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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

February 2019

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General Meeting Tuesday, February 12, 2019 7:00 PM

Enabling Find My PC in Windows 10 & Can Anyone Track My Precise Location & More

**Summit Place
8505 Flying Cloud Drive
Eden Prairie, MN 55344**

Our APCUG Regional Representative has recommended a number of short articles that have critical tips and information important to computer users but no one of which is extensive enough to make a full presentation for a meeting. Sharon Walbran has cobbled together a number of these for our February meeting. Feel free to bring your own tips to share with the audience. It's Open Mic night. 🖥️

Tech Topics with Jack Ungerleider lead off our meeting at 6:00 PM. Always new stuff to learn. 🖥️

TC/PC is a Member of



24-Hour Information • www.tcpc.com
Application form inside back cover

The Digital Viking

The Digital Viking is the official monthly publication of the Twin Cities PC User Group, a 501(c)(3) organization and an all-volunteer organization dedicated to users of IBM-compatible computers. Subscriptions are included in membership. We welcome articles and reviews from members. The Digital Viking is a copyrighted publication and reproduction of any material is expressly prohibited without permission. Exception: other User Groups may use material if unaltered and credited.

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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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TC/PC Member Benefits

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and demonstrations

Special Interest Groups
Monthly Newsletter

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and services

Contests and prizes

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FREE ½ page ad on
payment of each renewal

20% discount on all ads
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Viking* Newsletter

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

Newsletter Staff

Editor Sharon Walbran

Contributors:

Jeannine Sloan

32-bits, 64-bits – How many do I need?

By Phil Sorrentino, Contributing Writer, The Computer Club, FL

January 2019, www.sccccomputerclub.org, Philsorr (at) yahoo.com

Over the past few years, Personal Computers have been moving from 32-bit Central Processor Units (CPU) to 64-bit CPUs. (Actually, 64-bit CPUs were first introduced way back in 2003, but it takes time to get new CPUs through the design/manufacture/produce cycle to finally provide “affordable products”.) So it's not a matter of how many you need, it is a matter of what is on the market. From a user's point of view, the main difference between 32-bit and 64-bit CPUs is performance. Performance is basically the speed at which the CPU can complete tasks and is measured in calculations per second: the faster the CPU, the higher the performance. Additionally, 64-bit CPUs can come in dual, quad and eight core versions which can provide further improvements in performance. Another difference is the maximum amount of RAM memory that can be accessed. 32-bit CPUs can access a maximum of 4 GB, whereas a 64-bit CPU can access far beyond 4 GB, which is necessary if you are using software to accomplish things like video editing or graphic design. In general, the more bits you have, the better the processing performance and capability, and therefore the better your computing experience.

The CPU defines the architecture. A 64-bit CPU is used in a 64-bit architecture and a 32-bit CPU is used in a 32-bit architecture. Today, almost all PCs are built around the 64-bit architecture, giving you the best possible computing experience if you only consider the number of bits. (Other contributing factors to your computing experience might be Internet connection speed, display size, hard drive size, and the number and speed of USB ports.) The Operating System (OS) software is intimately connected to the hardware architecture. That said, keep in mind that a computer with a 64-bit architecture can have a 64-bit OS or 32-bit OS installed; however, the 64-bit architecture with a 32-bit OS installed will not provide the 64-bit architecture's full capability. Also note that the 32-bit architecture can only run a 32-bit OS. Windows 10 is built for the 64-bit architecture as was Windows 7, unlike Windows XP and 95 which were built for the 32-bit architecture.

A quick look in the rear-view mirror shows the original PC that was released in 1981 by IBM. This early PC was built around a 16-bit architecture which was quite a bit less capable than our current 64-bit or 32-bit CPUs. (The initial CPU was an 8088 which actually used 16 bits internally, but had an 8-bit Input/Output (IO) interface (possibly to keep costs down and possibly to interface to certain peripheral devices), making it a hybrid of sorts, 16 bits internally for calculations and 8 bits externally for I/O.) PCs that followed used the 8086 CPU which was a true 16-bit processor. 32-bit computers started to appear as early as 1985 with the Intel 386 CPU. Improvements in the 32-bit architecture continued from the mid 1980s till the 64-bit processor arrived in 2003. The 64-bit architecture has been improved over the past 15 years and the cost has been reduced to the point where almost every PC produced today has a 64-bit CPU in it. If you are looking for a new computer, definitely go for the 64-bit architecture. (You can find the architecture and OS information in Settings-System-About. In this window,

“System type” will show the number of bits for the processor, and also the number of bits for the OS.)


The number of bits in a particular PC architecture indicates the number of bits used in calculations and the number of bits used to address an item in memory. So, a 64-bit architecture has a 64-bit Arithmetic/Logical Unit at the heart of the CPU and can address up to 2^{64} or 16 exabytes in memory. (Note, not all PCs are built to take advantage of this large memory space, in fact most are limited by their hardware design to less than 512 Gigabytes.) An Exabyte is a very large number it is a million-million Terabytes. To put it in perspective, see the following table:

1024 Gigabytes=	1 Terabyte
1024 Terabytes=	1 Petabyte
1024 Petabytes=	1 Exabyte

On top of the hardware limitation, which is not really very limiting, the Operating System in use places some limitations. The following table shows the limitations for some of the popular versions of Windows 10:

Operating System	Maximum Memory (RAM)
Windows 10 Home 64-Bit	128GB
Windows 10 Pro 32-Bit	4GB
Windows 10 Pro 64-Bit	512GB

So, considering the number of items or bytes that we currently concern ourselves with, 4 to 32 gigabytes of RAM memory, and maybe 4 to 12 terabytes of hard drive space, the 64-bit architecture will probably take us pretty far into the future.

If one were purchasing a new computer, the best situation would be a 64-bit hardware architecture with a 64-bit OS and all 64-bit drivers. You would probably get this if you bought a middle to high end PC from a popular company like HP, Dell, or Lenovo. Low end or economy models might have a 32-bit or a 64-bit architecture. Note that if the amount of installed memory was over 4 GB then it would have to be a 64-bit architecture. If one did purchase a PC with a 32-bit architecture it would probably have a 32-bit OS installed. Knowing what OS is installed on your PC is important if you are installing new software. If your new software is built for a 64-bit OS, it will only run on a 64-bit OS; it will probably not run on a 32-bit OS. If your new software is built for a 32-bit OS then it will probably run on a 32-bit OS or a 64-bit OS. Sometimes a software vendor will make two versions available, one for the 32-bit OS and a different one for the 64-bit OS. So, if you can find it in your price range, a 64-bit architecture with a 64-bit OS and 12 GB of RAM and a 1TB hard drive would probably satisfy almost everyone's needs, except maybe for a few very serious gamers. 

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Cell Phone Photography

By Dick Maybach, Member, Brookdale Computer User Group, NJ

www.bcug.com, [n2nd \(at\) att.net](mailto:n2nd@att.net)

Most cell-phone camera photos have little lasting value, making their quality unimportant. However, these cameras are rapidly improving, and more people are using them on vacations and at important events. It now becomes important to take the care to make their pictures worth showing, meaning you must now better understand your camera and its software. The quality of your photos depends more on your photographic skills than on your camera. Good photographers take good pictures regardless of their equipment, and those with limited ability take poor ones regardless of how much money they spend or the tonnage of gear they carry. Dedicated cameras can take better pictures, but they are usually kept safe at home, while our cell phones are almost always with us.

The first step is to recognize the limitations of cell phone cameras.

- Their shapes make them difficult to hold steady, especially while making adjustments.
- They have tiny sensors, making low-light photography difficult at best.
- They reside in pockets and purses, and their exposed lenses quickly become dirty.

Their lenses are simple with fixed apertures and focal lengths.

Taking good pictures requires learning to compensate for these limitations.

Cell phones' small display screens hide many sins. Develop the habit of transferring every image to a PC, whose large, high-resolution monitor allows you to see what you've captured, warts and all. Moving pictures to a PC also makes them available to image processing software and frees the limited storage space in your phone. Simple changes, such as cropping, exposure correction, and noise reduction, can make large differences.

You hold a conventional camera against your face with both hands. The viewfinder has optics that make the image appear to be about a meter from your eye, and there is an adjustment to compensate for aging vision. Compare this to a cell phone that you hold at arm's length where its screen is often in direct sunlight. Clearly, the latter is subject to a lot more twitching, and using a selfie-stick makes this worse, creating blurry photos, especially in dim light. To minimize this hold your phone with both hands and release the shutter with a dedicated button (often one that controls the volume) rather than jabbing at the screen. Bend your arms so that your elbows are pressed against your waist or are resting on a table if you are sitting. In dim light, rest the phone against a solid object if possible. If your near vision is limited, hold the camera at arm's length to make adjustments, but pull it closer to take the picture.

Tap the screen on the point where you want the camera to set its focus and exposure, otherwise it will make a choice. The result could be a sharply focused, well exposed shrub in the foreground and an overexposed blur in the background barely recognizable as the Leaning Tower of Pisa. If your subject is moving, set the camera to take a sequence of pictures; you'll throw most of them away, but you may capture the moment you want. Also consider a sequence when photographing a group; you'll have a better chance to catch everybody's eyes open. Always squeeze the shutter button rather than jab at it; the latter jerks the camera. Taking a photo sequence means the timing is not important, so even here you can be gentle with the shutter.

The best compensation for a small sensor is to have plenty of light when you take the picture. You can sometimes achieve this by moving so the light source is behind you; certainly try to avoid back-lit subjects. Another approach is to limit the exposure sensitivity, which the camera sets by adjusting its ISO, although not all photo apps and phones allow this. For my phone, ISO values above a few hundred produce very noisy images, which even capable photo processing software can't correct. Once you limit the ISO, you will find you have long exposure times, which means you now must place the camera on a solid support to reduce the shake. You probably also want to delay the exposure, so that it takes place a few seconds after you press the button, giving you time to ensure the camera is steady. Again, not all camera apps have this feature.

Carry a clean, soft cloth or a packet of lens cleaning paper and use it often to clean the lens. Also, keep in mind that the lens is right at the surface of the case and has no shade. You may have to use your hand to keep sunlight from striking it directly. Let's see now, you are holding the phone with one hand, operating the controls with another, and shading the lens with a third, while all the time trying to hold it steady. A shutter delay may help, but some thinking may be better. Perhaps you can stand in the shade or ask someone to cast a shadow on your camera.

The simple lens is always set for wide-angle pictures; it achieves a telephoto effect by throwing away the outer portions of the image. As a result, you should avoid using the camera's zoom feature, instead move closer to your subject. If you can't, then take the picture at wide angle and throw away the unwanted portion of the image with processing software after you move it to your PC. This gives you more flexibility on what you choose to include in the finished photo. Figure 1 shows a picture taken in normal (wide-angle) mode.



Figure 1. Image in Wide-angle Mode.

Figure 2 shows the same image taken using the zoom feature. The camera throws away the portion of shown in red; however it processes the image so that it has the same number of pixels before it stores the file. If you enlarge two images of the same scene, one wide-angle and one zoomed (you'll of course have to magnify the wide-angle one more), you will see that both have about the same resolution, meaning the added pixels in the zoomed image have not improved its quality. Now do the same experiment, but instead of zooming, move closer to your subject, and you'll find that the latter image does have more detail.



Figure 2. A Zoomed Image.

Finally, be aware that unlike a dedicated camera, a cell phone camera has a fixed aperture; it controls exposure only by adjusting the ISO and exposure time. As a result, you have little control of the depth-of-field. However, because a cell-phone camera has a small sensor, its depth-of-field is large, making it a concern only when you are very close to your subject.

Most photo apps have features you can use to improve your pictures. Figure 3 shows the default display for Moto Camera, the photo app supplied with my Motorola phone. Note the rule-of-thirds guide lines, which help to compose your photo. A common technique is to locate the main subject at one of the intersections. Some apps give you a choice of several such composing aids. Note also the yellow icon around the subject, which appears because I tapped the screen there to create a focus and exposure point. This app also allows you to adjust the exposure by moving the white spot around the icon circle. The other visible controls are (on the left) set manual or automatic mode, set the delay, control the flash, take a high-dynamic-range photo, and (on the right) select movie, still, or panoramic mode, and switch between the front and back cameras. The large white button on the right is the on-screen shutter release.

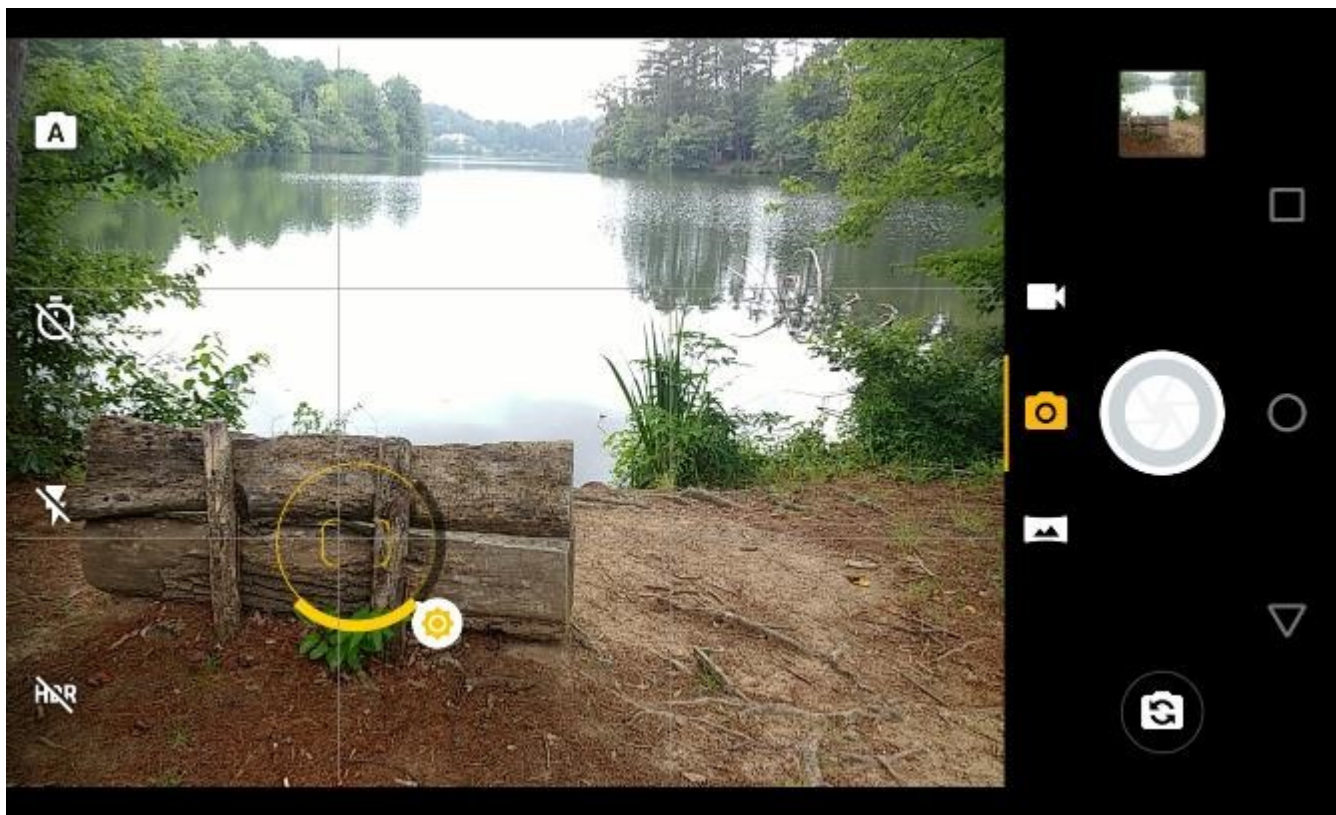


Figure 3. Moto Camera Display.

Surprisingly, I found the photo app supplied with my phone (available from the Play Store as Moto Camera) to be the one I use most often. It allows for adjusting the focus, white balance, shutter speed, ISO, and exposure, includes an exposure delay, high-dynamic-range (HDR), panoramas, and can disable the flash. It doesn't allow photo sequences, and I use Open Camera for this feature.

Figure 4 shows the manual mode of Moto Camera, which allows considerable flexibility. The controls are, from left to right: focus, white balance, shutter speed, ISO, and exposure compensation. You move the white circles to make adjustments. Except for exposure compensation, a white dot at the bottom of its arc means that adjustment is automatic.

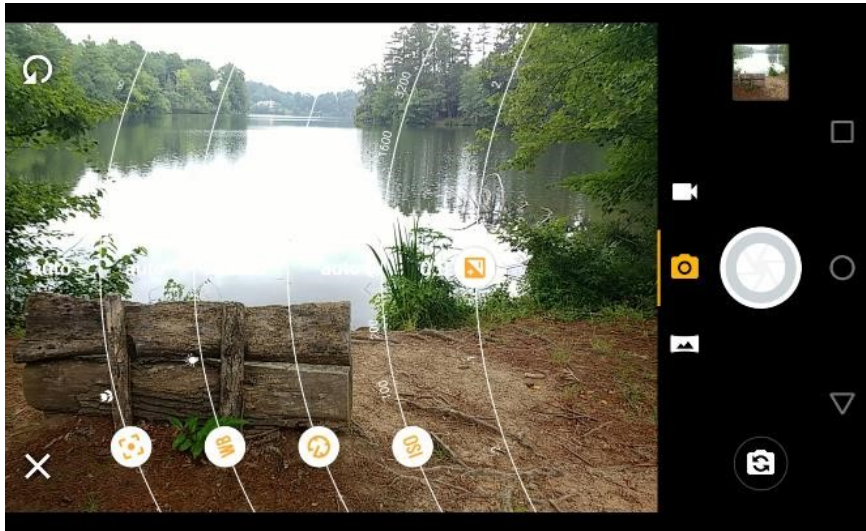


Figure 4. Moto Camera in Manual Mode.

Many apps offer high dynamic range (HDR) where they take several photos at different exposures and combine them with the goal of showing details in both the very bright and the very dim areas. In my experience, it is very difficult to obtain acceptable HDR results, even with a professional camera and high-quality photo processing software. The results with a phone camera and its app software are often disappointing, but you have nothing to lose by trying. The technique won't work on moving subjects; even leaves moving in the background will cause problems. Some apps, for example Open Camera (available from the Play Store), have a dynamic range optimization (DRO), which processes the shadow and highlight areas differently in a single image. This works for moving subjects and I've found the improvement often approaches that using HDR. Open Camera will also save the individual images it combines into an HDR one, which enables you to use your PC processing software and perhaps get better results than with the app's software.

The capabilities of a photo app depend on the version of Android under which it runs and on what features the vendor has enabled. To get everything you need, you will have to experiment and probably install more than one photo app.

We can summarize this discussion as follows.

- Hold the camera firmly with both hands and use a dedicated button to release the shutter and squeeze rather than jab at it.
- Brace your elbows and in low light rest the camera on a firm support. Consider using a shutter delay to reduce camera jiggle.
- Minimize using the zoom feature but take your pictures at wide angle.
- Always select the focus point.
- Keep your lens clean, and shade it from direct sunlight.
- Look at your images on a large, high-resolution monitor.

Experiment with camera apps to find those that best suit you and your phone.

With a little care and practice you can take surprisingly high-quality photos with your cell-phone camera, often approaching those from dedicated cameras and far surpassing those from cameras of just a few years ago..📷

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NIBBLERS

By Jeannine Sloan

How to Tell if a Link Is Safe Without Clicking on It

Hover Over the Link: If you hover over a link without clicking it, you'll notice the full URL of the link's destination in a lower corner of your browser.

Use a Link Scanner: There are many free and reliable link scanners available; I suggest you try [URLVoid](#) first. URLVoid scans a link using multiple services, such as Google, MyWOT, and Norton SafeWeb, and reports the results to you quickly.

Check Out Shortened Links: use [Sucuri](#). Sucuri automatically expands the shortlink and draws upon a handful of services, such as Google, Norton SafeWeb, and PhishTank, to determine if the real link is safe.

Copy a Link—Safely: Just right-click the link to bring up a context menu, then click Copy shortcut (or similar).

https://www.pcworld.com/article/248963/how_to_tell_if_a_link_is_safe_without_clicking_on_it.html

Tiny Device to Speed Up Memory While Also Saving Power

Researchers have discovered a new functionality in a two-dimensional material that allows data to be stored and retrieved much faster on a computer chip, saving battery life; thanks to the discovery of a previously unobserved functionality in a material called molybdenum ditelluride. From Science Daily news feed from materials provided by Purdue University.

Taskbar Hints

- Hold down Shift as you click a taskbar icon to open a new instance of a program that's already running. If you want to compare two Word documents side by side or copy files from one folder to another, this will save you a few clicks.
- Right-click any taskbar icon to see a list of time-saving quick actions and shortcuts to recent documents for that program.
- Drag any file or folder and drop it onto the File Explorer taskbar icon to pin it to the Jump List for quick access.

Generative Adversarial Networks

GANs, are fueling creativity—and controversy. GANs are having a bit of a cultural moment. They are responsible for the first piece of AI-generated artwork sold at Christie's, as well as the category of fake digital images known as “deepfakes.” Their secret lies in the way two neural networks work together—or rather, against each other. Here's how they work. Read the MIT article here: <https://tinyurl.com/yd5xrs6z>

Privacy

“The best way to make sure web sites can't gather personal information about you and your computer is to surf anonymously; use an anonymous proxy server to sit between you and the web sites you visit. When you use an anonymous proxy server, your browser doesn't contact a web site directly. Instead, it tells a proxy server which web site you want to visit. The proxy server then contacts the web site, and when you get the web site's page you don't get it directly from the site. Instead, it's delivered to you by the proxy server. In that way, your browser never directly contacts the web server whose site you want to view. The web site sees the IP address of the proxy server, not your PC's IP address. It can't read your cookies, see your history list, or examine your clipboard and cache because your PC is never in direct contact with it.

2019 Will Be A Year Of Building Real-World Solutions

In 2019 and the next several years beyond, blockchain is likely to evolve to include greater scalability and security, enabling applications such as mobile voting (as it did in West Virginia this November), and supply chain tracking (as it has in the international shipping, food and diamond industries).

How to Set Up a Windows 10 Computer

1. Update Windows
2. Get rid of bloatware
3. Secure your computer
3. Secure your computer
5. Take a system image

Read this TechRepublic article for illustrated detailed instructions: <https://tinyurl.com/y7on3t92>

Future of Energy

We're only a decade away from renewable technologies like solar, wind, and others reaching a point where they become the cheapest, most efficient option. That tipping point will represent the beginning of a new age in energy generation, and potentially, a new age in human history.

<https://www.quantumrun.com/macroprediction/slow-death-carbon-energy-era-future-energy-p1>

Best of Last Year

It was a great year for technological innovation as a team at MIT announced that they had flown the first-ever plane with no moving parts.

A team of engineers at Caltech taught a drone to herd birds away from airports autonomously.

Many more at <https://techxplore.com/news/2018-12-yearthe-tech-xplore-articles.html>

[Note: these are the last Nibbler articles from Jeanine Sloan who has filled our newsletter with much wisdom on a weekly basis. Huge thanks, Jeanine!]



Special Interest Groups (SIGs)

w Work phone h Home phone c Cell phone
* Meets at an alternate location

Most SIGs will meet at Edina Executive Plaza, Conference Room #102, 5200 Willson Road, Edina, MN

Confirm with a SIG group if they meet elsewhere.
For more info contact the SIG Leader(s) listed here.

Get SIG announcements!
Link from www.tcpc.com

Board of Directors*

All members are welcome! Check www.tcpc.com for location.

Selected Saturday mornings

Linux on Saturday

This is for the Linux newbie and those trying to come over from Microsoft to a different operating system.

Second Saturday @ 9 AM-Noon

Note: No Meetings June-August

Jack Ungerleider 612/418-3494 c
jack@jacku.com

Tech Topics

Technical presentation/discussion on various technical topics from the following areas:

- Web/Internet
- Mobile Devices and Apps
- Playing with Programming
- DIY (3D Printing, R-Pi, other hobby electronics, etc.)

Second Tuesday @ 6:00-7:00 PM

Every month

Right before the general meeting.

Jack Ungerleider 612/418-3494 c
jack@jacku.com

Microsoft Access

All levels. Presentations by expert developers within the group and by MS reps.

Third Saturday 9:00 AM—Noon

Note: No Meetings June-August

Steve Kuhlmeier 952/934-8492
skuhlmeier@hotmail.com

Microsoft Office

Addresses the use, integration, and nuances of the Microsoft Office applications.

Combined with Systems on Saturday

Third Saturday of the Month

9:00 AM—Noon

Note: No Meetings June-August

Steve Kuhlmeier 952/934-8492
skuhlmeier@hotmail.com

Directions to Summit Place for General Meetings:

Proceed to Eden Prairie Center Flying Cloud Drive . [Flying Cloud Drive runs along the West side of the Eden Prairie Center.] Once you have driven past Eden Prairie Center (on the left) along Flying Cloud Drive you will come to a stop light at Prairie Center Drive. The next intersection with a stop light and left turn lane is Fountain Place. Turn left at Fountain Place and go straight into the parking lot. Turn left again to the first covered entry way of Summit Place. There is plenty of parking in the large parking lot in front of the first Summit Place covered entry way. When you enter the door at the first covered entry way, ask to be directed to the Performance Room for the TC/PC meeting. For a map of more detailed directions and *info on Web SIG and Board meeting*, check the TC/PC website.

Directions to **Edina Executive Plaza** for **Systems on Saturday, Access, Word and Picture Perfect SIGs**: Take Highway 100 to the 50th Street/Vernon exit. [If you have come from the north, cross back over Highway 100 to the east side.] Take the first right and go past Perkins [The golf course will be on your left.] and continue on the east frontage road (Willson Road) to the next building—5200 . There is ample parking in the building's lot. Conference Room #102 is on 1st floor.

Help yourself by helping others!

Join the team & share your knowledge with others.

Contact TC/PC at www.tcpc.com

Meetings start at 7:00 PM (9:00 AM on Saturday) unless otherwise noted. *Meets at Edina Executive Plaza.

February

March

SUN	MON	TUES	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9 Linux on Saturday 9 AM—Noon
10	11	12 General Meeting TBA 6PM Tech Topics	13	14	15	16 MS Office (including Access) 9 AM—Noon
17	18	19	20	21	22	23
24	25	26	27	28	1	2
3	4	5	6	7	8	9 Linux on Saturday 9 AM—Noon
10	11	12 General Meeting TBA 6PM Tech Topics	13	14	15	16 MS Office (including Access) 9 AM—Noon
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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You have just read an issue of The Digital Viking.

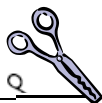
Would you like to receive this delivered directly to your email or business each month?

As a member of TC/PC, the Twin Cities Personal Computer Group, one of the benefits is reading this monthly publication at www.tcpc.com.

As a member of TC/PC, you may attend any or all of the monthly Special Interest Group (SIG) meetings and be eligible for software drawings. The small membership fee also includes access to real-live people with answers via our helplines, discounts, and various other perks.

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.)



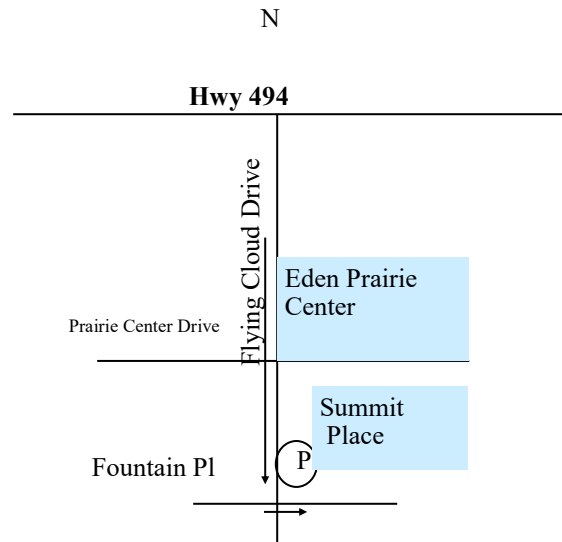
Here's the info for my TC/PC Membership:	I'm signing up for:	2/19
Full name _____	<input type="radio"/> Individual/Family Membership (\$18)	
Company name _____	<input type="radio"/> Business Membership (\$100)	
Address _____	If an existing member your # _____	
City _____ State _____ Zip _____	Make checks payable to:	
<input type="radio"/> Home <input type="radio"/> Business <input type="radio"/> Change address: <input type="radio"/> Perm. <input type="radio"/> Temp. 'til _____	Twin Cities PC User Group 341 County Rd C2 W Roseville, MN 55113	
Home phone _____ Work phone _____	<u>http://www.tcpc.com</u>	
Online address(es) _____	<input type="radio"/> Check # _____ <input type="radio"/> Bill me <input type="radio"/> New member <input type="radio"/> Renewal <input type="radio"/> Prior member	
Where did you hear about TC/PC? _____	I'm interested in:	
<input type="radio"/> I DO NOT want any of my information disclosed.	<input type="radio"/> Training classes <input type="radio"/> Volunteering <input type="radio"/> Special Interest Groups: New User, Access, etc.	
<input type="radio"/> I DO NOT want to receive any mailings	List here:	
Administrative Use Only Rec'd _____ Chk# _____		

February 12, 2018
General Meeting 7:00 PM

**Enabling Find My PC
in Windows 10**

Summit Place
8505 Flying Cloud Dr.
Eden Prairie, MN 55344

More info and map: www.tpc.com



341 County Rd C2 W
Roseville, MN 55113

FIRST CLASS MAIL