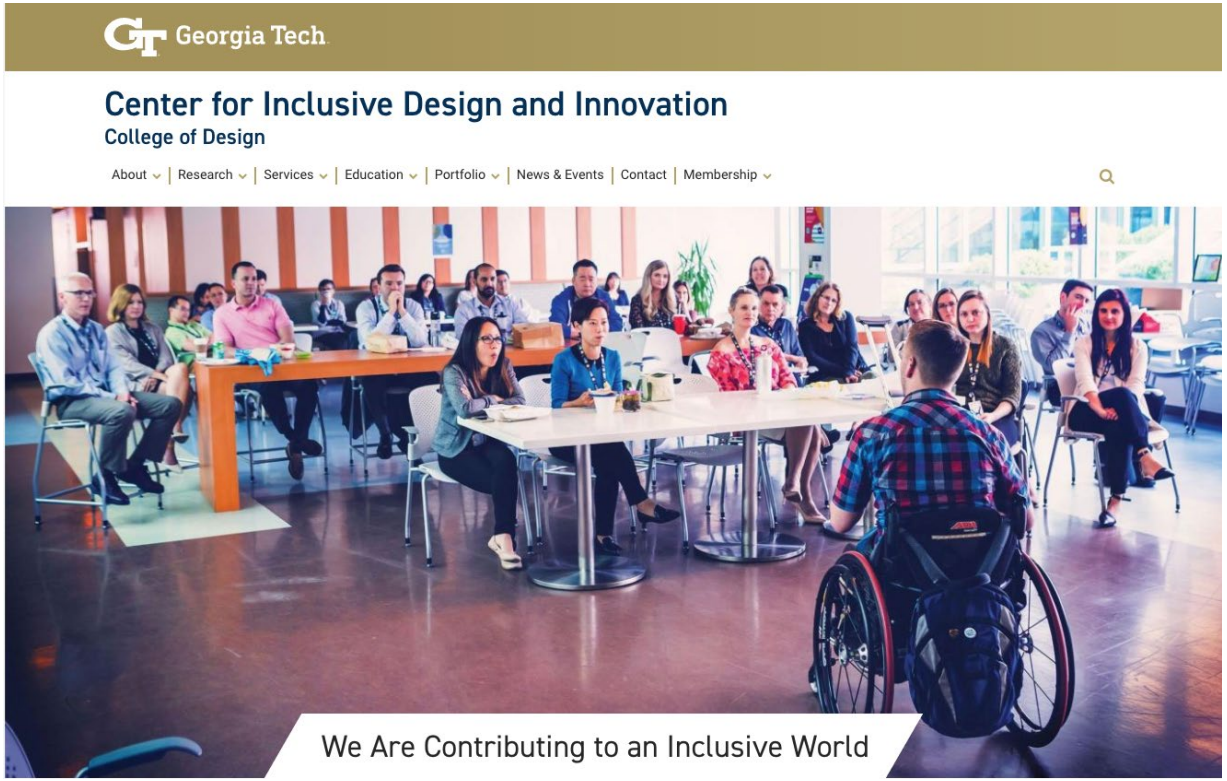
- Professional E-Text Producers
- Certified Assistive Technology Team



John Toles

Georgia Tech Center for Inclusive Design and Innovation

John Toles, Digital Accessibility Specialist, CIDI

John Toles has been employed with Center for Inclusive Design and Innovation (CIDI) since 2016. He provides technical assistance and services through the CIDI Customer Support team to Higher Ed institutions across the country. He also develops and maintains several of CIDI internal and public-facing applications and works closely with the ICT Accessibility team to provide web accessibility evaluations, technical assistance and training.

Basics of ARIA

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What is ARIA?

From The W3C (World Wide Web Consortium):

Web Accessibility Initiative's **A**ccessible **R**ich **I**nternet **A**pplications (**ARIA**) Suite, defines a way to make Web content and Web applications more accessible to people with disabilities. It especially helps with dynamic content and advanced user interface controls developed with Ajax, HTML, JavaScript, and related technologies.*

*w3.org/WAI/standards-guidelines/aria/

WAI-ARIA and ARIA are synonymous, but it's most often referred to simply as ARIA.

ARIA 1.1 Specification

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WAI-ARIA 1.1 Specifications

(https://www.w3.org/TR/wai-aria-1.1)

The ARIA specification consists of roles, states and properties.

- Roles provide information about the purpose of an element (“menu”, “treeitem”, “slider”, and “progressmeter”)
- States and properties indicate the condition of an element and whether or not it has changed ("checked" or "haspopup")

Put simply, roles describe what a component is or does. While state and properties describe how it can be interacted with.

Simple Search Example

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Roles Simple search region example:


```
<form role="search"> <!-- The form tag is being overridden with role="search" -->

     <label for="searchField"> Search

          <input id="searchField" name="search_field" type="search">

     </label>

     <button onclick="searchFunciton()">Submit</button>

</form>
```

*Use the search landmark instead of the form landmark when the form is used for search functionality.
*w3.org/TR/wai-aria-practices/#aria_lh_search

Simple Navigation Example

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State and properties Simple navigation menu example:


```
<div role="navigation">
    <ul>
        <li><a href="#">Home</a></li>
        <li><a href="#">Contact</a>
        <!--the <a> tag on holds the aria describing the popup menu-->
        <li><a aria-haspopup="true" aria-expanded="true" href="#">Blog</a>
        <ul role="menu" aria-label="Blog menu">
            <li role="none"> <!--notice roles are used to override semantic html-->
                <a role="menuitem" href="/blog-Jan2020.html“>January 2020</a></li>
            <li role="none">
                <a role="menuitem" href="/blog-Feb2020.html“ February 2020</a></li>
        </ul>
     </ul>
</div>
```

ARIA Roles Demonstration

What does ARIA do?

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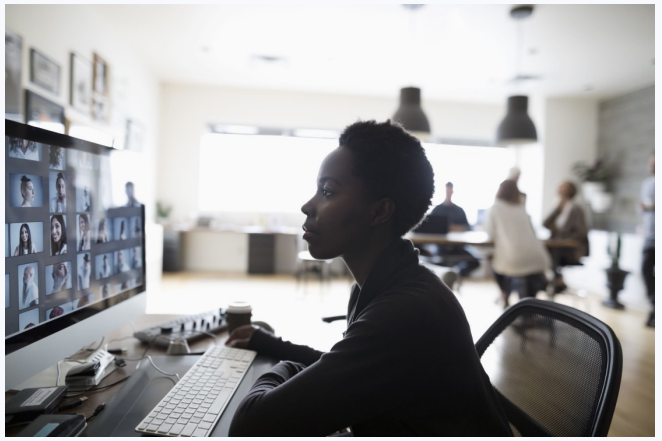
What does ARIA do?

WAI-ARIA addresses accessibility challenges by defining how information about component functionality to assistive technology. With WAI-ARIA, an advanced Web application can be made accessible and usable to people with disabilities.*

*w3.org/WAI/standards-guidelines/aria/



...and not do?

ARIA is not a coding method for making things accessible. It is a supplement to HTML. Developers use it to provide information about the purpose and function of web components not to provide additional features.

ARIA doesn't do anything on its own. It only tells assistive technology the intention behind a component; which it then conveys to the user.

For ARIA to function properly it must be applied to components coded to meet HTML specification.

Applying ARIA to bad code only makes things worse for the user.

When to use ARIA

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When should you use ARIA?

ARIA is useful for identifying custom components and remediating older code.

Before adding ARIA, however, developers should consider whether updating code would benefit a project before attempting to remediating old code. Developers should also test thoroughly before changing code to identify areas where it lacks accessibility and add ARIA to enhance those areas.

... and not use it?

In most cases developers do not need to add ARIA to their code. Modern screen readers and browsers work well together, and most tags are interpreted correctly. Developers should rely on semantic HTML wherever possible and implement custom components only when necessary.

Principles of ARIA

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The Principles of ARIA?

The two essential principles of ARIA:

1. A role is a promise -

   When an ARIA role is used to identify a component, that component will behave the same as an equivalent HTML component.

2. ARIA can both block and enhance -

   When ARIA is applied correctly it can provide essential information about a component for assistive technology but applied incorrectly it can also cloak information about a component.

Unofficial third Principle:

No ARIA is better than Bad ARIA!

Favor Semantic Markup

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How should you use ARIA?

Semantic markup is better for accessibility than including extensive ARIA. In most cases screen readers interpret HTML and identify components correctly.

The W3C maintains a catalog of tutorials for explaining how to implement ARIA in common HTML components.

WAI-ARIA Authoring Practices (https://www.w3.org/TR/wai-aria-practices-1.1/)

Bad ARIA Example

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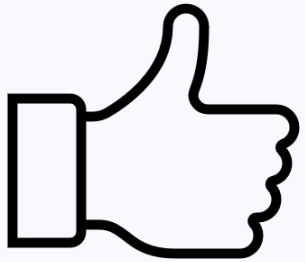
Bad ARIA example:

```
<ul role="navigation">
  <li><a href="#">nav link 1</a></li>
  <li><a href="#">nav link 2</a></li>
</ul>
```

In implementing this component using a list but placing the role="navigation" attribute on the <ul> tag, the component will be identified as a navigation region not as a list. The ARIA is overriding the semantic HTML and the user is losing information.

Corrected example:

```
<nav> <!--notice this example has no ARIA-->
  <ul>
     <li><a href="#">nav link 1</a></li>
     <li><a href="#">nav link 2</a></li>
  </ul>
</nav>
```



ARIA Roles

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ARIA Role and HTML Equivalents:

ARIA	HTML
role="navigation"	<nav>
role="main"	<main>
role="banner"	<header>
role="contentinfo"	<footer>
role="complementary"	<aside>
role="region"	<section>*
role="form"	<form>
role="search"	None**

*webpages often contain multiple <section> tags. An aria-label attribute should be applied to identify individual secitons
**there is no HTML tag equivalent to role="search". A search bar is a good example of a custom component that can be enhanced with ARIA.

Takeaways

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Final Takeaways:

1. ARIA can help you inform users about role, states and properties of your web components.
2. ARIA cannot make an inaccessible component accessible.
3. No ARIA is better than bad ARIA.

Resources:

1. W3C Web Accessibility Initiative (https://www.w3.org/WAI/)
2. WAI-ARIA Specification (https://www.w3.org/TR/wai-aria-1.1)
3. WAI-ARIA Authoring Practices (https://www.w3.org/TR/wai-aria-practices-1.1/)

Questions?