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The Digital Viking



Twin Cities

PC USER GROUP

NEWSLETTER

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*TC/PC Exists to
Facilitate and Encourage
the Cooperative Exchange of
PC Knowledge and
Information Across
All Levels of Experience*

May 2026

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General Meeting

Tuesday, May 12, 2026

7:00 PM

Nobody Understands The Point of Hybrid Cars

Via Zoom Only

If you are in the market for a new vehicle and considering hybrid cars but need to know more before you take the leap, this webinar is for you. The presenter from Technology Connections does a great job of explaining the history of this technology and how it works in plain English. Even if you would never own one, it will make you the smartest kid on the block. 

Note: All TC/PC SIG Groups are on vacation for the summer months. Back in September!

Tech Topics with Jack Ungerleider via Zoom at 6pm before the General Meeting.



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Member of

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Application form inside back cover

The Digital Viking

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Full page (7½ x 9½)	\$100.00
Two-thirds page (7½ x 6)	80.00
Half page (7½ x 4¾)	65.00
One-third page (7½ x 3)	50.00
Quarter page (3½ x 4¾)	40.00
Member Bus. Card (2 x 3½)	10.00

Multiple insertion discounts available.

Contact Sharon Walbran at: SQWalbran@yahoo.com

Deadline for ad placement is the 1st of the month prior to publication. All rates are per issue and for digital or camera-ready ads. Typesetting and other services are extra and must be requested in advance of submission deadlines.

Payment must accompany order unless other arrangements are made in advance. Place make checks payable to: Twin Cities PC User Group

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Meets once or twice per year. All members welcome to attend.

Visit www.tpc.com for meeting details.

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Up to 5 newsletters mailed to
your site
(only a nominal cost for each
additional 5 mailed)

Newsletter Staff

Editor Sharon Walbran

Upcoming Meetings June 9—Annual Meeting

Come to next month's meetings with ideas you would like to see addressed at next year's meetings and think of ways that you can contribute to your club. Ways to contribute include giving presentations or recruiting others to give presentations, and writing articles or short tips to include in the Digital Viking newsletter. 🖨️

Color Displays - 2025

By: Tom Burt, Vice President

Sun City Summerlin Computer Club

<https://www.scscc.club> tomburt89134 (at) cox.net

LCD (Liquid Crystal Display) color monitors and TVs have now superseded the old tube-based displays. Resolutions have become incredibly high, offering amazingly fine-detailed color images. In August 2015, I wrote about the details of HOW these LCD color screens operate to display the images we now take for granted. 10 years later, much of the display technology we use still operates the same way, using 24-bit color displays. However, as always, there have been advances in display technology, and prices have come down, bringing near theater-quality viewing to our home TVs and computer monitors.

An LCD display is a rectangular array of dots (pixels). Screens are characterized by the size and shape of this array. Older displays used a ratio of 4 pixels wide to 3 pixels high (4 by 3). Most displays and TVs now use the ratio 16 pixels wide by 9 high – the standard for high-definition TV. However, other ratios such as 21 by 9 are used as well. A typical 24-inch computer display screen will be 1920 pixels wide by 1080 pixels high, giving 2,073,600 pixels in total. The latest “Ultra HD / 4K” HDTVs have doubled this resolution to 3840 pixels wide by 2160 pixels high, giving almost 8.3 million pixels in total.



Hisense 75" U6 UHD (4K) QLED, 1 billion colors, HDR

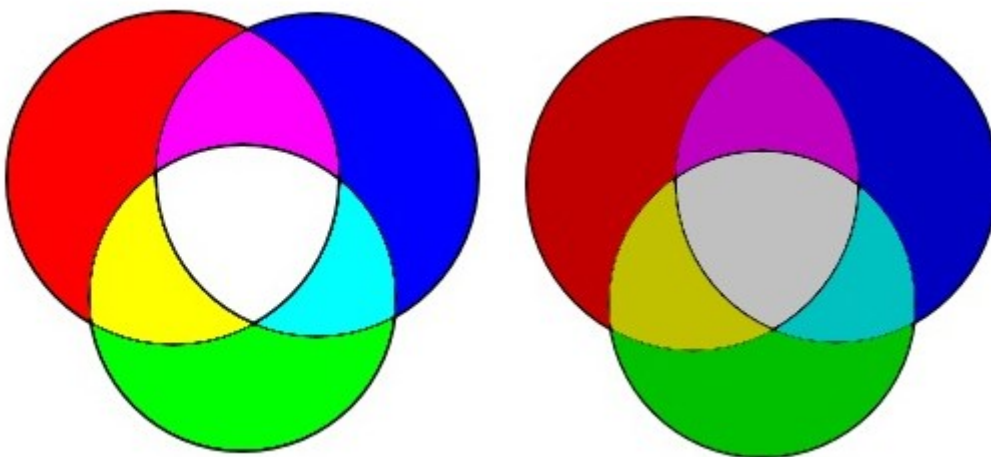
The above image was taken from a “Black Friday” ad on Amazon. The TV shown was priced at \$750. It features 4K resolution, High Dynamic Range, wide-color gamut, Quantum Dot LED technology and an AI-based up-scaler to convert standard definition and regular HD content to the 4K resolution. Some of this technology was very expensive 10 years ago and some had not yet come to the market. We’ll elaborate on these new technologies as we go.

In the older, but still common 24-bit (3-byte) color schemes, each individual pixel of an LCD display is made up of 3 separate sub-pixels – one for each of the three primary colors: red, green and blue. When these sub-pixels are illuminated in various intensities (from 0 to 255), that pixel can be made to display any of 16,777,216 distinct colors. So, a high-definition (1920 by 1080) LCD color screen with 24-bit color actually contains 6,220,800 individually addressable sub-pixels.

In the newer 30-bit color schemes, each individual pixel of an LCD display is again made up of 3 separate sub-pixels – one for each of the three primary colors: red, green and blue. These sub-pixels are illuminated in various intensities (from 0 to 1023). A pixel can display any of 1,073,741,824 distinct colors. So, a 4K LCD color screen with 30-bit color actually contains 24,883,200 individually addressable sub-pixels.

A liquid crystal sub-pixel operates like a shutter. It can be completely transparent, allowing all light from behind it to shine through or it can be completely opaque, allowing no light from behind to shine through. To illuminate the colored sub-pixels, behind the LCD matrix is a light source. In low priced displays, this backlight comes from a pair of fluorescent lamps at the edges. In QLED displays, the backlight comes from an array of white LEDs.

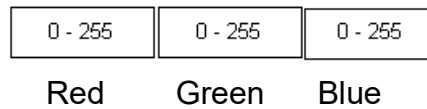
An LCD sub-pixel’s opacity is controlled by how much current is passing through it. In 24-bit color displays the current level for each sub-pixel can be varied in 256 discrete levels (0-255), giving 256 possible intensity levels for each of the three colors making up a pixel. In 30-bit color displays, the current level can be varied in 1024 discrete levels (0-1023). To the human eye, adding together combinations of red, green and blue in various intensities gives rise to the full spectrum of colors.



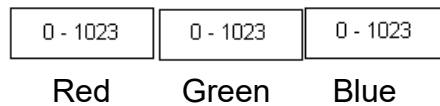
Red (255), green (255), blue (255) Red (192), green (192), blue (192)

Above are two diagrams of blending of colors in 24-bit color space. The left has all three colors at their brightest level (255); the right has all three colors at 75% of their brightest level (192).

Within an LCD display device is a block of memory that is used as a display frame buffer. In 24-bit color that frame buffer has one 8-bit byte per sub-pixel (i.e. 3 bytes per pixel) allowing for an intensity range of 0 to 255 for red, green and blue for each pixel:



In 30-bit color that frame buffer has one 10-bit field per sub-pixel (i.e. 4 bytes per pixel) allowing for an intensity range of 0 to 1023 for red, green and blue for each pixel:



(The actual physical format of 30-bit color data in the buffer uses a more complex packing scheme to optimize space but effectively is as shown above.)

A controller chip scans this frame buffer one pixel at a time and drives the current flows to the screen's 6.2 million (HD) or 25 million (4K) sub-pixel elements to control their opacity. On the LCD screen you see the entire colored image with a range of 16.8 million or 1 billion colors. The entire display is typically refreshed (re-scanned) 60 or 120 times a second, though higher refresh rates are often found in monitors for gaming.

High Dynamic Range and Wide Color Gamut

Most new HDTVs and many computer monitors now use the 30-bit color scheme which allows for 4 times as many red, green, blue color levels. In conjunction with separately controlled mini-LED backlighting, black pixels can be made blacker and white pixels can be made brighter. Putting these together allows the LCD display to show much more vivid colors and subtler interplay of light and shadow.



Above is an example of the difference between a standard HD picture (left) and one displayed with high dynamic range and wide color (right). 🖥️

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A Multiplicity of Linux Distros

by Alan German

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Users who are new to the world of Linux are usually astounded, if not actually overwhelmed, by the large number of available versions of this free operating system. Certainly, the sheer number of options can make the choice of an appropriate distribution difficult. At worst it may lead to “choice paralysis” and the inability to make an initial selection.

DistroWatch (<https://distrowatch.com>) is the leading resource for identifying available Linux distributions, currently listing more than 1000 products. This figure includes active, dormant, and discontinued versions, in addition to a number of Berkeley Software Distribution (BSD) variants. Restricting the listings to just active Linux distributions still provides 399 choices! So, let's dive deeper into the main options and see if we can identify a practical starting point.

But first let's quickly review the difference between Linux, the Linux kernel, and a Linux distribution or distro. For most of us, the Linux kernel is the heart of the black box that is the operating system. It manages all the system tasks such as timing and scheduling of CPU operations, handling data input and output for peripheral devices, and enforcing security protocols. A Linux distribution builds on the kernel by adding utilities and applications such as a file manager, a text editor, office suite, web browser, E-mail client, and a media player.

So, why is it that there are so many distros to choose from? The short answer is that Linux and most of its associated applications are developed from open-source software. The open-source license specially allows the reuse and modification of the code, and requires that any redistribution of developed products be provided under the same licence terms. As a result, anyone is free to use the baseline code and packages to craft a customized version of the Linux system and release their specific distro to the world. In particular, most distros use the same version of the Linux kernel but vary widely with respect to the ancillary software that is bundled with the kernel to provide a specific distribution.

Developers can be corporate entities, community-based development teams, or even individuals. They create new distros for a variety of reasons. Some developers focus on making things simple for beginners while others have advanced users in mind. Distros may target single users or enterprise environments, and be suited to use on individual PC's or as network servers. Different philosophies can also be the basis for different distros. Some developers wish to provide long-term stability and only make new versions of their distros available at specific times (point releases), while other development teams want to be at the cutting edge of technology and make frequent changes (rolling releases) as soon the included software is updated. Developers can also have different preferences for various components of the Linux system, including the file system, software repositories, package management systems and, very commonly, the pre-installed packages.

The net result of all the above is multiple choice. This can be both a good and a bad thing depending on the outlook of the end user. For those coming from the Microsoft Windows world, the freedom of choice among so many distros can be overwhelming. For individuals with even a little Linux

experience, the wealth of options - and especially the level of control offered by each distribution - is simply unmatched.

Looking at the range of available Linux distributions, the short list for those that perhaps best fit the major usage categories has three main players. Debian is a stable release which offers long-term support for any given version. Arch Linux features a rolling-release model and provides cutting-edge features. Red Hat Software is the developer of Red Hat Enterprise Linux (RHEL), a commercial distribution widely used in businesses, data centres, and cloud storage providers.

These main distributions are flanked by various distros that use the main packages as a base. For example, Ubuntu and Linux Mint have been spun off Debian; distros like Manjaro, EndeavourOS and CachyOS are based on Arch Linux; while Red Hat Software is the primary sponsor for The Fedora Project, a community-based distro, and has spawned other distros such as Rocky Linux and Alma Linux.

There are various other Linux distributions whose names may be familiar, including Slackware, Gentoo and SUSE/openSUSE. Slackware is the oldest surviving Linux distribution and continues to focus on simple, Unix-like design, affording users exceptional control but expecting them to manage items such as system configuration. Gentoo is extremely flexible, allowing high levels of customization and optimization for specific hardware configurations. It's a source-based distribution and most software, including the Linux kernel, is normally built from source on a local computer. As such, this is definitely a distribution for advanced users. Like Red Hat and Fedora, SUSE and openSUSE are cousins in the enterprise and regular user spaces. SUSE Linux Enterprise (SLE) is designed for mission-critical servers and corporate environments while openSUSE is its community-based counterpart.

These mainstays of Linux are associated with a multitude of additional derived distributions. In addition, several independent distributions exist. These often experiment with lightweight design, advanced features, or alternative package management systems. For example, Alpine Linux prioritizes minimalism and security, making it ideal for headless servers and containerized environments. 🖥️

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Where AI Fails (and Humans Can Help)

By: David Kretchmar, Hardware Technician

Sun City Summerlin Computer Club

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Artificial intelligence is reshaping industries, and some financial advisors have been attempting to successfully use it to enhance portfolio performance. Investment advisors are using AI for automated stock investment or to get investment suggestions. While we are just starting to understand how AI can improve our lives, AI struggles with stock selection. Thus far, using AI to select stocks has proven no better than flipping a coin. AI's poor investment performance is mainly the result of unpredictable human behavior, augmented by geopolitics, and unanticipated data not included in training models. AI excels with data analysis but lacks true understanding of complex events and most importantly, how humans react to events.

Can Computers Pick Stocks?

In spring 1969, a *Wall Street Journal* article (IIRC) described how a network of computers, IBM

System/360s, the most advanced computer of the day, were tasked with selecting the best US stock to buy for investment.



The computers picked the stock of Ling-Temco-Vought, later renamed LTV Corporation. LTV Corporation was a massive conglomeration of different businesses such as aerospace, steel, and meat packing. Conglomerates were all the investing rage in the late 1960's. LTV was one of a group of companies that were the 1969 equivalent of the late 1990's internet bubble or the current artificial intelligence and cryptocurrency bubbles. Conglomerates were believed

to be so diversified across so many different industries they were insulated from value drops in any particular sector. As conglomerates expanded by acquiring businesses across various industries, they used their stock or loans for buyouts. Conglomerates' earnings increased when they bought companies with lower price-earnings ratios or, in cash deals, when the acquired company's earnings were higher than the interest they paid on acquisition loans.

If all of that sounds like accounting mumbo-jumbo, it is. Given the apparently unsophisticated stock research used by individuals and professionals of that time, LTV earnings appeared to be growing very quickly and steadily, and its share price rose dramatically. In the spring of 1969 LTV was trading at a price to earnings multiple of 10 times earnings, which was below the market multiple at the time, in spite of its above average growth. I believe this is what made the stock appear attractive to computers. But apparently some astute investors recognized the reported earnings growth was suspect, as reflected in the lower-than-average PE multiple.

In the early 1970's investors realized the conglomerates were not growing any faster than the individual companies had before they were acquired. "Cobbler, stick to your last" is a proverb that

describes the changed investment attitude when it was realized that a financial institution executive might not be the ideal manager of an aerospace company.

CS3621B2



Share prices plummeted, sparking a bear market, and a subsequent period of sideways market movement for much of the next decade. Many conglomerates became horrible investments, and the stock of many conglomerates, including LTV, became virtually worthless. In other words, tasked with picking the best stock, computers managed to choose one of the worse investments. Clearly there was something missing from the computer analysis.

Fear and Greed

It has been over one-half of a century since 1969, but during that time computers have consistently done a poor job of stock selection. Data scientists believe that is because computers have so far

been unable to quantify and digitize the human emotions that govern stock prices: Fear & Greed. Artificial intelligence can only be trained to mimic and possibly trigger human emotions; AI Bots have caused humans to fall in love and are even believed to have helped cause suicides. These reactions were unlikely to be intended by the creators of the applications utilized but were the result of computers failing to understand human emotions.



Programming a computer to incorporate human emotions such as fear, greed, love, and hate has proven impossible. Humans themselves do not really understand these emotions, let alone have the ability to translate them into machine language.

Computers utilizing conventional analysis or AI have never been able to produce any kind of consistent stock market results. If computers were usually incorrect in their stock selections, like computer example discussed above, that would be valuable from a contrarian perspective. But alas, because computers, even with AI, are absolutely ignorant of much of the pallet of human emotions, they fail to produce useful investment results.

Conclusions

Current research suggests that the most successful approach isn't AI replacing humans but augmenting them.

The "man + machine" approach, which merges AI's pattern recognition with human judgment and some understanding of human emotions, generally produces the best results.

AI can identify potential signals, but a human investor must interpret relevance and make the final, informed decision. Just like a radiologist using AI to help read an X-ray, human involvement is still a critical factor.

Today there is a great deal of concern that computers using AI will take many jobs away from humans. Thirty years ago, Intuit introduced TurboTax. At that time, it was predicted the accounting profession would become obsolete and millions of jobs would be lost. Today, the accounting profession has never been stronger, with shortages of accounting professionals being a problem in some industries.

Images are from Google Chrome 



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Meetings start at 7:00 PM (9:00 AM on Saturday) unless otherwise noted. *Virtual Meetings during Covid pandemic.

May

June

SUN	MON	TUES	WED	THU	FRI	SAT
26	27	28	29	30	1	2
3	4	5	6	7	8	9 Linux on Saturday SIG 9:00-Noon
10	11	12 7pm General Mtg Nobody Understands the Point of Hybrid Cars 6pm Tech Topics	13	14	15	16 MS Office SIG (includes Access) 9:00-Noon
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6
7	8	9 7pm General Mtg Annual Meeting 6pm Tech Topics	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
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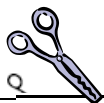
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Does membership in this group sound like a good way to increase your computer knowledge?

It's easy to do! Simply fill in the form below and mail it to the address shown.
(If you use the form in this issue, you will receive an extra month for joining now.)



		5/26
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		<input type="radio"/> Special Interest Groups: New User, Access, etc.
		List here:
Administrative Use Only Rec'd _____ Chk# _____		

May 12, 2026

7:00 pm

General Meeting

**Nobody Understands The
Point of Hybrid Cars**

Via Zoom Only



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