Our Club

RCSI is a nonprofit 501(c)(3) group open for membership to anyone interested in computers and new technology. Established in 1981, our aim is to provide an exchange of information between users of digital devices. We are not in any way affiliated with any computer manufacturer or software company, and *we do not sell your data or email address*.

Program Meetings

No admission fee for non-members. Everyone is welcome! Second Tuesday of every month, *except July and August*, from 6:30pm-8:30pm.

Help's Half Hour (Q & A) 6:30pm – 7:00pm. *Members and Guests are welcome to attend and bring their computer related questions with them to get answered.* **Yes, you may bring the problem computer with you.**

7:00 – 7:15, Club Business

7:15 – 8:30+, Main Presentation Come and join in the fun and enjoy a snack! **You are welcome to bring a guest**.

Become a Member

The club would like to have you as a member, and your subscription will help to keep us going. Go to our website, www.rcsi.org, and download a printed form for use by the Post Office mail, **or** enter your info online and pay with a credit card or PayPal, **or** attend a meeting.

The Rochester Computer Society, Inc.

a computer/tech club open to everyone

M NIT R

Jan 9, 2024, **'Potluck Video Night', members bring a 5 to 10 minute video to show**

Feb 13, **'Best of CES 2024', 'Thunderbird Email Client', 'Calendar Apps'**

In This Issue

Reflections on the PC Environment

By Dick Maybach
Brookdale Computer User Group

The PC world was far simpler when I began writing PC tech columns in 1992. Many of us relied on diskettes for storage; if we had a hard disk, it held only a few hundred megabytes. Software was distributed on diskettes, and its box usually contained a manual. Windows 3.1 appeared that year, and it was the first version that was really practical, but many continued to use DOS. Significantly, Windows required a hard disk; when we used DOS, two diskette drives provided adequate storage. The PC was undergoing a transition from an experimental and educational toy to an essential information appliance. The Internet was available only to governments and large corporations, although some exchanged messages through software

bulletin boards, which they accessed (slowly) over telephone lines using dial-up modems—even simple configuration changes required opening the system case to access jumpers and expansion cards. There were frequent PC shows where dozens of vendors sold hardware and software. Bookstores had extensive collections of PC books and magazines. It was an exciting time for us.

The situation is far different today. Most PC users, excluding those reading articles like this, have no interest in what goes on inside the box. They would no more open a PC case than a dishwasher cabinet. As a result, PC books, magazines, and parts vendors have largely disappeared. This is good for most folks who want to communicate with friends and family, surf the Internet, and prepare taxes. But it can be frustrating for those of us who see the larger potential of the PC. However, the barriers are superficial, and the experimental and educational world is still alive, well, and accessible on the PC. We must exercise more care while experimenting with our PCs than we did years ago because it's become a vital tool in our lives and holds valuable information we have to protect. Let's look at some of the opportunities.

For years, I took pictures with a 35-mm camera, and film and processing cost about a dollar a click. Editing required a darkroom, expensive equipment, and smelly chemicals, and few did it. Today, we don't use film; bytes are free, and image processing software costs vary from reasonable to free. Any imaging program can do things that darkroom users couldn't even imagine. When you've finished the processing, you can send the results anywhere in the world for free or, if you have a suitable printer, commit it to paper. Image editing can be complex, and it takes some effort to learn, but there are very few photos that can't be improved, many substantially. I use the GNU Image Manipulation Program (GIMP), https://www.gimp.org/, to retouch JPEG image files. Your camera compresses images to produce JPEG files and discards information in the process. You can often recover this by working with images before they are compressed, using RawTherapee, http://rawtherapee.com/, or darktable, https://www.darktable.org/. These are complex programs that require some effort to master.

Early PCs limited your programming to BASIC, which, as its name implies, has quite limited potential. However, we have a much wider choice today, including Python, https://www.python.org/, which provides an accessible start to programming and includes widespread features among all programming languages. In addition, the required software is free, and although some support tools are not, they aren't really necessary.

Experimenting with operating systems does require care, as what seems like a simple configuration change can wreak havoc and sometimes require re-installation. (Ask me how I know.) For this, I prefer using a virtual machine, such as one managed by VirtualBox, https://www.virtualbox.org/, for this. In the past, I used dual-booting to install an alternative OS, but this requires re-partitioning the hard disk, which is risky, and the UEFI BIOS in modern PCs has features to protect the installed OS. Working around these requires non-trivial expertise. Your OS views each virtual machine as an application, which avoids all this risk and complexity. If you want to experiment

with Windows, you'll have to buy the software, as the virtual machine is legally a different machine. Of course, you can experiment with Linux for free.

Arduino, https://www.arduino.cc/, provides an inexpensive way to experiment with both hardware and software. This microprocessor on a small board plugs into a USB port on your PC, which supplies the power for the board and communicates with it. You program in a variant of C++, which you compile on your PC and download to the Arduino. It's easy to connect the board to external circuits, so this provides a way of learning circuit design and programming. Since all the action takes place off your PC, the risk is minimal.

The Raspberry Pi, https://www.raspberrypi.com/, provides a considerably more complex environment than the Arduino. This is a complete PC on a circuit board about the size of a playing card. While the Arduino is a controller that runs only a single program at a time, the Pi is a complete computer running Linux. You'll need a display, mouse, and keyboard to get started, making this more difficult than an Arduino. However, you can use its peripherals if you have a desktop system. (You might use a USB hub to consolidate the keyboard, mouse, and printer cables. Then you could switch between your PC and the Pi by swapping just two cables, the USB from the hub and the HDMI from the display.) After configuring the Pi, you can connect it to your home network and access it using remote desktop software on a PC; it won't need dedicated peripherals until you install a new OS on the Pi.

Fabricating objects used to require a shop and tools, but now it can be done with only a 3D printer, about the size of your existing one. You design an object using CAD software, transfer the file to the printer, and (perhaps some hours later) return to find the completed object sitting in the printer. This is an emerging technology and presently is quite limited. Printing is slow, set-up is fussy, and the material is usually plastic, but things are rapidly improving. For example, I recently saw a device, https://snapmaker.com/, that could also machine aluminum and cut sheet material and create with plastic. Currently, the projects are limited to small enclosures, key fobs, game tokens, or similar small objects, but this will surely improve.

To learn about electronics, instead of acquiring a collection of tools, parts, and instruments, you can run experiments with a circuit simulator, such as KiCad, https://www.kicad.org/. It lets you build circuits with simulated resistors, capacitors, inductors, transistors, and integrated circuits, then test the result. The next step would be to use an Arduino with a prototype board into which you plug physical components to build circuits you've simulated. Kits that facilitate this are available from such vendors as Adafruit, https://www.adafruit.com/. Because you are using Arduino to generate signals and detect the result, this approach limits you to low frequencies.

If you play a musical instrument, you probably have a collection of scores, some of which are barely legible. However, you could input them into a score composing program such as MuseScore, https://musescore.org/en, to make corrections, transpose them to a new key, or just clean up the appearance.

These examples reflect my interests and my preference to use open-source software; your interests and preferences are undoubtedly different, but perhaps these examples will inspire you to search for some that would help you. In the past, we relied on PC magazines to suggest areas to explore. There are many more interesting and useful tools today, but it takes more effort to find them without magazines. Don't let your PC become just an appliance; it can be a wonderful tool to help you enjoy life.

I've been writing these articles for a long time, have about run out of things to say, and it's time to retire. Thank you for your attention over the years.

Reprinted from www.bcug.com, n2nd@att.net.

* * * * * SOFTWARE and HARDWARE * * * * *

Thunderbird: a Free, Open Source, and Powerful Email Client
My desktop email program of choice.

by Leo Notenboom, https://askleo.com/
Making Technology Work For Everyone

Thunderbird is a robust and powerful email program that can meet the needs of both light and power users. I use it all day every day, and I can heartily recommend it as an often more powerful and capable replacement for many email programs, including those that come with Windows.

Before I sing Thunderbird's praises, I want to be clear about what it is and is not.

Desktop email program?
A desktop email program is something you install on your PC. It's like Windows Mail, which comes with Windows, or Microsoft Office's Outlook program. These programs download your email to your PC for you to read and otherwise interact with.

This is different from web-based email interfaces, which are email services you visit in your web browser (like Edge, Chrome, or Firefox). They're webpages — like gmail.com, outlook.com, or others — that allow you to read and interact with your email online. There's nothing installed on or downloaded to your PC other than the web browser you're already using every day.

Even if you do most of your email online, as I do at gmail.com, having a desktop email program installed and running is a great way to keep backups of your email locally. I do that, too.

In Short   I recommend Thunderbird as a powerful, free desktop email client with a comfortable user interface, cross-platform support, and easy data transfer due to its standard file format. It's also extensible with add-ons,

features robust mail filtering, and is ideal for backing up your email.

Thunderbird's features

These are some of the things that repeatedly draw me back to Thunderbird, even after trying some of the alternatives.

Free: Thunderbird is completely free. That makes it risk-free to try before deciding.

Comfort: Most users of other common desktop email programs will feel very comfortable in Thunderbird. Basic operations are very similar.

File format: This might be one of Thunderbird's most compelling features for me. It uses a standard plain-text file format to store your email (mbox format, for the geeks among us). Many email programs use proprietary database formats that seem prone to breaking and make it difficult to move from machine to machine or to change email programs. Moving Thunderbird email from machine to machine is as simple as copying a folder tree.

Cross-platform support: I've successfully moved my email not only between Windows PCs but also to Mac and Linux machines. Transferring was a simple copy and paste of all the folders and support information. Not only did my email get transferred, but all the account settings, filters, and even supported extensions were moved as well.

Extensions: like its cousin, FireFox, Thunderbird has a number of powerful add-ons available.

Filters: Thunderbird supports a set of very powerful filters you can create so it takes action automatically as mail arrives. For example, you can have multiple filters sort incoming email into various folders based on various criteria. Your needs may not be that complex, but simply being able to say things like "if this is from someone in my address book, move it into this folder" is a powerful way to prioritize your approach to email.

Naturally, there are many more features that may appeal to you. I encourage you to have a look.

About backing up & more

Thunderbird remains my recommended alternative to almost every other desktop email program. (The sole exception would be Microsoft Outlook for the corporate and power user, but even then, *I'm* a power user, and I've come to prefer Thunderbird anyway.)

That being said, I no longer use Thunderbird as my primary email interface. I spend my days in Gmail. However, I continue to run Thunderbird in two different places.

●I run Thunderbird on the computers I use daily as the email interface for some secondary email addresses. For example, I have one address devoted to newsletter subscriptions, which I download and read in Thunderbird.

●I run Thunderbird on my older Mac Pro to back up all of my email accounts. It's configured to continuously fetch the email I'm reading in Gmail as well as those secondary accounts. The purpose is to have local backups. This is also one of the reasons I love that Thunderbird

Windows & Android Tips
Judy Taylour

7 WAYS TO LOCK YOUR WINDOWS COMPUTER – When stepping away from your PC, it is recommended that you lock your computer, not only to conserve battery life, but also to safeguard privacy. The most common method is pressing Ctrl + Alt + Del on your keyboard, then selecting "Lock." However, there are numerous other ways to lock your PC. Find out how at
[7 Ways to Lock Your Windows Computer – Make Tech Easier](#)

REMOTELY TRANSFER PHOTOS FROM AN ANDROID PHONE TO COMPUTEm – Everyone captures photos with their phones, but the main issue arises when you have to transfer photos from an Android phone to a computer. There are several ways to do this, and perhaps the most common solution is to connect the phone to your computer via a USB cable. But even if you don't have a cable on hand, there are several ways to remotely transfer photos from an Android phone to your Windows PC. Read more at [Remotely Transfer Photos From an Android Phone to Computer – Make Tech Easier](#)

DON'T BE FOOLED! 5 TIPS TO AVOID FAKE APPS IN THE WINDOWS STORE – Make Use Of shows you how not to have a bad time on the Windows Store.
https://www.makeuseof.com/tag/dont-fooled-5-tips-avoid-fake-apps-windows-store/

uses a standard file format. I don't even need Thunderbird for those backups to be of value in the future.

Do this
If you don't already have a favorite desktop email program (and I acknowledge that email programs are often a personal and even passionate decision), or you're struggling with the drawbacks of whatever program you're currently using, Thunderbird is worth a look.
I recommend it.

End of Article # #

Save Money, Buy Your Own Wi-Fi Gear
By Kurt Jefferson, Editor
Central Kentucky Computer Society

Prices are slowly coming down, but it still pays to economize.

One of the best ways to save money is by not paying your Internet provider to lease their equipment. Instead, if you have cable Internet, you may use the company's Wi-Fi router and cable modem – typically, one unit resembles a big black block.

You could be paying $120, $130, or more each year for your ISPs (Internet Service Providers) gear when you could put that money to better use by buying your own equipment.

Buying your own cable modem and Wi-Fi router could pay for itself in a year or less. However, if you rely on fiber optic service instead of the Internet from your cable TV company, you still need a Wi-Fi router. And, again, you can save money by buying your own.

You will probably have to use the small white box provided by the fiber optic Internet company (that box is called the optical connection node and allows for high-speed Internet connections.)

That box is typically provided through your monthly Internet fee. But you don't need to use the company's Wi-Fi router. Of course, you need to install your own equipment – or find a friend, relative, or someone who knows about technology – to do it.

If you have cable Internet, you need to notify the cable company that you are installing your own cable modem – and they have to switch it on from their end once it's connected. (Most cable companies use the term "provision" to add your cable modem to their network.

If you have a cordless landline phone with a signal provided by the Internet, remember your phone won't work during the transition, and you'll need to use a cell phone to call the cable company.)

In addition, you'll need to call your cable company to return their equipment. More and more cable firms are not allowing customers to return company-owned equipment to their stores.

Scams

Scams evolve as technology advances. You always need to be on the lookout for new, deceptive techniques scammers use to steal your money and identity.

Government agencies such as the Consumer Financial Protection Bureau (CFPB) and the Federal Bureau of Investigation (FBI) work to stay ahead of fraudsters and keep you safe.

Robocalls and scam texts: If you're tired of scam texts and robocalls, you're not alone. In fact, they're the Federal Communications Commission's top consumer complaint. Fortunately, there are steps you can take to reduce and block these unwanted annoyances.

Spoofing: Someone may disguise an email address or phone number to convince you they're a trusted source. Often, it is just by changing one letter, symbol, or number. Learn how to protect yourself from spoofers.

Charity scams: Thieves pose as a real charity or claim to represent a cause that appeals to you—and sounds real—to steal your money. Before donating to a charity, check its legitimacy. Contact the organization directly, or do research through a consumer protection agency such as the CFPB.

Romance scams: If you suspect an online relationship is a scam, stop all contact, and file a complaint with the FBI.

Instead, you'll probably be asked to ship the equipment back to the cable company. It's free, but it's an extra step you'll need to take to avoid being charged for failing to return the gear.

If you live in a larger home, you probably have dead spots where you cannot connect to the Internet. This is a widespread occurrence.

A mesh Wi-Fi network can solve that problem, and as prices drop, more folks are utilizing those to spread Internet signals throughout their homes and eliminate so-called dead zones. Finally, experts recommend replacing your Wi-Fi router every five years – at the least. Touch your router, and you'll notice it can get very warm.

The high temperatures generated by Wi-Fi routers wear the units out faster than you might think. If the company that made the router is no longer providing firmware updates – it usually means it's time to replace the router with a newer model. Firmware updates are software patches you download from the Internet.

These downloads include security updates that prevent hackers from breaking into your home network and stealing your data. Consumer Reports writes, "If no update has been available for months or years, the router is probably no longer being supported.

As a rule of thumb, a Netgear representative told us that consumers should consider replacing their router after three years. Representatives from Google and Linksys said a three-to-five-year window was appropriate. Amazon, which owns the popular Eero brand of routers, put the range at three to four years."

However, CR's own survey data indicates that one-fifth of consumers wait more than four years to replace their router. That's cutting it close.

'"All of the data that we have shows that consumers hold onto their router for dear life and for as long as possible,"' says Richard Fisco, who oversees electronics testing for Consumer Reports.

Tech Gear Lab: How to Choose a Wi-Fi Router
https://www.techgearlab.com/topics/small-and-home-office/best-Wi-Fi-router/buying-advice

Lifewire's Nine Best Mesh Wi-Fi Network Systems For Full Coverage
https://www.lifewire.com/best-mesh-wi-fi-network-systems-4139748

Make Use Of: Seven Reasons Why You Should Replace Your ISP's Router
https://www.makeuseof.com/tag/reasons-replace-isp-router/

Tachus: Why You Should Use Your Own Router Instead of Your ISP's
https://www.tachus.com/post/why-you-should-buy-your-own-router-instead-of-using-the-one-provided-by-your-isp

Tech Gear Lab: Best Wi-Fi Router of 2022
https://www.techgearlab.com/topics/small-and-home-office/best-Wi-Fi-router

Tech Gear Lab: Best Wi-Fi Mesh Systems of 2022

Virtual Tours

New York Skyline – New York, New York! Head up to the 102th floor of the Empire State Building on this virtual tour and admire the city that never sleeps from above.

St Paul's Cathedral, London – Admire London's epic skyline from the top of St Paul's Cathedral.

The Peak, Hong Kong – Ever heard the phrase 'A New York minute is a Hong Kong second' before? Discover one of the most populous and expensive cities in the world from its highest peak.

Tokyo Skytree, Japan – Teleport yourself to the highest structure in Tokyo and admire the vibrant capital city of Japan from the top. We hope you aren't afraid of heights because the Tokyo Skytree is 634 meters tall which is more than double the height of the Eiffel Tower.

The Eiffel Tower, Paris – Head to the top deck of the Eiffel Tower and marvel at the City of Love on this breathtaking virtual tour.

Rochester, NY, Immerse yourself in the captivating [4K] drone tour of Rochester, New York, as we unveil the vibrant culture, rich history, and picturesque landscapes that make the Flour City a truly enchanting destination. In this mesmerizing aerial journey, we'll showcase Rochester's bustling neighborhoods, iconic landmarks, and scenic beauty from a breathtaking bird's-eye view.

https://www.techgearlab.com/topics/small-and-home-office/best-Wi-Fi-mesh-system

Consumer Reports: How To Tell When It's Time To Replace Your Router
https://www.consumerreports.org/wireless-routers/how-to-tell-when-its-time-to-replace-your-router-a5475786635

From the website of https://ckcs.org/, lextown2@gmail.com.

Prepare For AI Everything & Everything AI

By Jim Hillier / 12/14/2023

2023 will almost certainly go down in tech history as the year of AI. 2023 has seen the emergence of AI as the next big thing, with OpenAI's ChatGPT and its offspring DALL-E image creator, plus Google's Bard AI creating much interest and discussion. However, if you think 2023 has been a big year for AI, wait until you see what's in store for 2024.

Google introduced its Bard AI in direct competition with OpenAI's ChatGPT, but it is no secret that Bard has not been all that well received. Google has recently announced the imminent introduction of its new enhanced AI dubbed "Gemini" which the company claims is far in advance of any AI to date:

> We designed Gemini to be natively multimodal, pre-trained from the start on different modalities. Then we fine-tuned it with additional multimodal data to further refine its effectiveness. This helps Gemini seamlessly understand and reason about all kinds of inputs from the ground up, far better than existing multimodal models — and its capabilities are state of the art in nearly every domain.

Google intends to integrate Gemini into most, if not all, of its services:

> Starting today, Bard will use a fine-tuned version of Gemini Pro for more advanced reasoning, planning, understanding and more. In the coming months, Gemini will be available in more of our products and services like Search, Ads, Chrome and Duet AI. <source>Gemini: Google's Enhanced AI

Reported on the website of
https://davescomputertips.com/prepare-for-ai-everything-everything-ai/

Interesting Internet Finds
by Steve Costello
scostello@sefcug.com

How To Have Unlimited Email Addresses
https://davescomputertips.com/how-to-have-unlimited-email-addresses/
It is easy to have many email addresses. Also, it is not necessarily expensive. Dave's Computer Tips blog post explains different ways to get alternate email addresses. It also explains why and when you might want to use the varying methods.

10 Firefox Features You Should Be Using
https://www.howtogeek.com/891045/10-firefox-features-you-should-be-using/
If you use Firefox as your web browser, check out this post. I found three things I should have been doing all along but did not know about.

Will AI Crack Your Passwords?
https://askleo.com/will-ai-crack-your-passwords/
AI is the big thing right now. Leo Notenboom talks about AI and password cracking in this post. If you are concerned about AI and password cracking, you should check out this post for yourself.

How To Block Google Popups
https://firewallsdontstopdragons.com/how-to-block-google-popups/
If you get popups to "Sign in with Google," you should check out this post to learn how to block them.

* * * * * BITS and PIECES in the NEWS * * * * *

Editor's Note: To continue reading the following articles, you may copy the long URL at the end of the article and enter it into a web browser **or** click on the URL in the PDF or web versions of this newsletter.

Google Moves to End Geofence Warrants, a Surveillance Problem it Largely Created
Zack Whittaker@zackwhittaker, December 16, 2023

Law enforcement have long tapped users' location data hoarded by tech giants

Google will soon allow users to store their location data on their devices rather than on Google's servers, effectively ending a long-running surveillance practice that allowed police and law enforcement to tap Google's vast banks of location data to identify potential criminals.

Police can use geofence warrants (also known as reverse-location warrants) to demand that Google turn over information on which users' devices were in a particular geographic area at a certain point in time.

But critics say geofence warrants are unconstitutional and inherently overly broad, since these demands often also include the information of entirely innocent people who were nearby at a time when a crime was committed. Even the courts cannot agree on whether geofence warrants are legal, likely setting up an eventual challenge at the U.S. Supreme Court.

Google's announcement this week did not mention geofence warrants specifically, saying only that the move to store location data on their devices would give users' "more control" over their data. In reality, the move forces police to seek a search warrant to access that specific device instead, rather than asking Google for the data.

Google received 982 geofence warrants in 2018, then 8,396 geofence warrants in 2019, and 11,554 geofence warrants in 2020 — or about one-quarter of all the legal demands that Google received. The disclosure, while limited, offered the first glimpse into the sharp rise in the number of these requests, but Google did not say how often the search giant pushes back against these legal demands for users' location data — if at all.

Read more at https://techcrunch.com/2023/12/16/google-geofence-warrants-law-enforcement-privacy/.

Editor's Note: *Washington CNN* — Foreign governments have reportedly attempted to spy on iPhone and Android users through the mobile app notifications they receive on their smartphones — and the US government has forced Apple and Google to keep quiet about it, according to a top US senator.

How about this, https://edition.cnn.com/2023/12/07/tech/apple-google-notifications-ron-wyden/index.html.

Full-day, Solar-powered, Bidirectional Thermoregulatory Clothing that can Respond to Changing Temperatures

by Bob Yirka , Tech Xplore

A team of engineers, materials scientists and chemists at Nankai University, in China, has developed a microfiber-based meta-fabric that provides full-day thermoregulation of body temperature during periods of changing external temperatures.

In their paper published in the journal *Science*, the group describes how they developed their fabrics, how they work and how well they performed when tested. Xingyi Huang and Pengli, both with Shanghai Jiao Tong University, in China, have published a Perspective piece in the same journal issue outlining the work done by the team.

As the researchers note, clothing keeps people warm when it is cold, and in some cases, can help people stay cool in hot temperatures. Prior research efforts have attempted to extend the capabilities of clothing by adding heating or cooling elements, but thus far, most such products have proven to be too bulky for general use.

At the heart of the new fabric is an organic photovoltaic module combined with a bidirectional electrocaloric device. Because both are flexible, the resulting device can be integrated into fabric used to make clothing. Also, because of its bidirectionality, such clothes can provide heat or a cooling effect depending on the weather. The research team notes that test clothes made with their technology were able to respond quickly to changes in ambient temperature.

Continue at https://techxplore.com/news/2023-12-full-day-solar-powered-bidirectional-thermoregulatory-temperatures.html.

Hybrid Computer Combines Lab-Grown Brain Tissue With Electronic Hardware, Performs Voice Recognition and Simple Math

Conelisa N. Hubilla Dec 16, 2023

The human brain is a very complex and powerful organ that is unimaginably impressive in all the processes that it performs.

So far, no computer created by mankind has even come close. The key to the brain's capability is the efficiency of the neurons to serve as both a processor and memory device, in contrast to the physically separated units in modern computers.

Simulating Brain Activities
There have been many attempts to make computers more brain-like. To date, our best effort to mimic the activity of the brain in an artificial system barely scratched the surface. In 2013, Riken's K Computer tried to simulate the biological functions of the brain. Using 82,944 processors and a petabyte of main memory, the researchers took 40 minutes to simulate one second of brain activity.

Odds and Ends

Why Are We Still Flushing Toilets With Drinking Water?

Recycle, reduse, reuse

If you take a morning shower at the voco Brussels City North hotel, the water that you see trickling down the drain as you wash your hair might visit you again later — when you flush the toilet in the evening.

However, before that shower water returns to swirl around your toilet bowl and dash, at last, towards the city's sewers, it will go through a special treatment process enabled by a chain of fridge-like machines in the hotel's basement.

"Every time you flush your toilet, you actually import six to nine litres [of water] into your building," says Sabine Stuiver, co-founder and chief marketing officer of **Hydraloop**, as she explains the virtues of the alternative. That would be greywater — wastewater from showers, sinks and baths that can be treated and then used to, for example, flush a toilet.

Water scarcity problems have plagued Europe in recent years — the continent is [experiencing a multi-year drought](#). Even now, in the winter, Barcelona, for example, has [had to raise water bills](#) just to cope with demand for desalinated and purified water, given the lack of rainfall.

I found this on the https://thenextweb.com/news/flushing-toilets-drinking-water-startups-solution.

This involves 1.73 billion neurons connected by 10.4 trillion synapses, around just one to two percent of the brain.

Brainoware System
In a recent breakthrough, researchers have created a hybrid computer using human brain tissue grown in the laboratory. This invention joins the growing field of biological computing with the potential to advance neuroscience research models of the brain.

Led by engineer Feng Guo of Indiana University Bloomington, the team integrated real, actual, human brain tissue with electronics to produce the [Brainoware system](#). It is slightly less accurate than a pure hardware computer that runs on artificial intelligence, but it demonstrates a significant step in computer architecture.

I found this on
https://www.sciencetimes.com/articles/47688/20231216/hybrid-computer-brain-tissue-voice-recognition.htm.

CLUB and REGIONAL NEWS

Straining Memory Leads to New Computing Possibilities
University of Rochester, November 30, 2023

Researchers develop hybrid phase-change memristors that offer fast, low-power, and high-density computing memory.

By strategically straining materials that are as thin as a single layer of atoms, [University of Rochester](#) scientists have developed a new form of computing memory that is at once fast, dense, and low-power. The researchers outline their new hybrid resistive switches in a [study](#) published in *Nature Electronics*.

Developed in the lab of [Stephen M. Wu](#), an assistant professor of [electrical and computer engineering](#) and of [physics](#), the approach marries the best qualities of two existing forms of resistive switches used for memory: memristors and phase-change materials. Both forms have been explored for their advantages over today's most prevalent forms of memory, including dynamic random access memory (DRAM) and flash memory, but have their drawbacks.

"We've combined the idea of a memristor and a phase-change device in a way that can go beyond the limitations of either device," says Wu. "We're making a two-terminal memristor device, which drives one type of crystal to another type of crystal phase. Those two crystal phases have different resistances that you can then story as memory."

According to Wu, the biggest hurdle remaining to making the phase-change memristors is continuing to improve their overall reliability—but he is nonetheless encouraged by the team's progress to date.

Check it out at https://www.rochester.edu/newscenter/phase-change-memristors-computer-memory-574742/

'That Damn Goat' Now Available for Purchase on Steam

by Jenna Warren, RIT, December 15, 2023

Game, created by RIT students and faculty, is available on the platform for the first time. Students and faculty play test the newest updates for That Damn Goat. The couch competitive game was created entirely by RIT students and faculty and is now available for purchase on Steam.

"It's been a long journey," said Aaron Nieboer, a MAGIC production associate. "We've been at it for three years to get to this point, and this is the culmination."

Nieboer is referring to *That Damn Goat*, a game created by nearly 60 students and faculty at RIT, now **available for purchase on Steam**.

While Nieboer has been a constant figure working on the game's team a few months after its inception, students often come and go as they complete their education at RIT. In addition, the students and faculty who have worked on the game come from across RIT's nine colleges, making it a truly multidisciplinary effort. "MAGIC is a little different in the sense that it's not necessarily owned by any particular college, but it's a collaboration of the colleges," Nieboer explained.

In the game, four players battle against each other to hold the crown the longest. The game gets its name from the non-playable character of the goat, which has the power to randomly create a vast array of changes in the game, including switching the environment, switching which character each player plays as, teleporting itself or players to other locations, and more. Players can compete against each other either locally in the same room or remotely through Steam's Remote Play Together system.

Since the team **showed the game at the Game Developers Conference (GDC) last year**, they've added an improved user interface, a tie-breaker round, and more gadgets for players to use throughout the game.

But the release on Steam isn't the final step for *That Damn Goat*. The team is working to release the game on Nintendo Switch next year.

More details on **https://www.rit.edu/news/damn-goat-now-available-purchase-steam**.

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The club is having a 'Pot Luck' video night in January. Just like pot luck dinners, where everyone brings a dish to pass around, each member can bring a 5 to 10 minute video to show. You do not need to explain the video, but just show something that interests you. *The video does not have to be technology or computer related.* This event will take place at our January 9th meeting. Your video can be put on a flash drive or emailed to me at tonydel@techie.com.

Our Meeting Place
St John's Meadows at Johnsarbor Drive, is on the left, past Clinton Avenue, when going West on Elmwood Avenue. The opening in the white fence is Johnsarbor Drive. At the 'T', turn right. The meeting is in the SECOND building on the left – **Chestnut Court**.
Our meeting place can change. Please check our website before each meeting. **www.rcsi.org**

Got Questions?
Send an email to either person below and they will get back to you. The questions can be related to the OS (Operating System) or hardware related issues. Please give them time for a response, as they do this service on a volunteer basis. Thank you.

Windows OS: . . . . . Arpad Kovacs, podcomputer@gmail.com

Linux & some Mac: Carl Schmidtmann,   unixgeek@faultline.com