

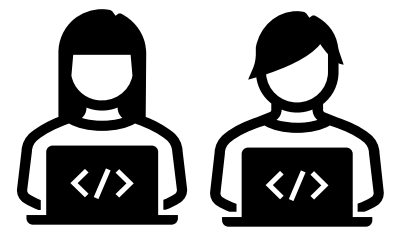
Tab to Autocomplete: The Effects of AI Coding Assistants on Web Accessibility

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How can widely-adopted AI Coding Assistants (e.g., GitHub Copilot) help novice developers produce code that render accessible UIs?

Need-finding Study



Developers (N=16) prompt the AI assistant.

For Web Component Modification Tasks (with Implicit Accessibility Considerations)



The AI assistant (GitHub Copilot) generates a text explanation and associated UI code

Form Element (Form labeling)

Enhance Image for SEO (Adding alt-text)

Button Visibility (Color contrast)

```
Add text box on grey patch saying enter email ID.

Add the following HTML and CSS to create a text box on a grey patch with the placeholder "Enter email ID":

<div class="email-box">
  <input type="email" placeholder="enter email ID">
</div>

.email-box {
  background-color: #f0f0ff;
  padding: 20px;
  position: fixed;
  width: 100%;
}
```

```
Refactor code adding image descriptions for SEO.

To optimize images for search engines, you can add a descriptive alt text. Here is the refactored code:

alt="" // add alt-text here
return (
  <figure className={className}>
    <Image alt={alt} />
    ...
  </figure>
);
```

```
Please help me beautify the submit button.

Add the following styles to your _base.scss file to beautify the submit button with a hover effect.

button[type='submit'] {
  background-color: #4CAF50;
  color: #fff;
  transition: transform 0.3s
  ...
  &:hover {
    background-color: #4CAF49;
    transform: scale(1.05);
  }
}
```

The developer failed to explicitly prompt for accessibility considerations.

The AI assistant produced incomplete code with placeholder attributes.

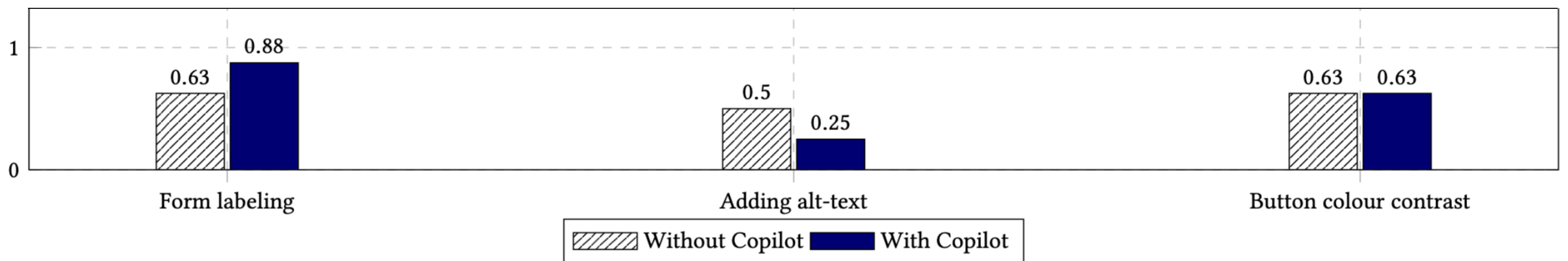
The button originally had poor colour contrast in the default state.

The AI assistant did not consider accessibility requirements in UI code.

The developer uncritically accepted incomplete code suggestions.

The AI assistant perpetuated existing errors in newly added effects.

Manual Accessibility Evaluation Scores by Tasks and Copilot Usage: 0 is Unacceptable, 1 is Needs Improvement and 2 is Good.



New! CodeA11y

"Integrates System Prompts for Accessibility Awareness"

"Encourages Developers to Complete AI-Generated Code"

"Supports Identification of Existing Accessibility Issues"



Manual Accessibility Evaluation with Novice Developers (N=20)

