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Newsletter of the Potomac Area Technology and Computer Society

January 2024, Volume 1 Page 1

My turn.....

Welcome to the new year! I know—it's a bit late—but better late than never, right?

We (my wife and I) did something over the holidays we've never done, but it may become a tradition: we accompanied our #1 (birth order, only 😊) grandson and his parents (the DC crew) to Hawai'i. We started on "the big island", aka Hawai'i. After a week the DC crew went home, and we spent a wonderful week by ourselves on Kauai, aka "the garden island". It's a gorgeous place! Somewhere down below is a photo from there.

In the technology world, last week Samsung presented their new line of phones, the S24 series. I don't follow phones much, at least not the way I follow photo gear, so all I know is that phones are like computers: they have become ubiquitous. There's just not that much difference in them as far as I can see. OTOH, if you're more knowledgeable than me (and that's pretty much everyone 😊), then maybe the new phones will make a difference to you.

Before I forget, the BoD has decided it would be nice to list new and renewing members, so here ya go:

New 2023 Members: Francis (Frank) Fota, Matthew McLellan, Dennis Stephens, Vicky Zavilinsky, and Mark Zettler. I say "welcome" to you all. Our **renewers** (President Paul thanks you): Judy Albert, Bob Baker, Terry DeBiase, Roger Fujii, Geoffrey Goodrum, Roger Hillson, Robert Mclean, Kathy Perrin, James Rhodes, Nick Wenri.

If you attended the general meeting on January 20th, I hope you saw Geof Goodrum's presentation on **Cutting the Cord** because it was all done from his *phone*. I don't know about you, but I was ***amazed***. OTOH, it's hard for me to do anything on a phone which is why I greatly appreciate the full-sized keyboard on my desktop. The presentation was very good too, and is available on the PATACS website.

Our resident phone guy, John Krout, did a **Learn in Thirty** presentation on extending the life of cell phone batteries, which actually applies to most lithium battery applications. Both presentations are available for replay from the home page of PATACS.org.

That's about it from me for now. Hope to see you either on the groups.io email or at one of the coming meetings (the schedule is on the last page of the newsletter and at patacs.org).

Next printed issue: March, 2024

Contents

Thank this issue's proofreaders: Jon Bernstein, Doris Bloch, Barry DeMaio, Paul Howard

Using Your OLED TV As A Computer Monitor

By Frank Fota, Director, fotafm@gmail.com
Potomac Area Technology & Computer Society, www.patacs.org

If you have a modern television, it's a simple task to connect an HDMI cable from your PC or laptop to the TV. Then change the television's input to the HDMI port you connected from the computer. Now you have a very large screen monitor.

Modern HD OLED (High-Definition Organic Light-Emitting Diode) televisions are subject to "burn-in." You may remember that burn-in occurred in cathode ray tube (CRT) monitors and was sometimes visible when the monitor was turned off (e.g., the image to the right). More on burn-in, below.

Gamers are especially attracted to the high resolution, large screen size, and fast response time that modern HD OLED TVs provide. Each pixel of an HD OLED TV is a separate light source and the blacks are truly black. There are no backlights to wash out the image and the independently controlled pixels have fast response times.

While HD OLED computer monitors are becoming more popular, Josh Hendrickson at Review Geek says "…an OLED **TV** still gives you more bang for your buck. Here's a quick example; would you rather spend $1,000 on a 27-inch LG OLED 1440p monitor, or on a 55-inch LG OLED 4K TV? They're the same price, but the TV is a much more cost-effective option." Fortunately, manufacturers recognized this effect and equipped most OLED televisions on the market today with electronic safeguards to curb burn-in.

For instance, LG OLED TVs remind users to perform a pixel refresh. Sony calls the feature "Panel Refresh." The purpose of the pixel refresh is to even out the brightness of pixels over time. By creating uniformity of voltage across the pixels (i.e., brightness), image retention is eliminated. So, a positive side-effect of the pixel refresh is eliminating image retention

(i.e., burn-in). Pixel or Panel refresh is automated and occurs after four hours of cumulative use when the television is turned off. A more thorough refresh occurs after 2,000 hours of cumulative use. This takes about an hour to perform. The refresh places a lot of stress on the OLED panel. A downside of pixel/panel refresh is that it shortens the lifespan of the panel. It is necessary but should only be performed at the intervals recommended by the manufacturer or when directed to do so by the manufacturer's support staff (e.g., to remove lines or other artifacts). A detailed explanation of burn-in and pixel/panel refresh is provided on YouTube by SteadyChaos Productions.

Modern HD OLED TVs and any panel with an OLED display (e.g., your smartphone) are subject to burn-in. Burn-in occurs when static images remain on the display for extended periods. The average television viewer varies content and rarely has static images on their television screens for very long. On the other hand, the average computer user has many static items on their monitor/desktop (e.g., the taskbar, the icons, the wallpaper). So, using an HD OLED television as a primary computer monitor could result in burn-in and require more frequent pixel/panel refresh operations. If you intend to use an HD OLED television as a computer monitor for gaming or videos, consider using it as a secondary monitor. You can use a traditional computer monitor for most tasks and an HD OLED TV exclusively for gaming and videos to increase the lifespan of the OLED display.

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Can I Hear You Now?

By Gabe Goldberg, (gabe@gabegold.com)
Potomac Area Technology and Computer Society, www.patacs.org

After being told at several annual hearing checks that I might consider buying hearing aids (HAs), about a year ago I succumbed. And I learned that research and comparison shopping are important. For better or worse—and I'm reasonably happy with the results—this was all done just before approval of Over-the-Counter hearing aids (OTCs), which greatly changed (and may have further confused) shopping for hearing assistance devices.

Plenty has been written about traditional HAs and OTC devices; *Consumer Reports* has extensive reviews of devices and providers and compares HAs/OTCs. Since these are evolving and competitive choices, it's essential to review up-to-date material.

Step One was visiting a nearby office. It was appealing because it was convenient, was a pleasant setting, had a great Ear/Nose/Throat MD, had a great young Doctor of Audiology (Au.D.), and offered multiple device brands. It was full-service but expensive. My insurance covered $2500 but devices typically cost $4000-$7000/pair, with lifetime service. An exception pricewise is the more expensive, newly introduced EarLens https://earlens.com (about $12,000/pair), with no insurance coverage, and requiring insertion by an MD.

Step Two was following up on an advertisement for TruHearing https://www.truhearing.com/, a referral service offering substantial savings that I still don't

quite understand. This led me to another convenient office but with substantial initial and subsequent disadvantages. It was quite difficult getting the office's website address; the office was quite dumpy and less than full service; it only offered one device brand; and the provider, while OK, was just a licensed HA provider, not an Au.D., though she had 10 years experience. But after my initial visit, follow-up service was terrible: no responses to email or telephoned questions.

That led to **Step Three**, trying again with TruHearing. They sent me to another office, not quite as convenient—but still easily accessible. It combined professionalism, service, and choices similar to those of the **Step One** office, with the savings of the second. So I paid about $2000 for a pair of **Oticon More 1** devices with a $7000 list price. The only compromise was that this included just one year of service, vs. the first office's lifetime support. But the greatly reduced purchase cost easily offset paying for yearly checkups and inexpensive supplies.

Oticon More 1 Hearing Aids

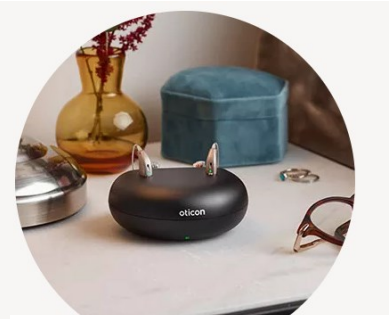
This office, the Walker Lane location of Alexandria Hearing Centers (AHC), hit all high notes: long pre-purchase discussion of options, services, costs; great delivery process and usage instructions; very responsive to follow-up email questions; and help in understanding pairing my iPhone with devices using the Oticon app. Staff turnover during my first year's usage might have been disruptive, but worked out fine. My initial Au.D. provider moved away after marrying. Her replacement was in the office temporarily while finishing Au.D. training. My current provider (an Au.D.) assures me that she'll be in the office for quite some time; all three were wonderful to deal with.

As I've moved through various mobile/wearable devices—iPad, iPhone, Apple Watch, hearing aids—I've been continually awed by ever-smaller "packages" containing increasingly astonishing technologies. My hearing aids are no exception. They work well with the Oticon app on iPhone/iPad, which provides on/off, volume, program, and microphone settings. My devices have two defined programs (more are possible): normal use and telecoil, the latter for receiving audio in appropriately constructed theater/film venues. Mic setting allows using iPhone as a microphone transmitting to hearing aids, for example placing it on a table in a meeting or restaurant.

The initial Oticon app used (On) was replaced by Companion. I generally prefer the latter app better except that it doesn't work quite as well with its Watch version, needing a few extra taps for use; I'm told that may be fixed. Of course, just as for other mobile device apps, I watch for ongoing updates.

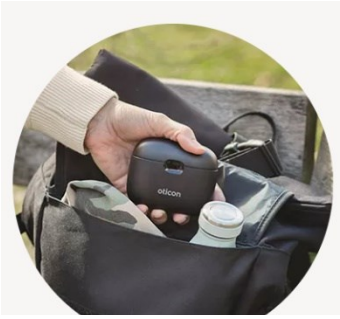
The program setting eventually resolved a nagging mystery: I'd been plagued by occasional buzzing from HAs—seemingly caused by starting my car or using household appliances. I realized that if accidentally set to Program 2 telecoil when not needed HAs buzzed.

In addition to the standard provided charger, I bought an enhanced version with an internal battery to charge the HAs several times without needing A/C power and which closes completely, making it useful for travel and avoiding feline mischief.



Standard Charger

Counter to the trend of tech devices coming with little or no printed documentation (Apple !!), Oticon provides multiple well-done manuals, covering the HAs themselves, apps, and both charger models. My AHC helpfully provided the new app's manual.



Optional Charger

A minor irritation is switching HA pairing between iPhone (for normal use at home or out) and iPad (for listening to streaming content or joining Zoom meetings). HAs pair with only one device at a time, so one device's Bluetooth must be turned off before pairing with the other; this sometimes requires multiple attempts since pairing only happens when Settings/Bluetooth dialogue is open. And I realized that HAs paired to an iPad turn off the iPad speakers even if I'm not wearing the HAs.

My HAs apparently can't pair to television sets without an overpriced specialized Oticon accessory—even though TVs can pair headsets with Bluetooth and HAs pair with it to mobile devices. This needs more research.

I narrowly averted an expensive mishap: coming in from outside chores, I realized one HA was missing. I retraced my path outside but didn't find it, though the app's Find HA feature told me it was close. The next day, just before calling to order a replacement, I walked the ground again—and there it was, safely nestled in new-mown grass, undamaged by rain or mowing.

I'm still acclimating to using HAs—and doing better at following common advice to wear them all day, every day. Outside, they easily adapt to different environments—amplifying soft speech or turned down to minimize racket. And inside, they help increase domestic tranquility.

https://www.oticon.com/, https://www.oticon.com/support, https://www.oticon.com/support/downloads

Manual for new Oticon Companion app: https://wdh02.azureedge.net/-/media/oticon-us/main/download-center---myoticon---product-literature/real/ifu/269079usifuotappcompanion120h223.pdf

###

Editor's visit to Hawai'i...

Our breakfast view from the Grand Hyatt on Kauai:

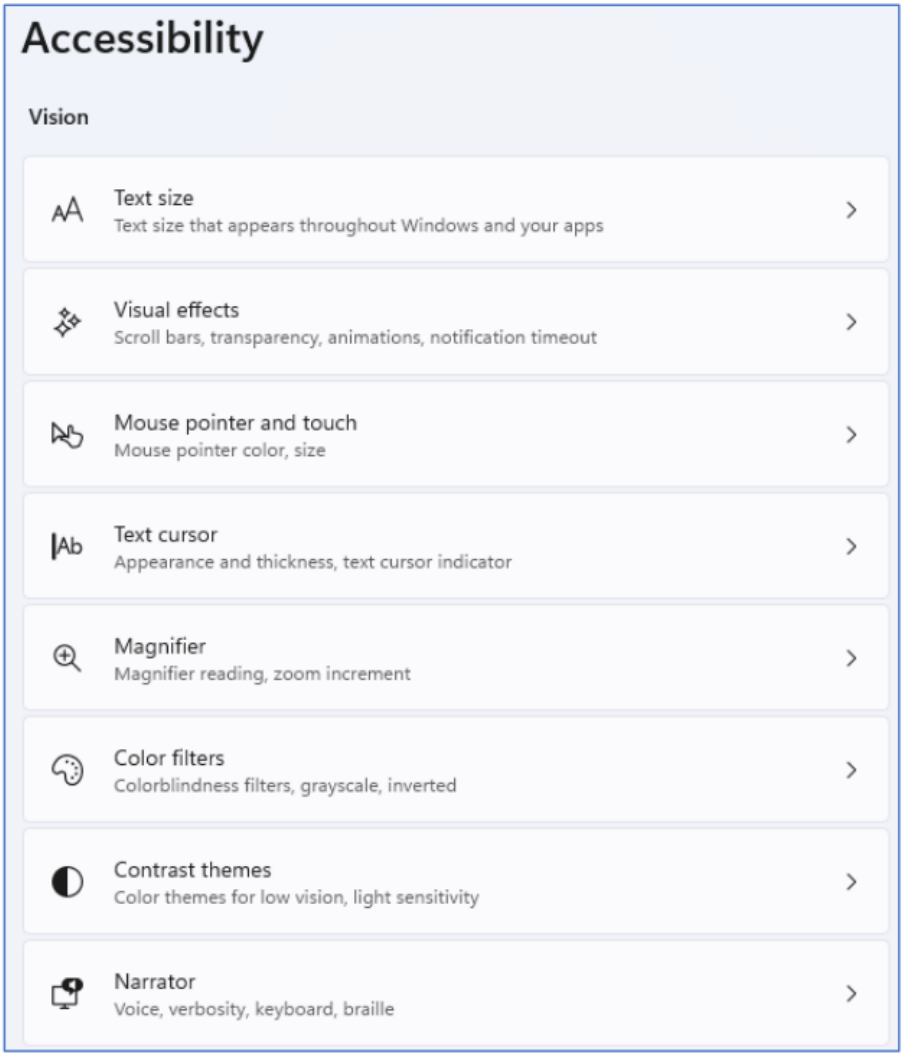
Camera: Canon R5, shutter speed: 1/250th of a second, f/ stop: 5.6, ISO 100, focal length: 24mm, lens: Canon RF 24-105 f4 L IS USM

Are YOU available to help your club? The editor is looking for proofreaders. The only requirement is that you read and speak American English. It's not a big commitment—Once every couple of months and the proofreading takes no more than 15-30 minutes and then you send your corrections to editor@patacs.org. Simple! (current proofreaders need not re-apply! ☺)

Windows 11 "Accessibility" Features Introduction

by Tom Burt, tomburt89134@cox.net
Vice President, Sun City Summerlin Computer Club https://www.scscc.club

This month, we'll look into a collection of **Windows 11** settings called the **Accessibility** features. These features are aimed at helping users who have various challenges, such as impaired vision, hearing, or physical handicaps that make using a mouse and keyboard difficult. Much of this material also applies to **Windows 10's Ease of Access** settings, too.



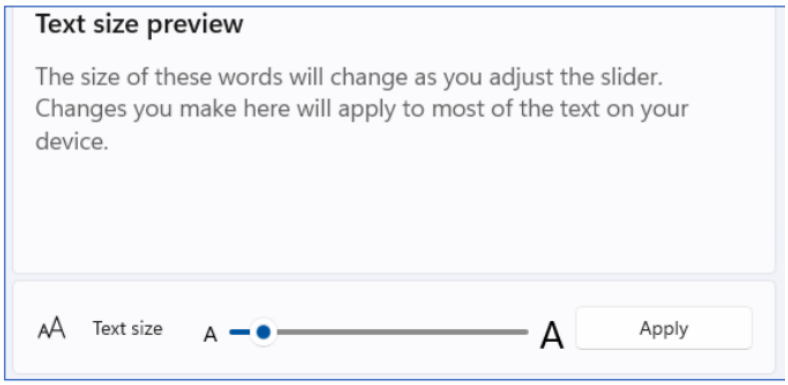
Accessibility Settings Screen–Vision

Many of the **Accessibility** settings are also helpful for non-challenged users, so it's worth learning more about them.

To reach the Accessibility settings, click the Windows Start icon in the Taskbar and then the Settings (Gear) icon. Then, in the main *Settings* window, click **Accessibility**.

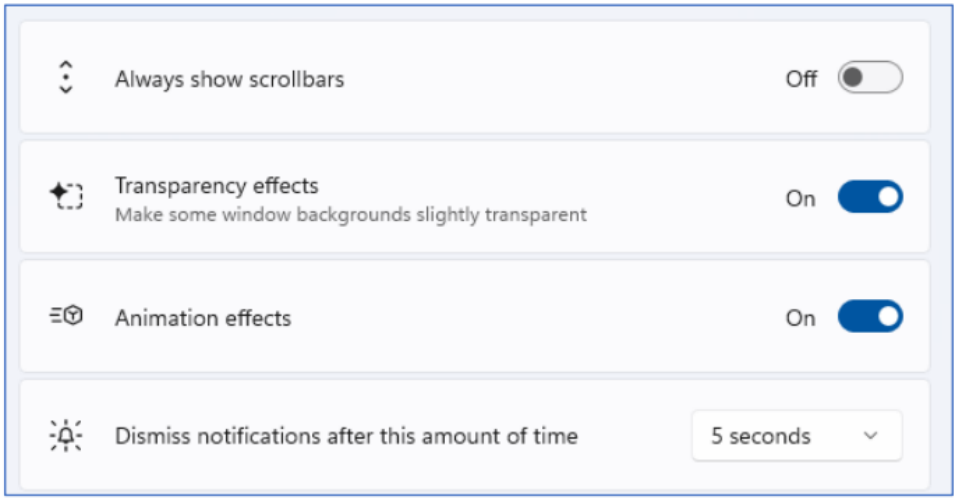
The **Accessibility** settings are divided into three main categories: *Vision, Hearing,* and *Interaction*. The screenshot above shows the *Vision* settings.

The ***Text Size*** setting can be useful when working on a high-resolution screen with small font sizes (8 or 10 points). You can use the slider to scale up the fonts displayed on the screen to make them more readable. For example, I've scaled up text sizes by 10% in the screenshot below. The range on the slider is 100% (no scaling) to 225%.



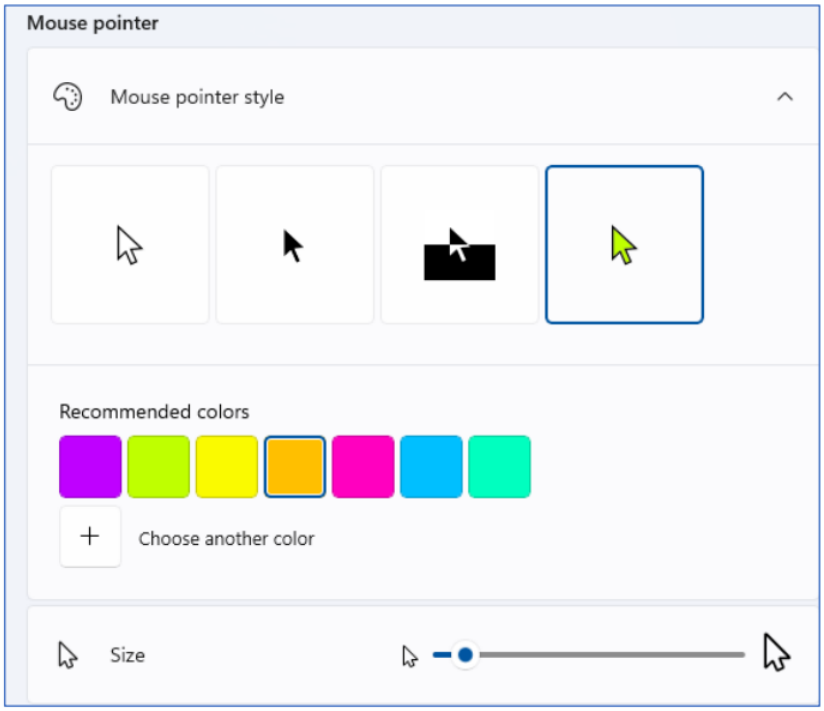
Text size setting

The ***Visual Effects*** setting allows you to control (via an On/Off slider) whether scrollbars are always shown or fade into view as you hover the mouse over a window. There are also sliders for ***Transparency*** and ***Animation*** effects and a dropdown for how long notifications are on the screen.



Visual effects setting

The ***Mouse pointer*** setting allows you to select the mouse pointer's *style, color*, and *size*. The size slider goes in steps of 1, representing a scale factor. For example, I've selected the outline pointer with a color of gold and a scale factor of two. This makes it easier to see and follow.

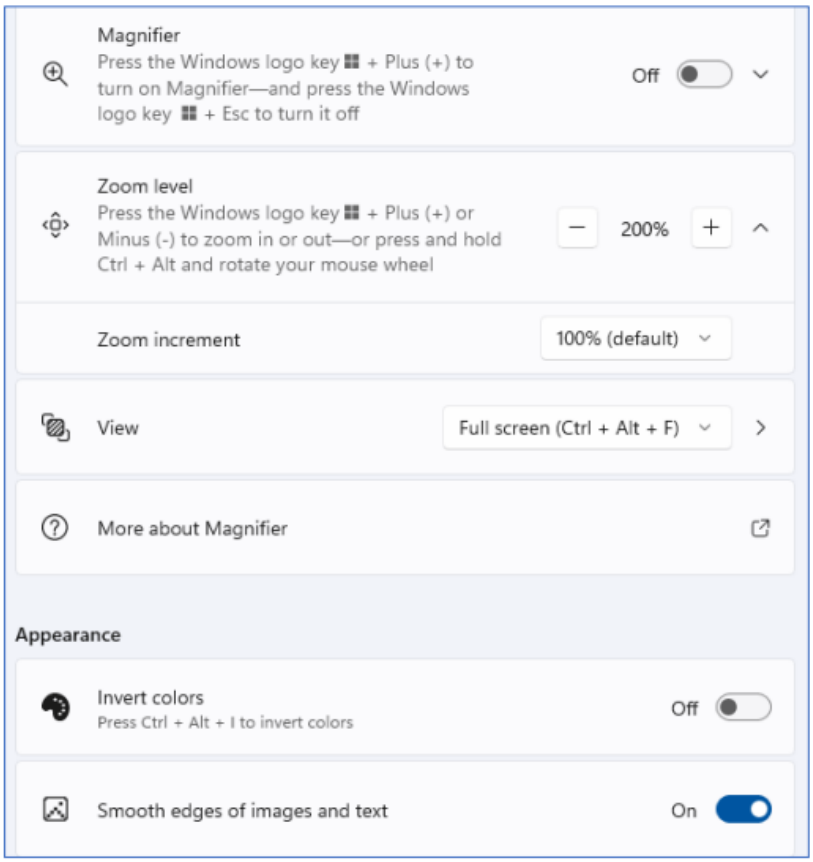


Mouse pointer setting

The last ***Vision*** setting we'll look at is the ***Magnifier***. See the screenshot below. The ***Magnifier*** is turned on by pressing the *Windows Key* and **+** keys together. This will magnify (scale up) the screen by the Zoom level setting (default is 200%). You can turn the Magnifier off by pressing the *Windows* and *Esc* keys together.

You can press the *Windows Key* and the **+** key together to increase the scale by the Zoom increment and press the *Windows Key* and the **-** key together to decrease the scale by the Zoom increment. You can also press the **Ctrl** and **Alt** keys together and use the **scroll wheel** on your mouse to scale the ***Magnifier*** **up** or **down**.

You can pan around the magnified screen by moving your mouse pointer to the edges of the magnified screen. I'll leave it to you to explore the other ***Vision*** settings on your own.

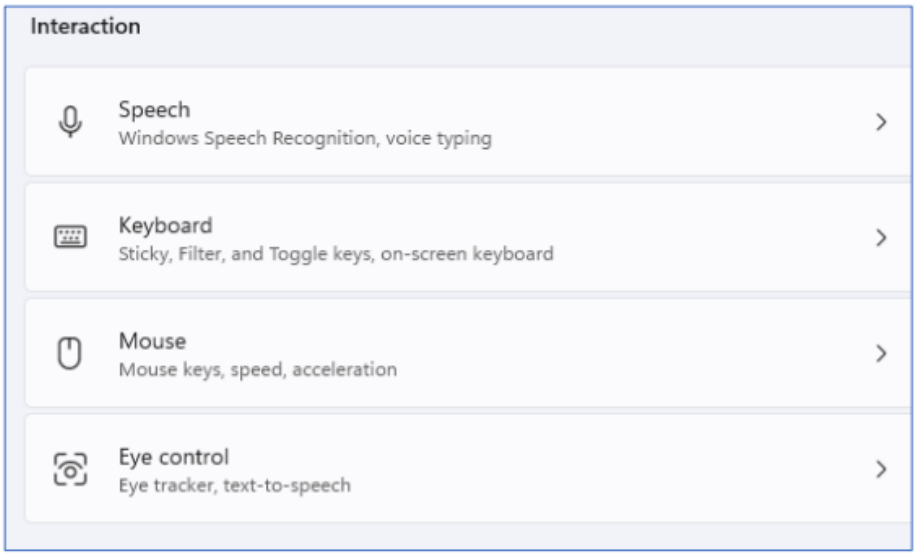


Magnifier setting

Under the *Accessibility* > *Hearing* settings is one for Captions styles settings. These allow you to configure how closed captions appear on your screen. You can select from several default layouts or create a custom layout of your own by first selecting *Settings* > *Accessibility* > *Captions*. Click the button for Caption style and change it from default to another option, such as White on black, Small caps, Large text, or Yellow on blue.

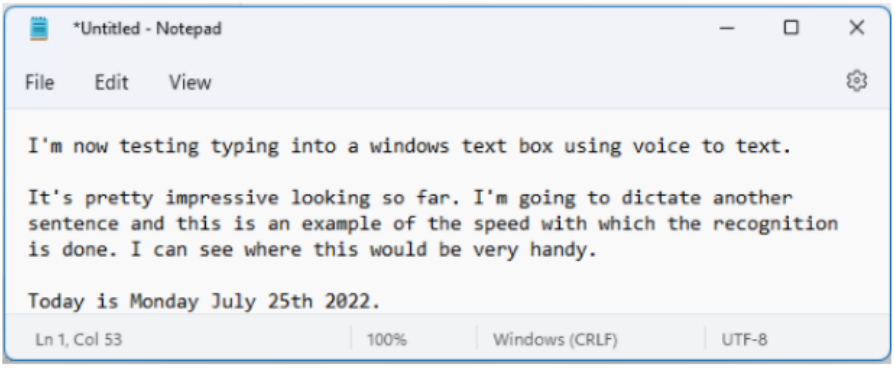
Under *Accessibility* > *Interaction* (see the following screenshot) are various settings for Speech recognition and dictation, special keyboard behavior, using the keypad to move the mouse cursor, and using an eye tracker device to allow you to type using eye movements. For example, see the screenshot following.

Voice typing (dictation) is very easy to use. Place the mouse cursor into any text box on the screen (e.g., a Notepad or MS Word window) and press the *Windows key* and *H* keys together. A small window will appear with a microphone icon in it. Click the icon to turn the microphone on or off. You can dictate *when the microphone is on*, and Windows will convert your spoken words to text in the selected textbox.



Interaction settings

The following is an example of dictation in a Notepad window. Once you have dictated into any editor, you can edit, copy, and paste the resulting text as if it had been typed in using a keyboard.



Voice Typing Example

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A Conversation with Bard

Art Gresham, 1editor101@uchug.org
Editor, Under the Computer Hood User Group https://uchug.org

A few months ago, I published two related articles in another group's newsletter. The first was titled "What is ChatGPT and why does it matter?" which briefly introduced the chatbot that was released in 2023 from OpenAI (https://openai.com/api/). That was followed by an article about a subject with which I am quite familiar as an Electrical Engineer (BE EECS).

The second article was "What is Electricity? (Hint, the answer is not what you think)".

The initial implication one might get upon starting to read this article with my name as the byline is that I had written about a subject I am familiar with. And I stated I had found the answers to some basic questions. However, as I conclude at the end, the content of these answers was NOT written by me, but by an AI Chatbot from OpenAI.

Many other AI systems exist, with more being made available, evolving, and moving into new areas of application. The 60 Minutes (CBS) story "The Revolution" https://youtu.be/TUCnsS72Q9s introduced what is going on at Google. Their chatbot is named **Bard**.

So I signed up for access and asked **Bard** (https://bard.google.com/signup) the same questions. The results are shown below, unedited. I find them to be quite similar to ChatGPT, as they should be when providing factual answers to scientific questions. Equally as accurate, although some are less 'chatty', or perhaps slightly less complete.

What caused the failure of the first trans-Atlantic telegraph cable?
Bard's Response:

The first transatlantic telegraph cable failed for a number of reasons, including:

- Mechanical problems: The cable was made of a copper wire surrounded by gutta-percha insulation, which was then wrapped in hemp and iron wire. The cable was very heavy and difficult to handle, and it was prone to breaking.

- Electrical problems: The cable was not insulated well enough to withstand the high voltages that were used to transmit signals. This caused the insulation to break down, which led to short circuits.

- Environmental factors: The cable was exposed to a variety of environmental factors, including salt water, which corroded the copper wire and the insulation.

- The failure of the first transatlantic telegraph cable was a major setback, but it paved the way for the successful laying of subsequent cables. Today, transatlantic cables are an essential part of the global communications infrastructure.

Is electricity an EMF wave or movement of electrons?

Electricity is both an EMF wave and the movement of electrons. An EMF wave is a disturbance in the electric and magnetic fields that propagates at the speed of light. When an EMF wave passes through a conductor, it causes the electrons in the conductor to move. This movement of electrons is what we call an electric current.

In everyday electrical and electronic devices, the signals travel as electromagnetic waves typically at 50%–99% of the speed of light in a vacuum, while the electrons themselves move much more slowly; see drift velocity and electron mobility. For example, when you turn on a light switch, an EMF wave is generated by the

switch. This wave travels through the wires to the light bulb, where it causes the electrons in the filament of the bulb to move. This movement of electrons heats the filament, causing it to glow.

So, electricity is both an EMF wave and the movement of electrons. The two are closely related, and they both play an important role in the way that electricity works.

Sources info 1. en.wikipedia.org/wiki/Speed_of_electricity

Do electrons move through a DC circuit at the speed of light?

No, electrons do not move through a DC circuit at the speed of light. The speed of light is the speed at which electromagnetic waves travel through a vacuum. In a DC circuit, the electrons move through a conductor, such as a wire. The speed at which the electrons move is much slower than the speed of light. The exact speed depends on the material of the conductor and the strength of the electric field. For example, in a copper wire, the electrons move at a speed of about 1 million meters per second, which is about 0.01% of the speed of light.

The reason why the electrons move so slowly is because they are constantly colliding with the atoms in the conductor. These collisions slow down the electrons and prevent them from moving at the speed of light.

And **Bard** can provide alternate answers with other details. Here is Draft 2 of the above question, which is more like the way I would have expressed it.

Draft 2
No, electrons do not move through an AC circuit at the speed of light. The speed of light is the speed at which electromagnetic waves travel in a vacuum. When an EMF wave passes through a conductor, it causes the electrons in the conductor to move. However, the electrons themselves do not travel at the speed of light. The speed at which the electrons move is called the drift velocity, and it is much slower than the speed of light.

In an AC circuit, the EMF wave is constantly changing direction. This means that the electrons are constantly being pushed back and forth. The average speed of the electrons are zero, but the individual electrons are moving back and forth at a high speed.

The drift velocity of electrons in an AC circuit depends on several factors, including the frequency of the AC current, the resistance of the conductor, and the type of material. In a typical copper wire, the drift velocity of electrons is about 1 millimeter per second. This means that it would take about 10 minutes for an electron to travel the length of a 10-meter wire.

The reason why the electrons move so slowly is because they are constantly colliding with the atoms in the conductor. These collisions scatter the electrons, which slows them down.

The higher the frequency of the AC current, the more collisions there are. This is why the drift velocity of electrons is lower in a high-frequency AC circuit than in a low-frequency AC circuit.

The type of material also affects the drift velocity of electrons. In a conductor with a high density of free electrons, the electrons are more likely to collide with each other. This also slows them down.

The speed of light is a fundamental constant of nature, but the drift velocity of electrons is not. It can be affected by several factors, and it is always much slower than the speed of light.

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The speed of light is a fundamental constant of nature, but the drift velocity of electrons is not. It can be affected by a number of factors, and it is always much slower than the speed of light. End of content written by **Bard** total time to research, write, edit 1 hour 27 min.

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PATACS Information

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First Class

AFFIX
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POSTAGE

TEMP-RETURN SERVICE REQUESTED

Meeting schedule (Zoom=Online Only, Hybrid=Online/In-person)

1st Wednesday	7:00 – 9 PM	Arlington General Meeting	Hybrid
3rd Monday	7:00 – 9 PM	Board of Directors Meeting	Zoom
3rd Saturday	12:45 – 3:30 PM	Fairfax General Meeting	Hybrid
4th Wednesday	7:00 – 9 PM	Technology & PC Help Desk	Hybrid

Arlington Meet: 5711 S. 4th ST., Arl. VA **Fairfax Meet: 4210 Roberts RD., Fairfax, VA**

Meetings are Hybrid or Zoom (as above)
Fairfax Health/Safety: https://www.patacs.org/fairfaxattreqmts.html
Online Meeting Access Will Be Sent Via Email

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Messages may be left at 703-370-7649
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