Screen Reader Overview Transcript: Feb. 15, 2022

>> Good afternoon, everyone, this is Johan Rempel from C.I.D. I hope you're having a good afternoon. I was telling Ali just a couple of minutes ago that our captionA just not Heather, the woman who usually captions for us, but another individual. Her father had a serious fall, and it looks like she's she's currently in the hospital. I just found that out less than an hour ago. But we will continue to provide automated captions through the Zoom platform. So just wanted to give you all a heads up on that. So give me a moment while I get this set up here. So this is going to be a bit of an atypical presentation in that I'm going to be providing a demonstration of screen reading technology. So I'm going to need to share my screen here. Give me one moment while I do this.

And you don't need to see my email. OK. Screen reader, OK, so can I just get a verification from someone? Ali, maybe if you can let me know, are you seeing my full screen now?

>> Yeah. Well, we're just seeing the PowerPoint presentations. So, yeah, it's good.

>> Yeah. Perfect. OK, great. Thank you so much. So today's presentation is on screen reader as a screen reader overview, and I encourage you to ask questions along the way or post in the chat, and I can certainly address them

that way. If you want to unmute yourself at any point and ask questions, please feel free to do so. I really would prefer that this be interactive. Despite fatigue, some of you with the the auditory overload, especially if you're not used to a screen reader. So just wanted to, you wanted to give you a heads up on that.

So as I mentioned, our caps nest is not available today, but you still have the choice of accessing the closed captions through the Zoom platform, it's one of the reasons why we actually chose Zoom is because its high level of accessibility, so it's not ideal, but it'll still caption the the the audio. So to do that, you click on the CC at the bottom right on the toolbar, or you can also tab to it if your keyboard user and then you have the choice to use the built in captions as as you already have heard with a little bit of an overview of the idea. If you've attended any of the previous presentations were housed at Georgia Tech under the College of Design School of Design, and we provide a number of different services specific to people with individuals with disabilities and accessibility training, technical assistance and guidance.

So the goals for today's presentation are pretty straightforward, going to be providing a description of overlapping needs of people with disabilities. It can very often be very overwhelming to especially if you're new to accessibility on making accommodations for individuals and their various disabilities, the various technology that is used. So hopefully, I'll be answering some questions along those lines. An overview of common screen magnification applications So a lot of the screen magnification programs also provide some limited speech access as well. And I'm also going to be providing an overview of the common screen readers used and then provide a real time demonstration of assistive technology. Fingers crossed that everything works well today with the technology. I did some testing with Rihanna, my colleague, a little while ago and it seemed to work fine just before we got started. So fingers crossed and then sharing of resources related to assistive technology as well. Right

now, testing for accessibility, a hybrid of automated and manual testing. You've already been given, especially in the last presentation that John and Rihanna provided, is several accessibility testing tools. So John and Rihanna and myself, we we use various tools, but we also use assistive technology for manual testing. And it's I can't emphasize that enough that the tools themselves are somewhere between 20 to 40 percent accurate with what they pick up. But the manual testing really is required. And if you know of individuals who are frequent assistive technology users themselves in their own personal and professional life, that's even better. But certainly these skills can be taught, and I'm not suggesting that it's necessarily really easy to use a screen reader or to learn it. There is a pretty steep learning curve in some aspects, but hopefully today's presentation is going to simplify that.

So how people with disabilities use the Web, so it breaks down into some broad categories, and you may have seen these categories before, but I'm going to link this specifically to accessing digital content so visual. There's really three broad categories under visual. One of them is color blindness. So there's a and for some reason, it's higher percentages among men than women. But color blindness is is very frequent among society. And you know, that's where colored contrast can very often make a huge difference in a little while. I'm going to be presenting on a document where it uses black and blue. And until I look really closely, I actually couldn't distinguish it myself between the two. So. So just keep that in mind. And then another visual, we have individuals with low vision and really at some point in our lives, if we live long enough, we are going to have low vision compromised vision, especially between the ages of 40 to 50. Most people experience what's called presbyopia, where the the muscles around the lens and the lens itself loses its elasticity. And that's why you have individuals, you know, somewhere between 40 and 50 needing to accommodate their optimal focal point by pushing things further and further away and then under visual individuals who have enough vision loss where they may have to require a screen reader in order to access content auditory. So we think of when we think of auditory, we think of individuals who are deaf and hard of hearing who would benefit from captioning, for instance. But keep in mind, someone who is dead, who is deaf and blind would really benefit from captions because they would be able to access that through braille, for instance. So a refresher about braille display would allow transcripts to be provided for someone who's deaf and blind and translating that into refresh will braille with with the correct assistive technology. So mobility is huge this this translates directly to what we're going to talk about today regarding screen. Oh, did did someone call me? Is someone? Is someone notifying me of something or is just someone's like open? Sounds like someone's that might, might be open. You think of Steve Hawking? I don't know if it's

>> not what I'd do. I did ask her if she had not. She had said she hadn't heard back.

>> OK, give me give gimme one more. Actually, the last thing she said was, I mean. There we go, I had to mute. I admit that. Sorry. So mobility Steve Hawking was it was a great example of how he controlled the computer with because of because of his lack of mobility. He controlled the computer with a muscle in his cheek, and that ride's right on top of the keyboard access. So whether it's a switch device like the one that Steve Hawking used or any sort of peripheral devices attached via Bluetooth or Wi-Fi, the keyboard access is essential not only to screen reader users, but for anyone who may not use the traditional mouse. The way that the computer was actually designed for our our digital access really was not designed for individuals who do not use the graphic user interface. It is a very much of a visual and mechanical process with with the use of a mouse with a lot of features and then the cognitive and neural neurological. How this connects to screen readers is if you think of of individuals who may need some additional time to access content to absorb content, you're going to hear. When I actually demonstrate the screen reader, there is a level of auditory and cognitive fatigue that you've already heard of with Valerie's presentation. That is very real. And for anybody, if you can shorten text, make it more succinct, make it more specific. It's going to benefit everyone, not just screen reader users, but individuals with cognitive and neurological disabilities as well. And then with speech, it's interesting. A colleague and I, we were on on a call with a major manufacturer this morning and they were discussing the the access of one of their one of their solutions being speech. We all know that with the Amazon Echo and other devices in our homes. But that's a very popular means. But it doesn't necessarily translate into access for everybody, especially if someone has a heavy accent or English as a second language or they have difficulties articulating it. Really, it really impacts everybody in those in those arenas. And then also, if the speech doesn't work as far as speech input again, you need a second way of accessing that. Very often that translates into a lot of the same technologies that is beneficial for screen reader users as well. And again, feel free to post any questions or unmute yourself if you have a comment. So I wanted to highlight the difference between a full blown screen reader like Jaws or NVDA, which I'm going to be getting into and simply text to speech. So we're all familiar with text to speech. You know, it's a it's a pared down version, not not necessarily as complex or as sophisticated as a screen reader for someone who's blind, but very often text to speech is operates in more of a supportive role. And that's what a program like Carol Reed does. This provides visual highlighting. You see the yellow highlighted here. A lot of people make the mistake of thinking this is actually beneficial for someone who's blind wedding. In fact, this is this would not be. For example, just above the yellow highlight is a toolbar that toolbar isn't necessarily accessible with for a screen reader user. Not all of those aspects are going to be labeled correctly, and that's not really the focus of this anyways.

So they the quality of the speech output, it continues to improve, it's sounding more and more humanlike. And then there's also the aspect of keyboard echo. So once again, when you introduce two modalities, the visual and the auditory that can really increase the learning capability. And then this particular software program also saves to audio as well.

And then here's another popular text to speech program, read and write gold. So this one also reads word PDF files. If if they're accessible, if it's in an inaccessible PDF, it's not going to be reading it. And then web pages to a limited degree. Text highlighting again allows for creation of audio version like clearer read and then provides customizable toolbars. But once again, this isn't an application that necessarily would be good for someone with low vision or someone who is blind.

So screen magnification, I think probably most of you know, I have a visual impairment myself, it's one of the reasons why I never use my camera. All you'd see is my forehead. I wouldn't. It wouldn't expose you to that. So I use I've used all of these screen magnification applications before. Some of them are a bit of a hug for memory, depending on how fast your computer is. And there is definitely a level of visual fatigue as well with these, but a lot of these also have some limited speech capability as well. So magic and zoom tax, they kind of fall under the same category. They're both screen magnification applications with the option of screen reading capability. Once again, if someone who's blind is needing a screen reader, it wouldn't suffice, especially in a work or academic environment. Windows Magnifier is this is one that I use probably 20 to 30 times a day. It's not as powerful as magic or Zoom text, but it's built in. If you all are using either the Windows based operating system or the Mac, you have a built in magnifier at your disposal. What I like about Windows Magnifier is it's it's light on system resources, very easy to load and unload. There's a level of pixelation that takes place after about three to four times magnification, but it still does a pretty decent job. And then, like I mentioned on the Mac, you have the Mac Zoom Magnifier as well, which again does a fairly decent job. It's built in low on system resources, are fairly easy to use and then honorable mentions here for the iOS and Android platforms. They also have some pretty robust built in screen Magnifier Zoom on the iOS and Magnifier. It's simply called Magnifier on the Android.

So commonly used screen readers, the most commonly used screen reader and the most expensive is jaws that stands for job access with speech. And you know it, they it's just like any other product that's that has it sort of the mainstream of us individuals with disabilities, they have increased the price. It is a third party application that only works in the Windows environment, and there's a lot of individual scripts written for it as well, with third party applications, software programs that that may not work out of the box with a program like Jaws.

And it used to be that the only version you could buy was a full blown version, which the professional version range from, like twelve hundred and fourteen hundred dollars. Now they have a student version that costs ninety five dollars a year and which which makes it just so much more reachable. Unfortunately, people with disabilities disproportionately have a higher unemployment rate, so it has been quite unreachable for a long time for individuals who just couldn't simply afford it. And another screen reader that I I often use for testing, I use both jaws and this next one. Nvidia stands for non-visual desktop access. It is free. I have the resource that that I'll share with you all at the end. Free to download. They do do ask for a donation, but it's certainly not necessary in order to access the the the software itself. Voiceover for the Mac there's some confusion here. Very often I use voiceover pretty much daily on my iPhone and it's it's very robust. It's very effective on the Mac because there's it's gets quite a bit more complex when you move outside of the the native app ecosystem. Voiceover for the Mac doesn't necessarily play extremely well with third party applications. Even the the office suite for the Mac can can sometimes be more problematic for for voiceover. So if you hear have a lot of accolades to how well the voiceover works on iOS devices like

iPhones and iPads, it doesn't necessarily translate to the Mac, especially with with full blown third third party applications.

It's worth mentioning here with Dragon actually speaking, this has been around for a long, long time. Again, this is for. It was originally designed for executives, people who may not necessarily wanted to type or had especially good typing skills. They could dictate.

Yeah, this has been very common in the in the legal circles, in the medical circles when individuals need to jot down quick notes. It is possible to run this with a program like yours, so to have them both running where you have speech input and speech output. But again, it's it is a real technological challenge to make those to work seamlessly in the moment you update update to the operating system on a program. It can become problematic as well. But keep in mind, a program like this also runs on the computer interface. So even though you're speaking commands into it that programmatic availability that the mouse may not need with the mouse, you simply click and point that that programmatic

availability also translates into screen reader users effectiveness at accessing content as well.

So document accessibility, live demonstration. I'm going to keep my fingers crossed here and hope hopefully this works. I'm just going to check the chat here.

Let me just read this here. Question about the text to speech software. Does it just read from top to bottom in word, for example? Or does reading order of a file need to be checked? The answer is yes, it does. The reading order absolutely does need to be checked, and you are correct. It does. Also read from top to bottom, and I'm going to demonstrate that now in a document, it's less complex, but on the web based content, reading order is absolutely essential. And then are the two versions of yours the same? Essentially, yes. When you say two versions, there's actually many different versions the the $95 student version versus the the full version. Yes, they they are. They have merged closer and closer. I would say in the past they were not as close, but I was speaking to the company just yesterday, and they're making a concerted effort to make this more affordable. So for all intents and purposes, especially for testing purposes, if you want to save yourself and your company, some money, your agency, some money, I would I would really push hard for the student version. Yeah, the expensive one and the 95 one dollar version. Yeah. OK, so fingers crossed here. Bear with me as I work through this.

Okay, so first thing I'm going to do is demonstrate a word document.

>> Full speech edited, OK.

>> And Ali, I'm going to lean on you a little here. Are you able to escape here, the screen reader? Escape on your

>> end. Escape.

>> Or if anyone could move, if anyone can just unmute themselves and look,

>> we can hear it,

>> perfect. OK, great. Just wanted to make sure. So this is a this is an example. This is an example of an inaccessible document you probably recognize very quickly. It's a very, very poor contrast here to black on purple, right? For a screen reader user. That makes zero difference, though, unless they're a screen reader user, that's that has some vision that's accessing the page. This fancy text here and read that also makes zero difference to a screen reader user, and I'm going to demonstrate that here. So the question in the chat was, does it read from top to bottom? Essentially, yes. For a word document or a PDF document, it does top

>> about the Beatles.

>> So I'm simply going down arrow history. OK, and then we have some blank space here where it went blank. So this is where, if you recall with Valerie's presentations, if you can avoid those blank blank lines, that's great. It's certainly not a deal breaker, but if you can avoid them as much as possible, that's. Recommended now if you can just hear the screen meter

>> with this became one of the most commercially successful and critically acclaimed acts in the history of popular music.

>> OK, so like I said, for a screen reader user, this fancy font means it has no impact whatsoever for someone whose low vision or as a learning disability, such as dyslexia, this would be pretty painful. This document itself has no headings, and I'll demonstrate that

>> here with is on.

>> I just put us in quick keys mode. So it operates kind of like a web page, but

>> no more edits.

>> There are absolutely no headings on this page. And then if you want to experience what, as someone who's blind experiences with pictures that aren't labeled correctly top up, just listen to this here. I'm going to hit the letter G, and it should skip me from graphic to graphic picture simply, says picture.

>> Page two picture

>> so you can only imagine the disadvantage that puts, especially if images convey important meaning.

>> Page four picture.

>> So keep in mind so this this isn't that unusual. These these are not actually coded as headings, for example instruments. It simply has larger text that's bolded. Plus, they have no no access to these pictures. What they are even

>> representing one picture.

>> OK, so just a lot of inaccessibility issues here. Imagine how frustrating that is for a screen reader user of now with a screen reader, accessing a page is as simple as this. Just like the individual who wrote in the chat, You can simply go down Arrow The

>> Beatles history black where black

>> and it'll even it'll even cycle through the pages. Sorry, the graphics as I do this

>> Jordan route

>> eventually. That's one way of accessing a page. I used to work with a woman who she was in her early 70s, and this is just how she would navigate. A webpage is just simply going down arrow and going through all the content that was her comfort level and her preference. You can imagine how editorially fatiguing that would be and how time consuming it would be, but she really wasn't interested in remembering shortcut keys or accessing content in a different way.

>> Talk about,

>> OK, so let's go ahead and close this

>> now for.

>> And now what I'm going to do is access slide.

>> Show that screen read create an exit created to

>> show you here. This is a presentation that Valerie gave accessing a PowerPoint using using Jaws. So we are on their thumbnail on the left. Now I'm going to press six, which should hop us over to see

>> the main slide up the slide area. Those election, the selected app tells

>> us, slide area. No selection. Now, if I simply tab through,

>> said the title placeholder level one, create an accessible word PowerPoint PDF documents.

>> You heard it say level one. So we know that that is actually coded as a heading

>> subtitle placeholder level one present or coded Valerie Morris. So pretty

>> straightforward. I'm simply tapping and if I tab again, it brings me to the top. This header here is is hidden in the background, which is perfectly fine. They they really don't need to hear Georgia Tech every single slide. I wanted to demonstrate creating the one thing here and just give me a moment.

Segment. So let's go to this slide here. And same thing this this is a an effectively labeled graphic title object.

>> Your Microsoft Word icon,

>> OK, so it simply says Microsoft Word icon. I want you to listen carefully to what Jaws says if I slide this over and visually, you wouldn't necessarily think that would be a big issue, but listen to what a screen reader states. Now this is overlapping the this box here, so let's listen to this title object.

>> Placeholder Level one was created multiple levels of headings for navigation. The line left, which was accessible. OK, I'm

>> going to tab again.

>> Picture Microsoft Word picture overlaps top right corner of object placeholder picture overlaps.

>> Top right corner of object. So you can imagine the auditory fatigue that that causes for a screen reader user. There's so many things that we take for granted and people often think, well, visually, you wouldn't even know that that's overlapping, that's just tucked in there. But for a screen reader user, unfortunately, they get that granular level of detail and they can they can minimize that, that auditory output. But then it's it's a give and take of. They may miss other crucial pieces of information if they do that. So just checking the chat, are there any questions about that or any additional thoughts on that?

So when I create a PowerPoint slide, I really am conscious not to overlap images like that.

So we can save this as an accessible PDF and for any of you who've been receiving the the archives. That's what I've been doing is saving that as an accessible PDF as what I'm going to do is show you now what that translates into

>> that for microSD,

>> for a screen reader

>> user gave me a good laws screen about box rebel jaws to create an.

>> So here's that same PowerPoint that was saved as a PDF. And like Valerie has said several times now, if you create an accessible PowerPoint, that's really going to translate over to highly accessible PDF as well. So with this PDF, what I can do is I can go through it by headings.

>> Create an accessible Word PowerPoint PDF document set in level one. OK.

>> Just simply pressing the letter H and I can press h again

>> gold for today's presentation at in level one graphic.

>> And as you can hear, it simply skips through all of the headings for each each slide. And then the graphic

>> a target with three arrows all getting the bullseye graphics.

>> OK, so no extra work. If you're creating an accessible PowerPoint and then exporting that as a PDF, it's it all is built in. That there really is real difference is this is with headings in a PowerPoint that's transferred over to bookmarks in a PDF. And then I can also list all of the headings within a list box

>> in endless dialog headings. List view goals for today's presentation call.

>> So just like you and I could do visually skimming through a PowerPoint and looking for a specific slide

>> today, Microsoft added,

>> a person who's blind using a screen here could very quickly access every single bookmark or heading within that PowerPoint escape. So very powerful feature and certainly much more effective than just going line by line with the arrow keys. What I did there, by the way, for that dialog box is I pressed insert an F6

>> added with dial up

>> and then that gives me a choice of all the headings listing them in tab order or alphabetically. And this is another example of tab order where that really is is crucial.

>> Escape, but OK,

>> go ahead and close that now.

>> I'll never read.

>> Did anyone have any questions about that or any comments?

Hopefully this is helpful from the end user standpoint, you've heard a whole lot about accessibility, but this

>> is from Rebecca

>> bringing it a little more to life for you. OK, very helpful. Thanks, Rebecca. She ate it. It's very common to talk a whole lot about accessibility and not not actually experience what it's like for the end user. OK.

>> Somebody was ready. Ready? Where do I start?

>> So if y'all don't mind, this is going to make life a little easier for me. I'm going to just keep it in thumbnail mode. So where do I start? This can seem really overwhelming with some manual testing. Part of it is so many different types of assistive technology. There's a lack of experience, experience using assistive technology. And why wouldn't there be if a person doesn't doesn't need assistive technology themselves? It's it is time and effort to actually learn it. And then so many browsers that browsers operating systems and devices. So keep this in mind to what I said earlier about individuals with disabilities typically being underemployed for various reasons.

Very often, they'll be using an older version of Jaws, for instance, or assistive technology, because they may not be able to necessarily upgrade to the latest and greatest. So that's not uncommon.

So if you take anything away from this presentation, I would just encourage this one step away from the most. If you are doing any sort of accessibility testing or want to know

how accessible either a document or a web pages, look at it. Consider using a keyboard. So keyboard accessibility covers a multitude of sins. If you can't, if you can't figure it out using the keyboard, imagine how challenging that is for someone who's blind tab in reading order, making sure that those are are correctly, correctly in place, and simply using the tab key and and tapping through the elements specifically on a website is going to be really helpful. Visual focus. Simply using the keyboard to tab through. And if you want to access an element, either use the spacebar or enter, that's going to give you a lot of information if you're tapping through and you can't see where the focus is. How someone was 20 20 vision, who's maybe using a switch device like Steve Hawk and, for instance, used how is he to be able to determine where the visual focus is? Interactive form controls If you're simply tapping through a website and it's activating various elements trigger elements because it has the visible focus, that's not going to be beneficial for anyone, specifically for someone who's blind using a screen reader. They're simply tapping through as a way, as a means to familiarize themselves with the site. And if that launches into another activation or page, that's going to be extremely confusing for them.

>> Valuable contact we would it happened.

>> So why test with screen meters? So we've covered this, some aspects of this already critical stops abound for inaccessible sites. So when the bar is really high for four individuals who are blind, they just there's there's a lot of challenges that that they need to overcome that we just take for granted. When we access content visually, for example, they need to know the keyboard quite well. We all typically think we know the keyboard well, but try try putting a blindfold on and, you know, try accessing the computer that way and familiarize yourself with the keyboard. And you'll quickly realize that those less typical keys are very unfamiliar to us unless we glance down and look at the keyboard.

So again, there's transferable skills there with the with a screen reader, keyboard access is absolutely essential. And then a lot of transferability with other assistive technology solutions. This last one is a big one.

I used to work for many years in the area of low vision of blindness, training on assistive technology, teaching braille and the blindness population as far as the percentage is a pretty low population when it comes to disabilities, cognitive and learning disabilities are much, much higher. But the blind community has a lot of advocacy organizations like the National Federation for the Blind. If you watched the news or read the news to any level, you probably have heard of lawsuits coming out specifically by individuals who are blind represented through the National Federation for the Blind. They're not shy about filing lawsuits, so there's a lot of traction there, even though it's a smaller population among the general disability population. There is a strong, strong advocacy there, and in some ways, justifiably so. Because someone has a cognitive or learning disability, a site very often can be frustrating and difficult to manage and navigate for someone who's blind. Very often it's it's an insurmountable barrier that they're experiencing, so they may not be able to potentially order their medication or do their do their shopping online, like most of us have done through this pandemic, essential services that they really need access to or health related content that is that we just take for granted accessing ourselves that that may not be readily available to them every day.

>> Call it Pros and cons Slide.

>> OK, well, I want to talk a little bit about the pros and cons of both Nvidia and Jaws. So like I said earlier, I use Nvidia on a pretty regular basis to test with websites. And the reason for that is Nvidia is a pretty, pretty powerful screen reader. But there's a lot of algorithms and artificial intelligence built into jaws that is not available to anybody. And so it actually flags issues that that jaws may actually be covering. OK? Nvidia is completely free. Like I mentioned, and what I like about it too, is it's really easy to load and unload.

Vs. Jaws, it's it is a bit of a hug for memory. And then it updates quarterly. So whereas other software applications update much more infrequently, this is fairly predictable with their updates. The cons Because NVDA is free, there is a lack of technical support. You can't just pick up a call and there isn't a particular company you can you can get in touch with for technical support. So it's a level of independence there that's that's required lacks compatibility with third party applications. Like I said earlier, one of the reasons why Jaws is so popular is because it is it operates so well with other applications, whereas Nvidia, it does take time and effort. And very often that's if you if if it's left only to volunteers, sometimes it doesn't get the higher priority that that it would be required for if if it was a paid for service, it's less frequently used in education and workplace than paid screenwriters, again, simply because of the fact that it doesn't support as many third party applications. So there's less of a network of media users who can contact each other and say, Hey, how did you get through this? It just isn't as Ezra as available and then the poor quality synthesizer by default. I'll get into that a little bit how you can change the synthesizer itself. I'll just check the chat here, OK? And again, feel free to post any questions you may have and

>> always call it.

>> So with Jaws, the pros, we already mentioned some of these the largest market share, which is great. They I know of a lot of jaws users who rely on their friends or colleagues to to assist them when they run into issues. There's a there's a much larger network of individuals available, and I, I will say their technical support is fantastic. They get very granular. I will give Jaws the company a lot of credit. They actually employ individuals who are blind, a high percentage of individuals. And I can't tell you how, how much I appreciate when I get on a call with someone who's blind because I know they're going to be able to answer my questions. They've been there, they've done that. They don't need to just read a manual and get back to me. So they they are. A lot of the individuals working for the company are actually Jaws users themselves and an extensive scripts developed for third party applications. It is also possible to to hire a scriptwriter to if there isn't an application that has scripts already written for it that work with Jaws. We've we've also done that in the past looked at scriptwriters for a specific application. It can mean the difference to a blind person between being successfully employed and not. That's how important the accessibility of third party applications are. The cons. Unfortunately, it is still a little bit cost prohibitive for some individuals. Although they are working on that, it tries to fill in the accessibility gaps again with the AI and the algorithms. It's it doesn't always indicate whether a website is is truly accessible or not, and then lack of portability and versatility. Versatility with installation. It's it is one of the most secure third party applications I know for transferring from one computer to the next. You need an authorization code. I've seen where even if a person changes their memory, it's sometimes enough to throw off the authorization code. So it's it's really challenging to transfer from one computer to another. I think they give you three three licenses or three devices you can use to transfer in. If you want to go beyond that, it's very challenging. Web access. OK, now onto the web accessibility demonstration. Before I jump into this, does anyone have any questions or comments? I want to give people an opportunity here.

>> Hi, this is Rebecca. Yeah, I do have a question that went back to the beginning, but I think this is a question here as you get into web accessibility. Yeah. So I was thinking about you mentioned that. Let's say that playing a video, a captioned video that someone could use a braille display to access access those captions. Yeah. Is that a very common approach? I mean, I know everybody is different. Yeah. Wouldn't that be something I would that? Well, is that a common thing that gets to them?

>> Well, so the the the

the frequency of of blindness itself, the the population is pretty small. And then when you when you include individuals who are deaf blind, that becomes even smaller. So it's not a large population. But if you think of someone who can't see the screen and they can't hear a video, what is the only access they have to that content? The only access they have is tactile. And if you take that away from them, they they really don't have any means at all to access that content. If they can't, if they can't hear the content and they can't see it, that refresh will braille display is absolutely crucial. So it's not a large population, but it's it's the difference between giving them access and not. And it doesn't necessarily. Once you have those captions for a video, that transcript can be easily made available just as a word document or any any document in text format, and that could be accessed by an individual who individual who's deaf blind who uses a braille display. I'll say this to you that we we worked on a pretty large project for the CDC on accessible materials for COVID 19 related information and even individuals who may be proficient screen reader users. Sometimes they'll they'll prefer refresh, but braille displays, especially if they're really strong braille user because the again, you're dealing with that auditory fatigue of the screen reader and people sometimes will learn much better accessing content with a braille display versus auditory. If you think of reading a book visually versus listening to it in audio format, that's that's often what someone who's blind experiences with braille. They would prefer to have it in braille and read it in a similar manner that we do visually versus just listening in to it audibly with jaws. I know that was a really long answer to your question, but I hope that gives a little more context to the importance of providing a text equivalent to captions. Yes, thank you. Yeah, that was long. No matter what we. Okay, I'm just going to do this. We're creating audio desktop videos. But can these readers read YouTube titles and descriptions? They can. Yeah, when you say readers, I'm assuming you mean screen readers. Absolutely they can. And that's fantastic that you're providing audio described videos. For those who who may not be familiar, audio description is really the target. Audience is individuals who are blind, who can't see the visual content and need some additional information to escape. OK. So let me get to the demonstration here.

>> Screen reader overview that powerpoint. So move to a two. The Arrow keys accessible.

>> OK, so this this is actually a really good site to even practice with a screen reader. This is it's it's a fictitious site, accessible university, and this is the inaccessible page that we're on now accessible. And then I switched to the accessible page. But that's not a huge difference visually, but I'm going to walk through some major differences for a screen reader user. So no surprises here from a level of inaccessibility.

>> There are no headings on this page.

>> Absolutely no headings. So visually, we would think there are headings like welcome. I don't know Spanish, but. Bienvenido, can you spot the barriers? Those look like headings, but those are those are just simply straight text for a screen reader user. It's it's so simple to create visas as h ones or twos and as you saw with the PowerPoint PDF, it's such it's such an important way to access content. So there are no headings on the inaccessible site. Now, if I tab through, I'll put the focus of attention on the top pressing control home, and that's just a standard keystroke. That's not a jaws specific keystroke that with any application that should bring your focus to the top of the page accessible university. And then I'm going to tab

>> about the link

>> it says about link,

>> academics link,

>> academics link. There's a few things going on. The contrast is really weak, but you're also hearing it say Link. So the screen reader user has no idea that these are actually menus. And if I pull up all of the links on this page

>> links this dialog links list view.

>> It just simply blends through all of the other links on this page. OK. And as I as I pull this up, you'll also see it if I go down a few

>> admissions with a click click click here.

>> So we have duplicate links and we have non contextual links. A person who's using a screen reader has no idea what. Click here means

>> escape

>> academics. So some real issues here. And unfortunately, I see this all the time with with non contextual links. If I go to the accessible page

>> academics, let's

>> show you what an accessible menu would would look and sound like.

>> Main menu navigation region show menu keyboard shortcut.

>> I'm going to tab again

>> about submenu one for the boot

>> menu, about submenu one of four. I know it's giving me a lot of information quickly, but it actually told me menu and that there are four of them and that this has a submenu. So if I go down Arrow

>> submenu expanded, who is one? The one one of one governance led to one.

>> So this isn't actually designed perfectly. It really should be saying one of two of four, three or four, et cetera. But this is actually more accessible than most, most menus I see. And then to get out of that, I should just be able to hit escape

>> escape believing that it was OK.

>> And if I tab again

>> academic submenu for.

>> So it tells me on that on the second of four menu items. So you see the big difference here between having this. These simply labeled as links versus actual menus. It's a it's a huge difference like, OK. And then I'm going to continue tagging past these. I'm on the inaccessible page again

>> about academic visitors with,

>> OK, I'm on the visitors link. I'm at a tab began

>> again with an engineering award for a talking robot sign language interpreter.

>> OK, so it reads that text and that's that's a link.

>> Click your.

>> So it says, Click here, link and I have a visual impairment myself. So if there's visible focus here, I'm not seeing it.

>> Click your link, click your.

>> What's happened here with this carousel is it's these are simply labeled as click here, right? It doesn't give them any context whatsoever. And if I keep tabbing

>> name calling another type of text, it

>> can name, call and edit type in text. You see it completely bypass the previous and next buttons here. So a person would have no idea that this is even a carousel or that they would be able to navigate through this. And then, as I tabbed it, says it brought me to the name edit field completely bypassed this information, saying required fields are in blue. And this is where I personally struggle, I have difficulty seeing the black from the blue. So this is a good example of of really bad contrast. Now if I tab to the these check boxes down here

>> in state zip code reports,

>> I've seen this quite frequently as well. I'm going to tab to what should be landing me on the computer science checkbox

>> engineering checkbox, not checked, checked press spacebar

>> and it landed me on engineering. So a tab again

>> economics checkbox not checked. Press Spacebar,

>> OK, Economics checkbox not checked. I'm going to check that space checked. I've actually seen someone who I used to work with who is blind using a screen reader do this incorrectly because there was a survey that was incorrectly designed. So it said economics checkbox. This is where the question before of does it? Does it need to be in correct tab order? Absolutely. Because something something like this would be completely inaccurate. And the screen reader user wouldn't even know that. So let's go to the accessible page

>> where the academic submenu

>> and you see how it simply says required on the forms escape. OK, give me a second here.

>> We regret show value keyboard value submenu collapsed, whose value name called and left there the required right there with the required invalid entry.

>> So I wanted to get the name the name edit field and it told us required right if I tab again

>> applied now form region email call and left there with the required right there. That didn't require very straightforward.

>> It makes it explicitly clear which field is required and which isn't. And then if I if I go back to this carousel, this is really how it should be labeled

>> main menu navigation that admissions up.

>> And then you see how it highlights this. The contrast is improved on the menus. If I tab,

>> we read it was made Region Students Engineering Award Winning

>> Students Engineering Award

>> a slide button.

>> So the previous slide is labeled correctly.

>> Next Slide button to activate Press Spacebar. The next slide is like one left there with slide right pair with button to activate press,

>> and it tells us that this is the the first slide.

>> Slide two button

>> slide to see you see the difference it makes, or you hear the difference it makes for a screen reader user. Very often it's a matter of guessing if things are not labeled correctly. Now it's like, let me check if there's any questions or comments. OK? I wanted to show you one other thing here. So if I go down now this game, you may have recalled John Talls and Rihanna Daniels talking about the language attribute. This is an example of why the language of Typekit is really important. I'm going to try to access this, this Spanish. I believe it is

>> listed for item.

>> It's not playing nicely here. Give me one

>> moment. Think about it quickly. Visitors. OK, this escape list and look, I use with engineering images to give me a moment

>> while I go down. Arrow to the Spanish

>> images will go where there's a design problem of OK, section black.

>> OK, listen carefully to how Jaws reads this. And again, I could have skipped to this really quickly if this had a properly coded heading, but I actually had to go line by line

>> horizontal line graphic graphics.

>> And before I talk about that horizontal line graphic graphic, this is this is exactly what a screen reader user hears that should have a null attribute to it. A screen reader user doesn't need to know there's a horizontal line there the needle, the end Veneto. I'm going to go down Arrow and it's going to sound like English that has been misspelled.

>> Word accessible Universidad left there with be way right there. That's in the universe and it's like super clean. That's not as notice of a demonstration over the carbon.

>> So it's hard to understand this unless unless you actually see or hear a demo of it, let's go to the accessible page. May now listen to and again, I can do the heading now, which is

>> great, well, compatible. We have many.

>> I simply pressed H. OK, now listen to jaws correctly read Spanish

>> where I say something about of this. Another part of the MOSTRARAM.

>> You hear the difference. It actually reads it. It's still not really easy to understand, even if you know Spanish, but it certainly is much more coherent than the

>> Marco

>> than the English label. And I see a comment here. Give me one moment. Oh, maybe not someone left the room. OK, so let's talk a little bit about tables now. So there is a table on the inaccessible page. So if tables automatically, if I press the letter T, it'll drop me to the

>> table table with 13 columns and five rows column one row one where

>> it simply said table with 13 columns and five rows.

Now think of the cognitive load for someone this. This is not a properly labeled table. It didn't have any description to it. And I'm going to navigate this table

>> where Dorota

>> simply tells me I'm in row two. And the focus is. Right above the word total, I'm going to go to the next cell, which has the keys in it.

>> So, yes, column two.

>> OK, I'm going to go down

>> a corner three.

>> So it doesn't tell me which row I'm in. Mean it just simply says 84. If I go to the right

>> 126 column three.

>> So a person almost has to have a photographic memory to to try to remember which column and rows around because it's not announcing it. Now compare that to a more accessible, table made region. OK, I'm going to jump to the table with the press pressing the letter T. And listen carefully to the great description on this

>> table with 13 columns and five rows a new enrollment trends. This table shows enrollment over a two year period by subject of the academic year to zero zero seven zero eight two zero zero zero nine are arranged at columns with six subjects arranged, the columns nested within the column. Total enrollment male and female enrollment percentages are arranged in rows column one row one black.

>> OK, so it is a lot of information, but you know the truth of the matter is tables are complex. So it gave me a lot of information. It gave me the years that they were broken up into and the total and the percentages of male and female. Now if I access this table and I'm going to access the the first cell here

>> and throw to where draw one

>> row one, that's

>> blank. Let row two.

>> OK, let's go to total

>> total row three.

>> And now if I go to this cell next to it.

>> Eighty four zero zero seven zero eight six eight four Column two.

>> OK, if I go to the next one

>> two zero zero zero nine and 126 Allure zero level national are left there with this or right there with those who left the meeting.

>> OK, so what it did is it told me this. This applies to the years 2007 to 2008. And it also told me that this applies to energy as well. So properly labeled table should have information available with the column you're in the column header, the row header and then a brief description of the table itself. I'm going to check and see if there's any questions so far. Or any comments. Hopefully, this isn't completely overwhelming. Is this is this helpful to understand why making a site more accessible is so important from an end user standpoint? I hope that's coming across.

OK. All right, great

topic. And then let's let's listen to the graphic here as an example. So you've heard a lot of information we would all text. Let's let's listen to this graphic, this description of this, this image here.

>> Images Cheryl National Left, OK?

>> Images, actually, this one doesn't have any description at all, I don't think.

>> Let me try a horizontal line. Accessible Images Getty Images Federal natural right graphic horizontal

>> lines that one doesn't have any and all text at all. Let's try this one on the accessible page.

>> Accessible universe rollback with red face assembled with various straps of hardware mounted on the bold desktop synthesizer graphic.

>> OK, so it gave some very, very basic information. Didn't go into information overload, but it certainly was important enough to label because of its prominence on the page. It takes up the better part of the upper fold of the of the first page here. So once again, labeling those graphics is absolutely essential. OK. So those are those are some basics on accessing the page. One other thing I wanted to demonstrate here. The security question. So we have this simple question of two plus two equals and you notice it's a number two and the written two so that the the um, the bots can't figure that out or there isn't some sort of script that that will actually do that. If we look at the inaccessible page horizontally, it asks the security test question of please enter the two words you see below separated by a space. So it's very difficult not only for someone who's low vision, but someone who may have dyslexia or maybe English as a second language. And they didn't learn the twenty six letter alphabet that we're familiar with this. This is really this is really a struggle for a lot of individuals to make sense of that and completely inaccessible to a screen reader user as well.

>> OK, very good laws to move to a nice screen reader over screen reader.

Browsing the browsers, so

>> a little bit about screen reader compatibility with different browsers. So a very, very common screen reader use with both Jaws NVDA, our Firefox. It works really well and it has for several years as well as Chrome. Chrome was problematic more a few years back, but with Jaws, actually, Chrome has has really worked very well. Regarding screen reader testing, this may sound obvious, but I'm I'm finding that it's not necessarily obvious. You can download the Safari web browser. Safari is

very often used on the Mac, so if you're if you are testing with Safari no pun intended, I would keep the apples with apples and use it on the Mac and test it with with voiceover on the Mac. None of these screen readers other than voiceover, is going to work on the Mac. You can't you can't download NVDA or jaws on the Mac. It just won't work. And then Windows Microsoft Edge this. The latest versions of Jaws will work well with when with with Microsoft Edge, but again, if if you're testing for individuals who are far more in the lines of, they may not have the latest and greatest version of Jaws. Windows Edge isn't going to play as nicely. So for any sort of accessibility testing, I think you're you're safer to use Firefox and Chrome, especially on the Windows based environment.

Any questions about that value?

>> We regret was browsing,

>> and we're getting we're getting close to the end here. I did want to I'll leave this in the PDF that that I'm going to send you all with NVDA. I'm actually going to load NVDA really quickly here. Fingers crossed. It doesn't all fall apart on me. Space.

>> Speech on demand,

>> so what I did is I silenced Jaws and I'm going to load NVDA now.

Taskbar, OK, now you can access the the NVDA through the system tray if you see the door. And this one right here, OK, I use a whole lot of shortcut keys, so I do insert end preferences. The reason why I emphasize this page specifically in this feature is you want to be as comfortable as possible with a screen reader. If you're testing, you want to make sure that you're using a synthesizer that is easy to your ears. So I'm going to Tools Tools submenu. OK. And if you open up tools?

Oh, I'm sorry. You know what? I made a mistake. I'm going to Preferences, Preferences, submenu settings, and then I'm going to go to Settings. And. And then within the settings of a speech speech, two of 13. And this is where you access the synthesizers. So if you prefer one synthesizer over another, I would I would change this. The very first time you use Nvidia Voice. So this is a pleasing voice to me. It's it's one that I'm fairly familiar with, but like, let's try zero.

>> Panel Nvidia settings speaking voice.

>> OK, so if you prefer a female voice or if that's easier for you to understand rate, then feel free to go ahead and change that. But this is this is really important that you're comfortable with the screen reader of the speech rate, the synthesizer synthesizer that's used. It's going to be a lot less fatiguing for you. Expanded. And OK. And screen and they the instructions are on this page, so if you need to reference that in the future, it's available to you. And then what I did, there's literally hundreds of shortcut keys for NVDA and jaws. So to make your life a little easier, what I've done is I've consolidated some of the more important keystrokes here for Nvidia, moving through a page element back and forth, accessing headings, navigating through links to activate a button is enter spacebar, navigating forward through landmarks as D and shift to back up. And the most important one to silence Nvidia is simply the control key. It'll stop it from speaking and then toggle screen layout mode on or off is Nvidia Plus V

with Jaws. Very similar features here just to keep it really simple. Accessing line by line. Accessing the headings, accessing buttons and links. Accessing things like Aria, HTML and landmarks with the letter R Forms mode on is enter. So any time you have an edit box or an edit field, that's how you can access the the form. For example, if you need to type type the word

Harry, for instance, it's not going to go to the heading versus allowing you actually to types word Harry. And then this last page, I provided a link on downloading Nvidia at no cost. The American Foundation for the Blind has created a tutorial, so it's a basic tutorial. But if you want to get started on Nvidia, this is a fantastic way to do so. And then Jazz has created a tutorial called Surf's Up. It's pretty extensive, I'll warn you, but you can. You can certainly jump into the different aspects that you'd like for testing and website and then for downloading jaws. Here is the actual link for it. Again, it's it. It does it. There is a fee for it. And then I know you've you've likely seen this link before the perspective videos, but once again educating individuals on how how people with different disabilities access content. These perspective videos are really helpful.

OK. And then that is the end of the presentation, so we've just got a minute or two for questions if anybody has or comments.

And I'm going to go ahead and unload Nvidia here, Exit X exit Nvidia, OK? Any any questions related to any of this that that I may be able to answer for you? Yeah, you're welcome, Rebecca. I sure hope this was helpful. I realize there's level of auditory fatigue, hearing jaws and V-Day go on and on, but it gets you a bit of an understanding of what someone who's blind goes through. Thank you, Andrew. I appreciate that.

And then, per usual, this is being recorded, and we will distribute the the archived recording, the accessible PDF and the transcripts that are being generated through Zoom now. OK. And Cecilia, thank you, I'm glad this was helpful for you.

All right, well, with that, if there are no other questions, we'll go ahead and close it out. I hope you enjoy the rest of your day and thank you for taking the time to attend. I appreciate it. Bye bye.