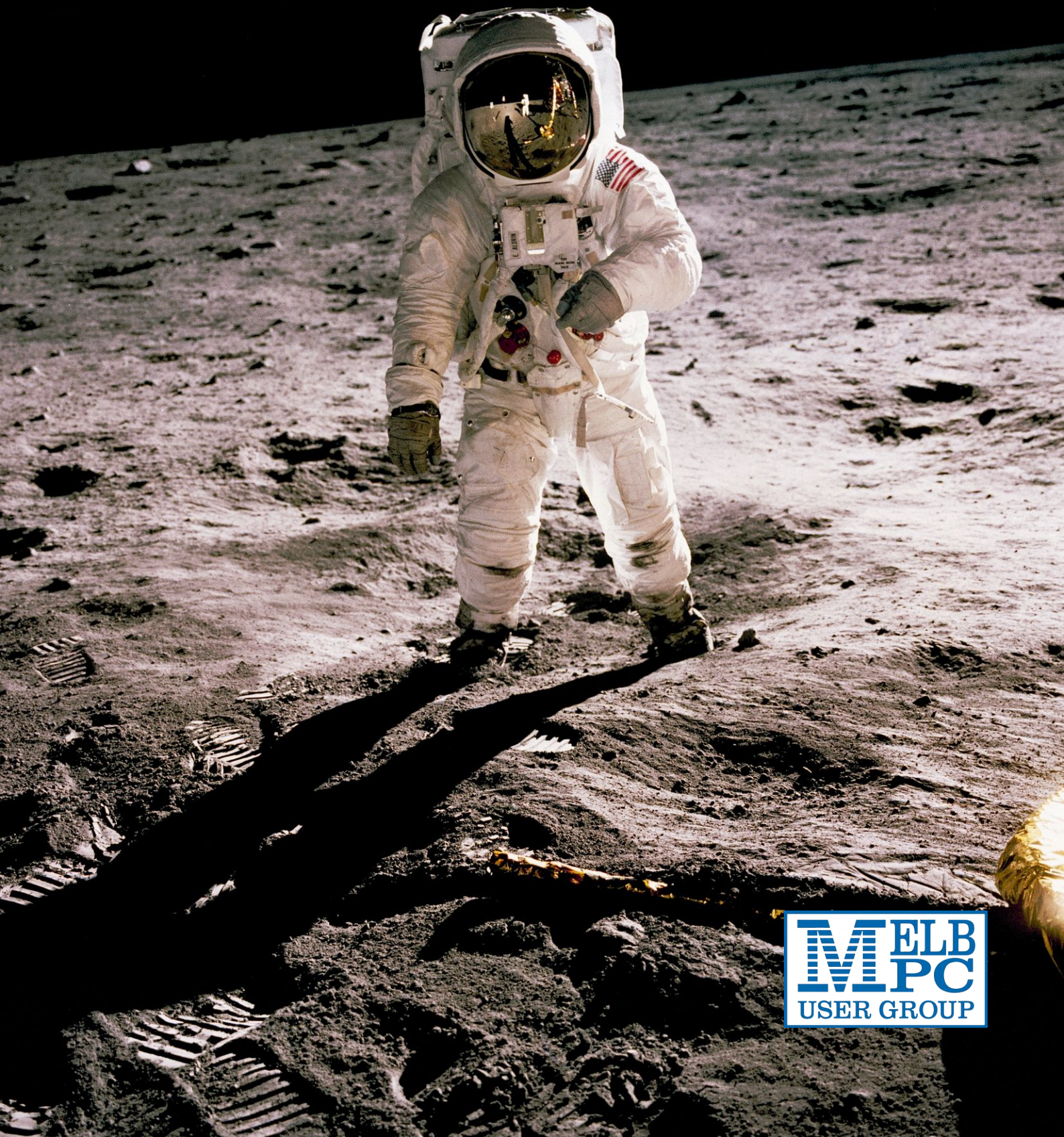


# >PC\_Update

August 2019





# >PC\_Update

August 2019

## The newsletter of

Melbourne PC User Group Inc.  
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Melbourne PC User Group Inc. is a member of the Association of Personal Computer User Groups

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[Live chat!](#)  
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## [Membership application form online](#)

**Responsibility for content in this club newsletter lies with individually named authors.**

## Monthly Meeting Live Stream

Tune in at 7.00pm on Wed 7<sup>th</sup> August to view the Monthly Meeting live over the Internet. Test transmission usually starts ~6.30pm <http://tv.melbpc.org.au>



**Please remember to always bring your membership card to meetings.**  
**Up to date calendar and SIG list are linked from our [homepage](#)**

## Editorial

### Process v. Progress

This is my last editorial before I relinquish the soapbox and hand the quill over to Hugh Macdonald, and I am going to allow myself a little rant and a reflection on the workings of our club.



I believe it is essential to our club's survival that we embrace change. Without change any organisation will wither and die – think Kodak, Xerox, Polaroid, all brands that failed to adapt to changing market realities and today exist in name only. When did you last hear of an IBM PC, the product our club, and even our logo, was based on? We need new fresh ideas, new, young members with energy and enthusiasm, to carry the club into the next decade and hopefully beyond. These people, and the change, the energy, the evolution they can bring to the club, are vital to the club's future.

Being, for the last couple of years, involved with the governance of the club, I have observed that a lot of older members seem more beholden to *process* than to *progress*. Doing just the things that have always been done, doing those things only in the way that they have always been done, finding comfort in routine handle cranking. The process is everything, it's all there is. Handle cranked – job done.

*Continued page 3 ...*

## In this issue

What do you do with your Computer?.....	3
August Monthly meeting.....	5
Neven's Law.....	6
A reflection on Moore's Law.....	7
Yammer May 2019.....	8
Monthly meeting questions from home.....	8
Deep thinking.....	9
Survey: How do you read PC Update?.....	10
'Repair cafés' are about fixing things – including the economy.....	10
President's Report July 12th 2019.....	12
East SIG Report – July 2019.....	13
Northern Suburbs Linux SIG – July Meeting.....	15
Special Interest Groups.....	17
August Calendar.....	23

## Over to you, Hugh

From next month Hugh Macdonald will be editing PC Update.

# What do you do with your Computer?

*Phil Sorrentino*

A long time ago, circa 1980, when personal computers first made their appearance, there was very little that us ordinary citizens could do with them. But as they found their way into the hands of some very smart people, who were also practiced in the art of programming, useful programs, or what we now call Apps, started to appear. You may have a slightly different view, but to my recollection, replacing the typewriter was the first “killer app” that appeared. Word processing took advantage of the computers capabilities and allowed many people to create works of literature quickly, accurately and by themselves.

Over time, word processing on a computer completely replaced the typewriter and the many thousands of people it took to keep them operating; the typing pool disappeared. Many people were caught off guard. Because

many people always had a person to create their inter-office memos, they never had to learn to use a keyboard. (Fortunately, I was forced to take a keyboarding course in the 9th grade. Its value became quite evident later when I had to use a keypunch machine to create lines of source code for a main-frame computer.) So, now with word processing

available, most people could create their own inter-office memos and eventually turn those memos into emails (initially only within the company). Email was one of the next “killer apps” to appear. These early applications started before and without the benefit of the internet.

But before we get to the internet, there were many other “killer apps” that became part of computing. Here’s a brief walk down software memory lane. Spreadsheet software started as VisiCalc and evolved thru SuperCalc, Lotus 1-2-3, MultiPlan, and finally to the current Excel. Graphics software, software that allows one to manipulate images on the computer, came on the scene early and now is represented by Adobe Photoshop, CorelDRAW, Microsoft Paint, and probably some others that I am not familiar with. Presentation software, that provides a sequence of slides for presentation before a large group, became a popular addition to other software used in an office setting. Presentation software is currently dominated by Microsoft’s PowerPoint. Photo Editing software became popular after picture file types, like .jpg, .png, and .bmp, were invented, around the mid-nineties. Music player software became available after the invention of music file types, like .mp3, again, in the mid to late nineties. Video player software also arrived in the nineties, with the invention of video file types like mpeg-1, mpeg-2, and mpeg-4. Boy, the nineties were a busy time for inventing useful

computer file types. Database software was also another “killer app” that came on the scene in the late 1980s and early 1990s; remember dBase II, or FoxPro, or Paradox.



Communications software and the internet changed everything. They allowed computers to communicate with other computers which allowed people to take advantage of computers that were in remote locations. Networking software made computer to computer communications possible. Networking software, which was initially an addition to the Operating System, eventually became, and is currently, an

## ... editorial from page 2

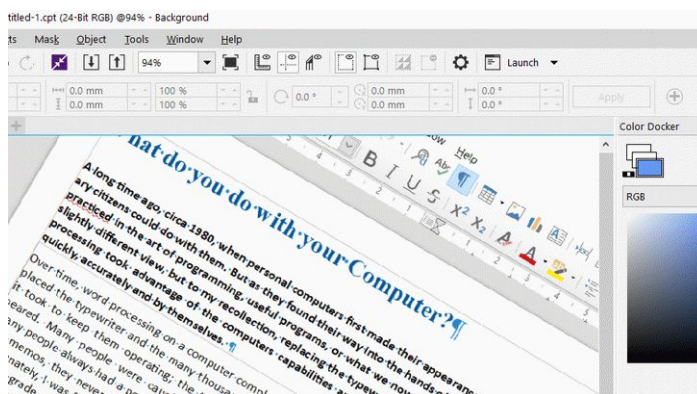
So is there no room for process in my thinking? There absolutely is room for it! For one thing, if a volunteer task can be reduced to a repeatable process it becomes easier to perform. That means it reduces the workload on the volunteer and makes it easier to find a volunteer and to hand over to the next volunteer. Such is the case with my aiming to simplify the mechanics of producing this newsletter. But secondly, a *process* can be an embodiment of club history. “How we have always done it” can at times be a result of the important decisions or events of the past, things it could be dangerous to ignore going forward.

In November we have our AGM and elect a new committee. I have served on the current committee with John Hall as President. I believe John has done an excellent job of guiding the club out of a difficult period, and we can start to look forward to a new phase of evolution. John will not seek re-election, so the search is on for a new President. I hope for a youthful committee who will build on the progress that’s been made. But history is also important, so we need some people who know and appreciate our history and understand where the pitfalls may lie.

integral part of the Operating System. In the very early nineties, the World Wide Web appeared and with it, browsers. Browsers are another “killer app” and are what give us the ability to visit any website on the internet. You may remember some of the first browsers; MidasWWW, Lynx, NCSA Mosaic, Internet Explorer, Netscape Navigator, and Opera. Safari, Firefox, and Chrome came along a little later. It’s through using the browser that you can get to all those wonderful retail sites for shopping on the internet.

So, early on, before the internet, the answer to the question of what you will do with a computer was simpler and was probably one of the following: Word processing, Graphics manipulation, Database development and uses, Communications. The uses were pretty limited. But today, there is a much wider choice of activities to answer the question. The computer is a very versatile machine and today you could be using your computer in many ways, to accomplish many different things, such as:

1. Keeping in touch with your friends and family using email or social networking apps.
2. Watching movies or videos, (that you have purchased, borrowed, or created), on your living room big screen TV.
3. Watching movies that you are streaming from the internet (Netflix, Hulu, YouTube, etc.) on your living room big screen TV.
4. Listening to music, from your local music database of tunes that you have purchased or “ripped” from CDs or converted from older tapes or vinyl.
5. Listening to music that you are streaming from a cloud music source (server) like iTunes, Pandora, Google Play Music or Spotify.
6. Organizing your picture database so you can locate a particular event or specific picture.
7. Showing certain photos, from your picture collection, to your family and friends, on your living room big screen TV.
8. Fixing the exposure on some of the pictures you recently took with your smartphone.
9. Creating “Movies” of your latest vacation from the pictures and video clips you took with your camera or smartphone, while on vacation.
10. Managing your home family finances using a few basic financial spreadsheets, or a financial software App



like Quicken or MSN Money.

11. Scanning old paper pictures to create a pictorial family history.
12. Scanning documents to create a database of important documents for your estate or your children.
13. Writing your own personal history to pass down to your children or other family members.
14. Checking your calendar for today’s activities or to see if you can make an appointment for 2 o’clock, in three weeks.
15. Reading or keeping up with the current news.
16. Checking on your financial accounts.
17. Checking on the stock market, or a particular stock, or trading stock in your brokerage account.
18. Sharing 200 pictures of the wedding you recently attended, with other wedding attendees using your OneDrive cloud account.
19. Researching “hip injury” using Google because of a twinge you noticed when you woke up this morning.
20. Checking “The Computer Club’s” website to see when the next “File Explorer” class is scheduled.
21. Writing an article for the next month’s newsletter.
22. Creating a PowerPoint presentation to give at the next club meeting.
23. Backing up your computer so your very valuable data will never be lost.
24. Playing the latest shoot-em-up, or “brain training” game.
25. Shopping on the Internet.

One reason for knowing what you do with your computer is to help you decide on what computer to buy, or more importantly, how much computer you may want to buy, the next time you purchase a computer. You don’t really need the fastest computer around if all you are going to do is shop on the internet, a Chromebook might even be appropriate.

**Phil Sorrentino is secretary of Sun City Center Computer Club, Pebble Beach, Florida (Tampa area) The Journal of The Computer Club, Inc. <http://scccomputerclub.org>**



# August Monthly meeting

The August monthly meeting will be held Wednesday August 7 at 7pm.

## Australia's first computer

Barbara Ainsworth is the Curator of the Monash Museum of Computing History (MMoCH), located within the Faculty of Information Technology at Monash University. Barbara will be talking to us about Dr Trevor Pearcey and the development of CSIRAC, one of the first stored-program electronic computers in the world. Born in Woolwich, London, he graduated from Imperial College in 1940 with first class honours in physics and mathematics. He emigrated to Australia in 1945.



Barbara completed a Masters in Public History at Monash University and has been the Curator at the MMoCH since 2006. In this role, she cares for the Museum's physical collection and researches aspects of the history of computing at Monash University. Barbara co-authored 'The Relevance of Computing Research History - The Monads-PC: A Case Study' (2013), co-authored 'Computer History on the Move' (2016), and wrote a short biography of Trevor Pearcey for the UK's Computer Conservation Society Journal (2014). Barbara is the chosen biographer for Pearcey's forthcoming entry in the Australian Dictionary of Biography.

## A touch of science - photomicrography.

After the break one of our new young members, **Danielle Martin** will be sharing some of her passion for microscopy and photomicrography. We will see some of the images she has created with her microscope and camera, and perhaps learn a bit about the focus stacking technique she uses to generate images with a large depth of focus.

## Meeting agenda

Please note that the MC may alter the agenda at any time at his discretion.

- 6:45 Registration in QR system.  
Buy your raffle tickets!
- 7:00 sharp. Meeting start, MC is Peter Bacon
- Guest speaker: Barbara Ainsworth: Trevor Pearcey and the development of CSIRAC;
- Social break, Raffle;
- Q and A with George Skarbek;
- Danielle Martin - photomicrography
- What's New? with George Skarbek. An interesting roundup of computer and technology news from around the world;
- 9:30: Close

## New! Ask questions from home

This month, if you are following the live stream of the meeting from home, we are testing a system to allow you to submit written questions during the meeting. Simply log in to a specially set up Yammer group and type in your question. A volunteer will be in the meeting to curate questions and ask selected questions on your behalf. If you are new to Yammer it's a good idea to log in well ahead of time and join the [Monthly meeting live group](#). You will need your Office 365 login credentials [yourname@melbpc.org.au](mailto:yourname@melbpc.org.au) + password.

*This is a test conducted by volunteers, so please be patient.*

## Monthly raffle prizes

Prizes for this month's raffle at the meeting are:

1. [Beginner kit for Arduino](#) - For those who are interested in learning about Arduino and electronics. Starting from basic LED control to more advanced environmental sensing, monitoring and actuators.
2. [LED Zoomable Flashlight Torch](#) - The body is made of aluminium. The flashlight is waterproof, ideal for outdoor activities.
3. [Gold metal key chain usb 3.0 Flash Drive](#) - USB 3.0 high-speed data transfer performance. Support USB version 2.0.

The meeting will be streamed live at <http://tv.melbpc.org.au>

**Don't forget, directly after the meeting the WAFFLE SIG meets at Fong's Chinese restaurant in Bentleigh. This is a totally social gathering where you can enjoy a snack, a full meal or just a cup of coffee. Sketch maps at the meeting or use [Google Maps](#).**

# Neven's Law

## Why it might be too soon for a Moore's Law for quantum computers

M. Fernando, Gonzalez-Zalba

A new disruptive technology is on the horizon and it promises to take computing power to unprecedented and unimaginable heights. And to predict the speed of progress of this new “[quantum computing](#)” technology, the director of Google’s Quantum AI Labs, [Hartmut Neven](#), has [proposed a new rule](#) similar to the Moore’s Law that has measured the progress of computers for more than 50 years.

But can we trust “Neven’s Law” as a true representation of what is happening in quantum computing and, most importantly, what is to come in the future? Or is it simply too early on in the race to come up with this type of judgement?

Unlike conventional computers that store data as electrical signals that can have one of two states (1 or 0), [quantum computers](#) can use many physical systems to store data, such as electrons and photons. These can be engineered to encode information in multiple states, which enables them to do calculations exponentially faster than traditional computers.

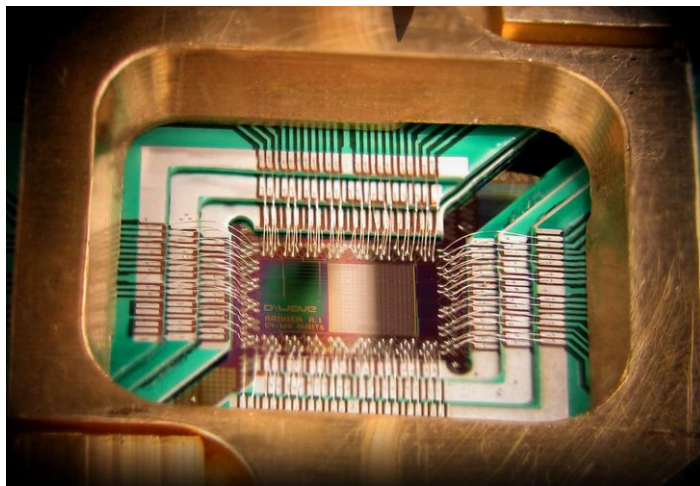
Quantum computing is still in its infancy, and no one has yet built a quantum computer that can outperform conventional supercomputers. But, despite some [scepticism](#), there is widespread excitement about how fast progress is [now being made](#). As such, it would be helpful to have an idea of what we can expect from quantum computers in years to come.

[Moore’s Law](#) describes the way that the processing power of traditional digital computers has tended to double roughly every two years, creating what we call exponential growth. Named after Intel co-founder, Gordon Moore, the law more accurately describes the rate of increase in the number of transistors that can be integrated into a silicon microchip.

But quantum computers are designed in a very different way around the laws of [quantum physics](#). And so Moore’s Law does not apply. This is where Neven’s Law comes in. It states that quantum computing power is experiencing “doubly exponential growth relatively to conventional computing”.

Exponential growth means something grows by powers of two:  $2^1$  (2),  $2^2$  (4),  $2^3$  (8),  $2^4$  (16) and so on. Doubly exponential growth means something grows by powers of powers of two:  $2^2$  (4),  $2^4$  (16),  $2^8$  (256),  $2^{16}$  (65,536) and so

on. To put this into perspective, if traditional computers had seen doubly exponential growth under Moore’s Law (instead of singly exponential), we would have had today’s laptops and smartphones by 1975.



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This enormously fast pace should soon lead, Neven hopes, to the so-called quantum advantage. This is a much-anticipated milestone where a relatively small quantum processor overtakes the most powerful conventional supercomputers.

The reason for this doubly exponential growth is based on an in-house observation. [According to an interview with Neven](#), Google scientists are getting better at decreasing the error rate of their quantum computer prototypes.

This allows them to build more complex and more powerful systems with every iteration.

Neven maintains that this progress itself is exponential, much like Moore’s Law. But a quantum processor is inherently and exponentially better than a classical one of equal size. This is because it exploits a quantum effect called [entanglement](#) that allows different computational tasks to be done at the same time, producing exponential speed ups.

So, simplistically, if quantum processors are developing at an exponential rate and they are exponentially faster than classical processors, quantum systems are developing at a doubly exponential rate in relation to their classical counterparts.

### A note of caution

While this sounds exciting, we need to exercise some caution. For starters, Neven’s conclusion seems to be based on a handful of prototypes and progress measured over a relatively short timeframe (a year or less). So few data points could easily be made to fit many other patterns of extrapolated growth.

There is also a practical issue that, as quantum processors become increasingly complex and powerful, technical problems that are minor now could become much more important. For example, the presence of even modest electrical noise in a quantum system could lead to computational errors that become more and more frequent as the processor complexity grows.

This issue could be solved by implementing [error correction protocols](#), but this would effectively mean adding lots of backup hardware to the processor that is otherwise redundant. So the computer would have to become much more complex without gaining much extra power, if any. This kind of problem could affect Neven's prediction, but at the moment it's just too soon to call.

Despite being just an empirical observation and not a fundamental law of nature, Moore's Law foresaw the progress of conventional computing with remarkable accuracy for about 50 years. In some sense, it was more than just a pre-

diction, as it [stimulated the microchip industry](#) to adopt a consistent roadmap, develop regular milestones, assess investment volumes and evaluate prospective revenues.

If Neven's observation proves to be as prophetic and self-fulfilling as Moore's Law, it will certainly have ramifications well beyond the mere prediction of quantum computing performance. For one thing, at this stage, nobody knows whether quantum computers will become widely commercialised or remain the toys of specialised users. But if

Neven's Law holds true, it won't be long until we find out.

[Alessandro Rossi](#) is a Chancellor's Fellow, Department of Physics, University of Strathclyde

[M. Fernando Gonzalez-Zalba](#) is a Research Fellow, University of Cambridge

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## A reflection on Moore's Law

*David Stonier-Gibson*

**The story above about Moore's Law and its possible successor, Neven's Law, led me to ponder on the significance of all this in my career as an electronics engineer.**

I started in the electronics game more or less on the cusp of the transition from valves, or vacuum tubes as the Americans call them, to transistor technology. In fact, I just narrowly avoided having to work with those "bottled electrodes" except for a 2<sup>nd</sup> year assignment set by a crusty old lecturer whose favourite war story – literally – was on how to properly land a Spitfire. At that stage a single transistor cost about \$1 (the same part today would be around 2 cents). The technology of building multiple transistors on a single silicon chip was just – and only just – becoming accessible to users other than The Pentagon with its deep pockets.

I had just started a part time job at the bottom of the food chain in a tiny electronics company in Subiaco when I had my first encounter with one of these mystical integrated circuits or chips as we call them today. It was a very basic amplifier circuit comprising maybe 10 or 15 transistors in a tiny case with 10 spider legs. My boss gave me this \$50 (1967 dollars, that's [\\$383 today!](#)) miracle to solder into a circuit. Well, by the time I had soldered it in it no longer worked. Ouch! Apparently it was my fault for not grounding the soldering iron.

Within a year or two I was doing my first major development project, an industrial instrument for Alcoa\*, and it was loaded to the gunnels with integrated circuits, albeit ones with only a few dozen transistors and costing AFAICR a "mere" \$5 (\$38 in today's dollars) or so each. The equivalent chips today cost maybe 10 cents.

Moore's Law states that the number of transistors on a chip doubles every 2 years. That relationship has held true ever since a young boy, still wet behind the ears, blew up a chip that cost more than his week's wages - allegedly! I have experienced the consequences of that in a quite close up and personal way, intricately linked to my career as a practising electronics engineer. But despite being in a sense an insider I stand in awe of the magnitude of the developments that have taken place, from a chip with 10 transistors being impressive to chips with billions of transistors being everyday. Or is it exactly because of my insider view I am so awed by it all?

**\* I will be describing that project at the next Microcontroller SIG meeting, 7pm on Wednesday 14<sup>th</sup> August at Moorabbin.**



Once upon a time there were newsgroups. Now we have Yammer, the online forum for Melb PC users. Within it are different groups for members with varying interests. It's also where you are likely to hear club news first. To access Yammer simply have your Melb PC login name (@melbpc.org.au email address) and password handy, click this link: <https://www.yammer.com/melbpc.org.au/> and log in

## **Chit Chat**

Climate change is an ever-present concern for many on Yammer and David provided a link to a handy guide for combating all those long refuted objections to it being caused by human action that keep being wheeled out by those who doubt it. Milankovitch cycles? Check! Warming pause? Check! Elitist conspiracy? Check! The scientists are just in it for the money? Check! And plenty more anti-climate change "zombies" where they came from.

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=259862168854528>

## **Computer Help**

An interesting question was posed by Graeme, namely how to provide better Wi-Fi coverage for a wireless printer at work. The complicating factor being it's an "unauthorised" device so can't be connected to the official network and IT won't touch it. Dennis suggested using an old wireless router to act as an extender.

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=239918426472448>

This sparked general interest in using old Wi-Fi routers as Wi-Fi extenders to provide better house-wide coverage and Roger posted some good clear instructions on several methods to set up your network to achieve this.

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=246801850621952>

## **NBN Questions and Comments**

We've had a number of reports of successful NBN service connections, mostly painless, although Peter's FTTC adventure to NBN-land wasn't so easy. After much confusion including having to cancel his first NBN order, duplicate hardware delivery and a no-show from an NBN tech, he was finally successfully connected and is actually happy with his connection. He did make friends with the manager of his local Telstra shop along the way!

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=226630042787840>

## **Market Place**

Dave continues to post links to reasonably priced ex-lease desktops, all-in-ones and laptops. A number of Yammer users have purchased these systems - Dave assures us he doesn't receive a commission or own shares in the featured vendors! Get in quick as they tend to sell out quickly. e.g. Lenovo X1 Carbon laptop with 8G RAM and 128G SSD:

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=252403898343424>

**DOTW is a lighthearted look at some of the sillier events of the week. Don't take it too seriously and do pop over to Chit Chat and vote each week. Thanks to those of our members who occasionally 'feature' for taking the gentle humour in such good part.**



Latest winners of the DOTW poll were:

The Canberra couple who poured their entire savings into a cryptocurrency trader they had found despite their initial feelings that the returns on offer seemed too good to be true. It was and they lost the lot!!

Senator Malcolm Roberts for his tweet this week "Do you know what drove me to be involved in politics? People like David Attenborough who promote fabricated climate science which leads to policies which hurt humanity and have no positive impact on the environment. Attenborough is a useful idiot to the UN agenda."

The Department of Social Services which tried to prevent a woman who lives in pain "pretty much 24/7" from accessing the disability support pension, arguing she was fit for work because she volunteered at a children's hospital.

The former prime minister Tony Abbott who has continued his crusade against wind turbines, labelling them the "dark satanic mills of the modern era". Abbott went on to say that he was comforted by the energy minister Angus Taylor's pledge to keep Australia's coal-fired power stations open.

## **Monthly meeting questions from home**

This month we will be testing out a system for remotely asking question at the main meeting. We can't make it live spoken (or even video) questions, unfortunately, if only because the "live" video stream has a 30 seconds delay. So instead you can submit your written question during the meeting, and a volunteer (Hugh Macdonald, our incoming editor) will curate the questions and read out those he deems appropriate. Questions can be submitted via a new for-purpose Yammer group, [Monthly Meeting Live](#). If you've not used Yammer before **now** is the time to log in and become familiar with it *before the night*. You will need your Office 365 login: [yourname@melbpc.org.au](mailto:yourname@melbpc.org.au) + password. Please remember this is a trial, so there could be some rough edges.



## Deep thinking.

*Where machine intelligence bends and human creativity begins.*

*Garry Kasparov with Mig Greengard - John Murray 2017*

*Tim McQueen*

Garry Kasparov is a business speaker, global human rights activist and author. He is probably best known as the former Chess Grand Master and world champion who lost a chess match to IBM's Deep Blue in 1997. AI is one of his interests. He is quite relaxed about where it might take us. Kasparov likens our concerns about autonomous vehicles to the furore over operatorless elevators in the 1920s.

Kasparov traces the attempts to devise a chess playing machine back to the fraudulent Grand Turk of the late eighteenth Century. In 1985 Kasparov achieved a clean sweep against 32 opponents in a simultaneous exhibition. Chess computers existed then – even a brand called Kasparov, which was one of his adversaries in the tournament. He was 22 years old, and about to become world champion. The only uncomfortable moment was when he had a slight difficulty with the Kasparov machine. He could not afford to draw or lose that game because it might be considered an attempt to get publicity for the company. Only 12 years later he lost to Deep Blue. Today there are mobile phone apps that are better than any human Grand Master.

The first real chess program was written by Alan Turing before the hardware existed to run it. But making a great chess-playing computer is not the same as making a thinking machine that emulates the human mind. Deep Blue's intelligence was on a par with an alarm clock's – if you can imagine a chess playing alarm clock! The 19th century African American folk hero, John Henry, was a "steel-driving man" who competed against a new invention: the steam-powered hammer. Kasparov sees an analogy to his clash with machinery.

Connections between chess playing ability and intelligence are weak. It's still not understood what distinguishes a good chess player from an ordinary one. However, chess-playing machines were seen as good test beds for artificial intelligence because:

- the problem is sharply defined;
- it is neither so simple as to be trivial or too difficult;
- chess is generally considered to require 'thinking' for skillful play;

- chess has a discrete structure that maps well onto digital devices.

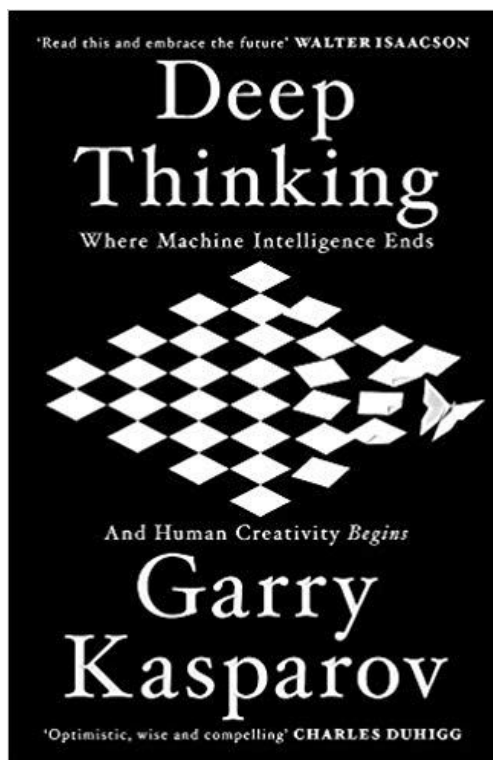
A chess program needs the rules of chess, piece values and an evaluation function to rank possible moves from worst to best.

In the early 1950s Claude Shannon, an American mathematician and engineer, suggested two search techniques. Type A, brute force, examines every possible move. Type B, intelligent search, only looks at good moves, but examines them in great depth. Shannon saw Type B as the optimum solution, but it was years before suitable hardware became available. By the late 1970s Ken Thompson (of UNIX fame) built a special-purpose chess playing machine capable of searching about 180,000 positions per second. By this time, most development was devoted to modified Type A search techniques, where the program drops evaluation of any position of lower value than the current position.

In 1988, Murray Campbell and Feng-hsiung Hsu of Carnegie Mellon University designed Deep Thought. Humans kept playing against machines, and humans kept winning.

Hardware kept improving. German world champion Emanuel Lasker defined chess as a fight rather than a game. By 1989 Deep Thought won the first tournament game against a Grand Master. Not only that, it tied for first place in the tournament. A new feature had been added: an "opening book" of standard opening moves and responses. Human players either learned to detect when a program went "off book" or learned how to force that situation. Machines often crashed and had to be rebooted during games.

Kasparov played several times against Deep Thought, winning every game. As part of his match preparation he



would study as many games played by his opponent as possible, looking for strengths and weaknesses. Campbell and Hsu joined IBM and Deep Thought was re-christened Deep Blue. Kasparov describes his preparations for a 1997 match with Deep Blue in great detail. For the first time a computer beat the world chess champion in a classical game. Kasparov held on and won the match 4-2; 450 days later came the rematch. Up until then the rivalry had been relatively friendly, but now IBM was determined to win and invested a lot in the project. Kasparov was not given access to Deep Blue's practice games (against several

Grand Masters) and was unable to prepare as well as he would have liked. He admits to being a sore loser. Once again, the games are described in detail. Both players made errors, but this time Deep Blue prevailed 2-4.

Now chess computers are used in training and to enhance human play. But chess-playing machines are still just that; they cannot be trained to do anything else. Kasparov considers that Deep Blue was a cul-de-sac in the development of artificial intelligence. The improvement of machine learning and the development of machines that can beat human players at Go may still be a better path forward.

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## Survey: How do *you* read PC Update?

*David Stonier-Gibson*

As this is my last edition, I decided it would be useful for the incoming editor to understand how members read PC Update, i.e. in what medium. This will provide insights to inform future evolution of the newsletter's presentation format.

So I have constructed a simple survey to find out what display medium people use: A display screen (and what style) or hard copy (paid for or printed out at home). Please, please, *please* go online and respond to the survey. It is on

Yammer at

<https://www.yammer.com/melbpc.org.au/threads/240937056354304>

To get to it you *may* need your Melb PC login credentials.

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[The conversation.com](http://Theconversation.com)

## 'Repair cafés' are about fixing things – including the economy

*Jade Herriman*

Imagine your smartphone's screen gets smashed, or your bike wheel gets buckled, or your favourite boots get a hole in them. What do you do? You could buy a replacement. Or you could join the worldwide trend of taking your broken stuff to a "repair café".

The [Bower Reuse and Repair Centre](#) has just launched Australia's first repair café, in Sydney's inner west. The [crowd-funded](#) project will hold weekly repair sessions focusing on bikes, furniture and electrical items.

The first repair café was set up in Amsterdam in 2009, and the [Repair Café Foundation](#) says there are now [more than 400 around the world](#).

### What is a repair café?

A repair café is a free face-to-face meeting of skilled volunteers and local residents who want things fixed. Many run as a weekly, monthly or seasonal "drop-in" space at a local workshop or community centre, or offer stalls at a local fair or park. Visitors bring broken items from home and watch,



learn or help as the repairs get done. Some things are fixed during the event, while for more challenging items people might be referred to local speciality repair shops.

Volunteers aren't necessarily tradespeople but they are tinkerers – people who love to work with objects. Many people who love bikes have learned how to repair and maintain them; others can sew, alter and transform old clothes; still others are fascin-

ated by how watches work.



In this sense, repair is a natural extension of understanding, and a creative process that gives immense satisfaction. Many visitors to repair cafés end up becoming repairers themselves.

The [list of items successfully repaired at repair cafés](#) is huge: bikes, clothing, cameras, mobile phones, computers, lawnmowers, luggage, lamps, toasters, CD players, microwaves – basically, almost anything you can physically bring along.



*Up and running in Sydney's inner west. Jade Herriman, CC BY*

### Why bother?

Our relationship with material objects has changed dramatically in the generations since wartime Britons were told to “make do and mend”. Simple repairs – resoling a shoe, mending a hole in a dress or gluing the leg of a chair – became less common as the disposable culture developed beyond small items like razors and pens, to include clothes, furniture and electronics. Mending came to be seen as old-fashioned and unnecessary, and cheap mass-production meant that anything less than perfect could be thrown away and replaced.

Last year, [according to the ABS](#), Australians sent more than half a million tonnes of leather and textiles to landfill – more than ten times the amount that was reused or recycled. But as [British researchers conclude](#), reusing old clothes reduces environmental impact and boosts social equity.

### A culture of repair

Mending represents a [deliberate attempt to resist the throwaway culture](#). Repair cafés [get people talking](#) and give them the chance to network and learn about the local resources available. And, perhaps most surprisingly for anyone who considers mending to be some kind of frugal drudgery, repair cafés can be fun and creative. After one event in Palo Alto, California, organisers [wrote on their](#)

[blog](#):

*Visitors to the Repair Cafe were delighted. It seems we really struck a chord with people - not only touching their desire to do something positive about their accumulated, broken stuff, but also appealing to the desire people have for this kind of community participation. The event also sparked lots of ideas among different people who came by – partnerships with other community groups, a community tool library, and advice on how to do things better next time. Most of all, though, everyone just had fun.*

Meanwhile, repair café organisers in [Brighton, UK](#) stress that:

*Repairing is not only a creative and political activity – creating a sense of empowerment and independence – it is also a way of creating community cohesion and reducing waste.*

### New approaches to old stuff

This wave of 21st-century DIY enthusiasm is also evident in the rise of the [Maker Movement](#), [Hackerspace](#) and other networks for hobbyists, students, or enthusiasts.

While repair cafés are general, other similar projects are



*Fixing things can be fun. Jade Herriman, CC BY*

more specialised, such as [Remade in Edinburgh](#), which focuses on clothes and crafts, and [Free Geek Chicago](#) and the London-based [Restart Project](#), which help people repair and upgrade their own phones and electronics

without buying new ones.

Online, there is a host of resources about repair – from the basics of [mending clothes](#), to detailed and complex [repair guides](#) for computers, phones, games consoles, cameras, and even trucks. Some “fixers” have challenged themselves to make it the [entire basis of their lifestyle](#).

### *It's the circular economy, stupid*

“In a circular economy, repair cafés fit right in”, says the movement’s original founder [Martine Postma](#). In rejecting the linear model of buy-use-dispose, the [circular economy](#) aims to keep resources moving around in the economy, rather than shunting them through it to a dead end, where they are lost to valuable use.

The Restart Project describes efforts such as theirs as

the [“inner circle of the circular economy”](#) – small-scale solutions that involve sharing skills to develop a local economy of maintenance and repair, before items are even considered for recycling.

It might be quicker and easier to throw stuff in the bin, but it’s more expensive and less fun too.

[Jade Herriman](#) is a Research Principal, University of Technology Sydney. This article is republished from *The Conversation* under a Creative Commons license. [Read the original article](#)

*[This article was originally published in 2014, and describes the first repair cafe in Australia. Since then several have been establish, including [a number in Melbourne](#) – Ed]*

## President’s Report July 12th 2019

### *Leading our Club from Moorabbin*

*John Hall*

**As those of you who watched or attended the Main Monthly Meeting on Wednesday 3rd of July will have heard in my brief “President’s Report” – I have been overseas for over 6 weeks (hence no President’s Report in the last PC Update) and during that time our Club ran exceedingly well without me thanks to the work of our new young(er) Committee Members who are largely based around our Moorabbin Headquarters.**

As you know, I have announced that I will no longer be standing for Committee in any position at the upcoming November elections. Our Treasurer – Stewart Gruneklee – who has been travelling extensively through Australia this year and intends to do more travelling in the future has announced that whilst he will stay on the Committee he will not be nominating for Treasurer in November.

In order to announce the nominations at least 30 days prior to the election the nominees have to supply a written summary of their history and reasons why they should be elected to Committee by the end of September.

By the time you read this Report in the PC Update it will be early August and therefore the candidates for both President and Treasurer should have been well and truly identified by then so that they can start to gather any additional people to nominate for all of the other Committee positions (12 in total).

Fortunately the “hard yards” have been completed by the Committees over the past 3 years in that:-

1. We have reduced the costs of our operations so that we are now “Breaking even” on our current Profit and Loss Reports.
2. We have implemented a state of the art Membership System – based on the world leading CiviCRM “Open Source” Software package – which allows Members to enrol and renew Memberships totally “on-line”.

3. We have created a new branch of the Melbourne PC User Group – namely the “Melbourne Computer Club” which is gathering a greater “Social Media” following and is resulting in the recruitment of new (younger) Members to our Club largely through activities in our Moorabbin rooms.



Therefore the new President and Treasurer would be ideally Moorabbin based and have the skills needed to continue to recruit new Members and continue to manage the costs of our Moorabbin premises whilst investing in new technologies that will keep our existing Members renewing their Memberships.

(Technologies such as the streaming of our Monthly Meetings – which I am very much looking forward to viewing from my home in Glen Waverley).

If you feel that you could become part of this young and dynamic Committee – please contact our Company Secretary John Swale (who WILL be standing for the next Committee) to obtain the nomination forms.



Frank Maher opened the July meeting followed by an unusually short Q&A conducted by George Skarbek.

Q: Has anyone examined the new Services Agreement with MicroSoft?  
A: No.

As there were no further questions, George posed the question “how do you get accurate time?” George’s new watch, a Seiko Astron Solar GPS is always accurate as it continually links to GPS satellites to maintain accurate



Seiko Astron Solar GPS

time and even adjusts for leap seconds. (A leap second refers to the periodical addition of one second to the Coordinated Universal Time (UTC) in order to keep clocks throughout the world synchronised with the Earth’s ever-slowng rotation. The next leap second is planned for 2020). The Seiko’s clock hands automatically adjust to the local time anywhere in the world with the touch of a single button. The watch

receives all its power from any light sources, which it absorbs through the dial. Unfortunately daylight saving time does require a manual adjustment. The battery life is expected to last ten to fifteen years and the watch has a 3 year guarantee. For those who don’t have a Seiko watch like George’s, there are other ways to determine accurate time.

Website [www.time.is](http://www.time.is) displays the current time using official atomic clock time. The time displayed is at your

Scroll further down the web page and click on a city from a list of the world’s major cities (figure 3) to display that city’s current time. A new windows for that city opens and displays additional time information including Time Zone, Daylight Savings dates, Sunrise & Sunset time, Day length, Solar noon (i.e. when the sun is at its maximum elevation and crosses the local meridian) & the difference between current local time and solar time.

Melbourne is not displayed on the cities list, but if you click on Sydney, a new window opens where Melbourne can be selected from a list of Australia’s 25 largest cities. Select Melbourne and a new window opens and displays a wealth of time based information for Melbourne.

Before the internet, accurate time was obtained through the PMG’s talking clock service. This service was staffed by a team of women working in half hour shifts who would read out, “at the third stroke it will be ...”. The service was computerised in 1954 and is still available today. Apart from those wanting accurate time to set their watches and clocks, this service was vital for surveyors and mariners when calculating longitude using astronomical observations.

Abu Dhabi	Addis Ababa	Amsterdam	Antananarivo	Auckland
Baghdad	Bangkok	Barcelona	Beijing	Berlin
Bogotá	Boston	Brussels	Buenos Aires	Cairo
Cape Town	Caracas	Chicago	Delhi	Dhaka
Dubai	Dublin	Frankfurt	Guangzhou	Hanoi
Havana	Helsinki	Hong Kong	Honolulu	Istanbul
Jakarta	Karachi	Kinshasa	Kuala Lumpur	Kyiv
Lagos	Las Vegas	Lima	London	Los Angeles
Luanda	Madrid	Manila	Mecca	Mexico City
Miami	Milan	Moscow	Mumbai	New Delhi
New York	Nuuk	Osaka	Oslo	Paris
Prague	Reykjavik	Rio de Janeiro	Riyadh	Rome
Saint Petersburg	San Francisco	Santiago	Seoul	Shanghai
Shenzhen	Singapore	Stockholm	Sydney	São Paulo
Taipei	Tehran	Tel Aviv	Tokyo	Toronto
Vancouver	Vienna	Washington, D.C.	Yangon	
UTC GMT CET				
Pacific Time Mountain Time Central Time Eastern Time				

Time.is World Cities list

The talking clock still exists and is accessed by phoning 1194. Every 10 seconds a recorded voice gives the current time. e.g. For the time displayed in figure 2 you would hear “at the third stroke it will be seven, twenty three and forth seconds, beep, beep, beep”. The talking clock always announces the current time from where the call originates.

To compare the two time services, George phoned the talking clock to check its time against that displayed on the [www.time.is](http://www.time.is) website. Audience members could not pick any difference between the two. Reference <https://en->



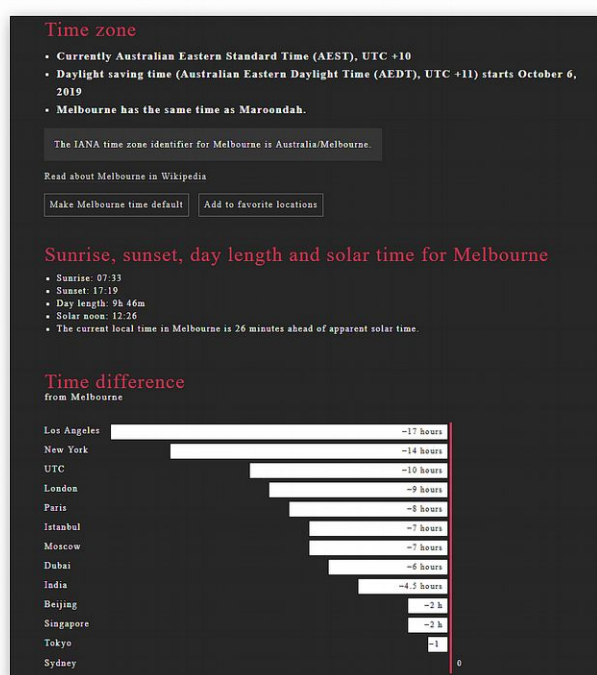
Time.is current time display

current location and is accurate to the nearest second. The time displayed takes up the full width of the screen as shown in Figure 2 and the time updates each second.

[wikipedia.org/wiki/Speaking\\_clock#Australia](http://wikipedia.org/wiki/Speaking_clock#Australia)

George then spoke about a health watch (model number N56) he recently purchased for \$71 from Austock. The health watch links to his Android smart phone via an App using Bluetooth. Main features of the watch are heart rate, blood pressure & sleep monitoring, notifications & messages from the phone and of course time and date. The watch came with the choice of 2 bands and features 5 different display faces similar to those shown in figure 5.

The watch was purchased to check heart rhythm as a



*Melbourne's window for 14th July 2019*

cheap monitoring option to be used between medical appointments. Various reports including heart rate can be downloaded and printed. Until the various reports can be discussed with his GP, George could not vouch for the accuracy of the data, so would not go as far as recommending the N56 at this time. The heart rate measurements taken appear fairly accurate but George is unsure about the blood pressure readings, even though they are fairly constant over multiple measurements.

After a break Dave Botherway presented some "Forgotten" Features in Windows 10.

First up Dave showed where to find the scenic images displayed when Windows first boots up. These images change almost daily and many would be suitable to display as your desktop wallpaper, one of which Dave is currently using for his own desktop wallpaper.

The images are stored on your computer but are not evident as such or easy to locate. First Microsoft up you need to display hidden files in File Explorer. Drill down in your C drive to Users "Your Name" AppData Local Packages Mi-

crosoft.Windows.ContentDeliveryManager\_cw5..... Local State Assets.

The image files you're after are found in the Assets folder. The files have long meaningless file names comprising both alpha and numeric characters, but no file extension. As these files cannot be viewed in the current format, Dave suggested copying them to a work folder and then add a .jpg extension to the files using DOS. I tested this on my computer and found 102 files in my Assets folder. I copied the files to a work folder and used IrfanView's batch conversion function to add a jpg extension to all the files. The new jpg files were a mixture of scenic pictures in landscape and portrait format and graphics images. From here some sorting, renaming and deleting will be necessary to keep only the scenic image files I wish to retain. I was disappointed that not all the scenes shown when booting my computer were found in the Assets folder.

Hint: As there are a large number of folders under the "Packages" folder, all with long complicated names, Dave suggested the following easier option to locate the Assets folder. Navigate to the "Local" folder in File Explorer (see path above) and search for "Assets" from the Windows search box top right of File Explorer. From here the Assets folder can be opened and files displayed.

The first "forgotten" feature Dave covered was first introduced in Windows 8 and is File History. File History is very useful for recovering early versions of a file when you need to go back to an earlier version. It works like a backup by taking snapshots of your files at pre-determined intervals as you work on a file. The file needs to be stored in a folder on an external drive, USB or home network. Over time File History builds up an archive of past versions of your documents that you can recover if needed. The date and time is appended to the file name which helps if you need to go back to an earlier version of say a Word or Excel document.



*A similar health watch to the N56 purchased by George.*

File History needs to be activated by selecting Settings Update & Security Backup Back up using File History and



select Add a Drive to select where backups are to be stored.

The second “forgotten” feature Dave covered was Windows Timelines. This feature was first introduced in Windows 10 version 1803 and is opened by clicking Task View on the Windows Taskbar. Timelines is on by default and is an easy way to open programs worked on recently. Click the Task View icon and thumbnails displaying miniature versions of all current running apps are displayed. Timelines appears immediately below the thumbnails of the running apps and displays large icons of documents and web pages you’ve opened and edited recently. These files are organising according to the date the file was ac-

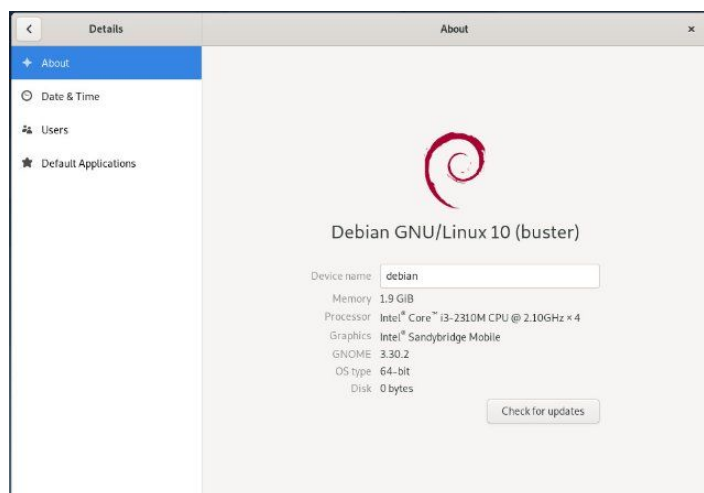
cessed.

When you click on one of the large icons under Timelines the file for that thumbnail opens. This can be a quicker alternative to opening the file from File Explorer or the program normally used to open the file. Timelines is particularly useful when you don’t remember where the file was stored or when you’ve forgotten the file name.

If you allow your activity history to be sent to MicroSoft, Timelines will display files accessed over the last month. For those users who don’t allow this, only the last 7 days file activity is displayed. Options and accounts can be updated by selecting Settings Privacy Activity History.

## Northern Suburbs Linux SIG – July Meeting

*Paul Addis*



*Debian 10 showing basic system details*

The meeting started in the usual way with Nick Vespo’s Linux News. Unusually, the first item was about Windows. With the 1903 update of Windows 10 users can run “sandboxed” applications. To run an application in that way, first check that the machine supports HyperV via coreinfo. If HyperV is supported, select it and Sandbox.

Run the program in the sandbox, and when it is finished, the program and its components will be removed from memory without any leftovers. When operating, the program will not affect any other program(s) running at the same time.

A video was then shown of a demonstration of Scalpel - a data duplication program. The demonstration used the dd command inside Scalpel to copy the contents of a device to the root directory after checking the dd command to ensure correct operation.

The Open Forum session was quiet at first, then David Hatton spoke of his efforts to update an early model Rasp-

berry Pi B. It was slow at first and got slower, probably due to all the new Raspberry Pi 4 owners updating their new toys from the same repository location. Even though the Raspberry Pi was made in 2012, the latest updates were installed and ran well, if a little slower than on more recent Raspberry Pis. A good example of backwards compatibility.

Netflix found a security problem with Linux. It has since been fixed. We have no details of what the problem was and what was done to fix it. Hmm!



*Debian 10 showing some installed applications*

Linux and Windows have different approaches to the basis for time on the machine. One version uses local time zone as a reference – the other uses UTC. This can make it difficult when sharing files between the two OS’es, because – for example – it might be possible to try to access a file that has not yet been created according to the time on the partner system.

Another timing problem was mentioned: a Windows Server 2012 system is losing ten minutes per day for no apparent reason. It is possible to reset the clock manually, but there is no known fix for the problem.

After the social break, David Hatton presented a first look at the latest updates to two distributions - Debian 10



*Mageia 7 Gnome with basic menu*

(known as “buster”) and Mageia 7. They do have echoes of Mandrake/Mandriva. Both Debian and Mageia use Wayland as the default compositor for the Gnome desktop rather than Xorg, although you can use Xorg if Wayland has problems with your hardware. Debian uses Gnome as a standard desktop, but also supports the use of a number of others, including KDE, XFCE, Cinnamon and MATE. It comes with over 50,000 packages in total, so it is not surprising that a number of desktops are included/supported.

Both distributions support a root account separate from the user account and include the configuration function called “tweaks” (included in its vast package list) that allows a user to make changes to the Gnome user interface such as font and title bar changes. The MATE interface is described as “more Windows-like” in screen layout than

the default Gnome interface.

The Mageia distribution started as a fork from Mandriva and is a community project. Like Mandriva it is based in France. There are several flavours of ISO available, including: Plasma, Gnome and XFCE, and a “classical” ISO if you want to install multiple desktops such as Cinnamon or MATE. David showed the Gnome desktop for demonstration purposes.

Mageia has its own package manager called “dnf”, (which does not stand for “did not finish”) which supports the .rpm package format, but it also uses urpm for package management. A significant feature is the Mageia



*Mageia 7 showing some applications*

Control Center, a system configuration and administration utility allowing users to manage their systems simply and effectively through a suite of interrelated GUI programs accessible from a centralised interface.

In general, the Mageia distribution has the feel of a complete operating system, rather than one that integrates various pieces from different sources.



# Special Interest Groups

**This is the last time the SIG list will be published in PC Update. Why? A significant amount of work goes into simply getting the formatting right, and the same information is on the website and constantly updated. The home page <https://melbpc.org.au> has calendar links in the lefthand sidebar, and the SIG list is in the top menu. The time spent doing this would allow one or two more interesting items to be included!**

Data Source: data-source for SIG-List Updated: 30-Jul-2019 - 20:25  
Amendments: Please advise changes/corrections to: [calendar-admin@melbpc.org.au](mailto:calendar-admin@melbpc.org.au)  
Recent changes are at: <https://www.melbpc.org.au/sigs/about/recent-changes/>

## Access (database) and Excel

Date Jan	No Meeting
Feb-Nov	Second Mon of month (inc. Public Holidays)
Dec	Second Mon of month
Time	6:30pm - 8:30pm
Email	<a href="mailto:access@melbpc.org.au">access@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, Moorabbin Melway:78.D8
Convenor(s)	Craig Evans <a href="mailto:craig_evans@racv.com.au">craig_evans@racv.com.au</a>

## Bayside

Date Jan	Third Thu of month
Feb-Nov	Third Thu of month
Dec	Third Thu of month. Arrive 11:30am for 12noon start. Christmas lunch.
Time	10am - 12noon
Email	<a href="mailto:bayside@melbpc.org.au">bayside@melbpc.org.au</a>
Location	St Stephens Church Hall, 111 North Road (cnr Cochrane St), Brighton Melway:67.F7
Convenor(s)	Peter Carpenter - 9596 3441 Brian Fergie Les Johnston

## Beginners East (BEAST)

Date Jan	No Meeting
Feb-Nov	Third Sun of month
Dec	Third Sun of month
Time	10am - 12noon
Email	<a href="mailto:beast@melbpc.org.au">beast@melbpc.org.au</a>
Location	Vermont South Community Centre, 1 Karobran Drive, Vermont South Melway:62.G7
Convenor(s)	Dave Botherway

## Casey

Date Jan	No Meeting
Feb-Nov	Second Fri of month
Dec	Second Fri of month. (Christmas function - check location/time etc with Convenor)
Time	1pm - 3:30pm
Location	Beaconsfield Neighbourhood Centre, 8 O'Neil Road, Beaconsfield Melway:214.A1
Convenor(s)	Phillip Rocke <a href="mailto:philliprocke@optusnet.com.au">philliprocke@optusnet.com.au</a> Helen Ventura Ross Bradbury

## Communications

Date Jan	No Meeting
Feb-Nov	Second Wed of month
Dec	Second Wed of month
Time	7 - 9:30pm
Email	<a href="mailto:phil@melbpc.org.au">phil@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, Moorabbin Melway:78.D8
Convenor(s)	Phil Lew - 0418 567 019

## Digital Images

Date Jan	No Meeting
Feb-Nov	Third Fri of month
Dec	No Meeting
Time	10am - 12noon
Location	Wadham House, 52 Wadham Parade, Mount Waverley Melway:61.E12
Convenor(s)	Ian Bock - 9807 3701 <a href="mailto:bockey@melbpc.org.au">bockey@melbpc.org.au</a> George Skarbek

## East

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Thu of month</b>
<b>Dec</b>	<b>Second Thu of month (starts 6:30pm)</b>
Time	7:30pm - 9:30pm
Email	<a href="mailto:east@melbpc.org.au">east@melbpc.org.au</a>
Location	Eley Park Community Centre, 87 Eley Rd, <b>Blackburn South</b> Melway:61.H5
Convenor(s)	Paul Woolard - 9877 1059 Ian Dewhurst - 0438 480 500

## East Workshop

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Sun of month. NO meeting in May - Mother's Day.</b>
<b>Dec</b>	<b>Second Sun of month</b>
Time	10am - 12noon
Email	<a href="mailto:eastwsh@melbpc.org.au">eastwsh@melbpc.org.au</a>
Location	Wadham House, 52 Wadham Parade, <b>Mount Waverley</b> Melway:61.E12
Convenor(s)	Paul Woolard - 0417 566 209 <a href="mailto:pwoolard@melbpc.org.au">pwoolard@melbpc.org.au</a> John Swale (3D printing) - 0417 530 766

## Essendon - Main meeting

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>First Fri of month</b>
<b>Dec</b>	<b>No Meeting</b>
Time	9:30am - 12noon
Email	<a href="mailto:essendon@melbpc.org.au">essendon@melbpc.org.au</a>
Location	Nancye Kirchner Neighbourhood Centre, Doyle Street (corner Somerset St), <b>Avondale Heights</b> Melway:27.D6
Convenor(s)	John Guegan - 9317 7114

## Essendon - Open Forum

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Fri of month</b>
<b>Dec</b>	<b>Second Fri of month. (Christmas Function, starts 10:30am)</b>
Time	9:30am - 12noon
Email	<a href="mailto:essendon@melbpc.org.au">essendon@melbpc.org.au</a>
Location	Nancye Kirchner Neighbourhood Centre, Doyle Street (corner Somerset St), <b>Avondale Heights</b> Melway:27.D6
Convenor(s)	John Guegan - 9317 7114

## Essendon - Various topics

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Third Fri of month</b>
<b>Dec</b>	<b>Second Fri of month</b>
Time	9:30am - 12noon
Email	<a href="mailto:essendon@melbpc.org.au">essendon@melbpc.org.au</a>
Location	Nancye Kirchner Neighbourhood Centre, Doyle Street (corner Somerset St), <b>Avondale Heights</b> Melway:27.D6
Convenor(s)	John Guegan - 9317 7114

## Everything Apple

<b>Date Jan</b>	<b>Third Tue of month</b>
<b>Feb-Nov</b>	<b>Third Tue of month</b>
<b>Dec</b>	<b>No Meeting</b>
Time	2pm - 4pm
Email	<a href="mailto:everything-apple@melbpc.org.au">everything-apple@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	Peter Emery <a href="mailto:everything-apple@ausom.net.au">everything-apple@ausom.net.au</a> Sam Fiumara

## Genealogy East

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Third Sun of month</b>
<b>Dec</b>	<b>Third Sun of month</b>
Time	12:30pm - 2:30pm
Email	<a href="mailto:geneast@melbpc.org.au">geneast@melbpc.org.au</a>
Location	Vermont South Community Centre, 1 Karobran Drive, <b>Vermont South</b> Melway:62.G7
Convenor(s)	Denis Street

## Hardware

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Fri of month</b>
<b>Dec</b>	<b>Second Fri of month</b>
Time	10am - 12noon
Location	Wadham House, 52 Wadham Parade, <b>Mount Waverley</b> Melway:61.E12
Convenor(s)	Kelvin Cording - 9438 1047 <a href="mailto:kcording@bigpond.net.au">kcording@bigpond.net.au</a> John Hall - 9803 2731 <a href="mailto:johnhall@melbpc.org.au">johnhall@melbpc.org.au</a>



## iHelp

<b>Date Jan</b>	<b>Approximately 6 monthly</b>
<b>Feb-Nov</b>	<b>Approximately 6 monthly</b>
<b>Dec</b>	<b>Approximately 6 monthly</b>
<b>Time</b>	7pm - 9pm
<b>Email</b>	<a href="mailto:ihelp@melbpc.org.au">ihelp@melbpc.org.au</a>
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
<b>Convenor(s)</b>	Dave Simpson - 9276 4095

## Investment Tools - WASINT

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Tue of month</b>
<b>Dec</b>	<b>Second Tue of month</b>
<b>Time</b>	10:30am - 12:30pm
<b>Email</b>	<a href="mailto:wasint@melbpc.org.au">wasint@melbpc.org.au</a>
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
<b>Convenor(s)</b>	Richard Solly

## Linux Workshop - Moorabbin

<b>Date Jan</b>	<b>In Recess</b>
<b>Feb-Nov</b>	<b>In Recess - seeking volunteer leaders</b>
<b>Dec</b>	<b>In Recess</b>
<b>Time</b>	
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8

## MACE (Atari Computers)

<b>Date Jan</b>	<b>Third Sun - BBQ - check with Convenor for location</b>
<b>Feb-Nov</b>	<b>Third Sun of month</b>
<b>Dec</b>	<b>Third Sun of month</b>
<b>Time</b>	10am - 2pm
<b>Email</b>	<a href="mailto:maceatari@gmail.com">maceatari@gmail.com</a>
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
<b>Convenor(s)</b>	Andrew Boschan <a href="mailto:andrewbosc@gmail.com">andrewbosc@gmail.com</a>

## Microcontroller

<b>Date Jan</b>	<b>Second Wed of month</b>
<b>Feb-Nov</b>	<b>Second Wed of month</b>
<b>Dec</b>	<b>Second Wed of month</b>
<b>Time</b>	7pm - 9:30pm
<b>Email</b>	<a href="mailto:microcontroller@melbpc.org.au">microcontroller@melbpc.org.au</a>
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
<b>Convenor(s)</b>	David Stonier-Gibson John Hollow - 0417 031 164 Phil Lew - 0418 567 019

## Microcontroller Workshop

<b>Date Jan</b>	<b>Second &amp; Fourth Sat of Jan.</b>
<b>Feb-Nov</b>	<b>Second &amp; Fourth Sat of month.</b>
<b>Dec</b>	<b>Second &amp; Fourth Sat of month.</b>
<b>Time</b>	12noon - 5pm
<b>Email</b>	<a href="mailto:microcontroller-workshop@melbpc.org.au">microcontroller-workshop@melbpc.org.au</a>
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
<b>Convenor(s)</b>	John Shirt - 0409 568 267 Rob Brown - 0419 285 806 Steph Lancaster

## Mornington Peninsula - General, Q&A

<b>Date Jan</b>	<b>Third Mon of month</b>
<b>Feb-Nov</b>	<b>Third Mon of month</b>
<b>Dec</b>	<b>No Meeting</b>
<b>Time</b>	9:30am - 12noon
<b>Email</b>	<a href="mailto:peninsula@melbpc.org.au">peninsula@melbpc.org.au</a>
<b>Location</b>	Mornington Community Information and Support Centre, 320 Main St, <b>Mornington</b> Melway:104.E12
<b>Convenor(s)</b>	Terry Said - 0427 750 327 <a href="mailto:dulnain@gmail.com">dulnain@gmail.com</a> Ian Thomson <a href="mailto:iaroth@netspace.net.au">iaroth@netspace.net.au</a> Colin Ackehurst

## Mornington Peninsula - Family History

<b>Date Jan</b>	<b>Third Mon of month</b>
<b>Feb-Nov</b>	<b>Third Mon of month</b>
<b>Dec</b>	<b>No Meeting</b>
<b>Time</b>	1:30pm - 4:30pm
<b>Email</b>	<a href="mailto:peninsula@melbpc.org.au">peninsula@melbpc.org.au</a>
<b>Location</b>	Mornington Community Information and Support Centre, 320 Main St, <b>Mornington</b> Melway:104.E12
<b>Convenor(s)</b>	Colin Ackehurst <a href="mailto:colin_a_ackehurst@bigpond.com">colin_a_ackehurst@bigpond.com</a>

## Mornington Pen. Family History: Adv.DNA

<b>Date Jan</b>	<b>last Wed of month (5th Wed if there is one, otherwise 4th Wed)</b>
<b>Feb-Nov</b>	<b>last Wed of month (5th Wed if there is one, otherwise 4th Wed).</b>
<b>Dec</b>	<b>No Meeting</b>
<b>Time</b>	2pm - 4pm
<b>Email</b>	<a href="mailto:peninsula@melbpc.org.au">peninsula@melbpc.org.au</a>
<b>Location</b>	Mornington Community Information and Support Centre, 320 Main St, <b>Mornington</b> Melway:104.E12
<b>Convenor(s)</b>	Colin Ackehurst <a href="mailto:colin_a_ackehurst@bigpond.com">colin_a_ackehurst@bigpond.com</a>

## Multimedia Home Entertainment

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>First Fri of month</b>
<b>Dec</b>	<b>First Fri of month</b>
<b>Time</b>	10am - 12noon
<b>Email</b>	<a href="mailto:MHE@melbpc.org.au">MHE@melbpc.org.au</a>
<b>Location</b>	Wadham House, 52 Wadham Parade, <b>Mount Waverley</b> Melway:61.E12
<b>Convenor(s)</b>	David King Kelvin Cording

## Music

<b>Date Jan</b>	<b>In Recess</b>
<b>Feb-Nov</b>	<b>In Recess - seeking volunteer leaders</b>
<b>Dec</b>	<b>In Recess</b>
<b>Time</b>	
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8

## North East Android

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Third Wed of month</b>
<b>Dec</b>	<b>Second Wed of Dec - join with North East Daytime SIG - end-of-year breakup</b>
<b>Time</b>	10am - 12noon
<b>Email</b>	<a href="mailto:ne-android@melbpc.org.au">ne-android@melbpc.org.au</a>
<b>Location</b>	Hawdon Street Community Hall, 80 Hawdon Street, <b>Heidelberg</b> Melway:32.A4
<b>Convenor(s)</b>	Colin Lampshire 9857 5372 or 0413 640 408 <a href="mailto:lampshir@melbpc.org.au">lampshir@melbpc.org.au</a> Kelvin Cording - 9438 1047

## North East Daytime and Photography

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Wed of month</b>
<b>Dec</b>	<b>Second Wed of month</b>
<b>Time</b>	10am - 12noon
<b>Email</b>	<a href="mailto:neday@melbpc.org.au">neday@melbpc.org.au</a>
<b>Location</b>	Hawdon Street Community Hall, 80 Hawdon Street, <b>Heidelberg</b> Melway:32.A4
<b>Convenor(s)</b>	Colin Lampshire 9857 5372 or 0413 640 408 <a href="mailto:lampshir@melbpc.org.au">lampshir@melbpc.org.au</a>

## North East Genealogy

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>First Wed of month</b>
<b>Dec</b>	<b>First Wed of month</b>
<b>Time</b>	10am - 12noon
<b>Email</b>	<a href="mailto:negen@melbpc.org.au">negen@melbpc.org.au</a>
<b>Location</b>	Hawdon Street Community Hall, 80 Hawdon Street, <b>Heidelberg</b> Melway:32.A4
<b>Convenor(s)</b>	Lynn. Hammet <a href="mailto:lynnhammet@gmail.com">lynnhammet@gmail.com</a>

## Northern Suburbs Linux

<b>Date Jan</b>	<b>Third Mon of month</b>
<b>Feb-Nov</b>	<b>Third Mon of month</b>
<b>Dec</b>	<b>No Meeting</b>
<b>Time</b>	7:30pm - 9:30pm
<b>Email</b>	<a href="mailto:nslig@melbpc.org.au">nslig@melbpc.org.au</a>
<b>Location</b>	Community Meeting Room, Watsonia Library, 4 Ibbotson St, <b>Watsonia</b> Melway:20.E4
<b>Convenor(s)</b>	David Hatton Nick Vespo

## Online

<b>Date Jan</b>	<b>Available online at any time</b>
<b>Feb-Nov</b>	<b>Available online at any time</b>
<b>Dec</b>	<b>Available online at any time</b>
<b>Time</b>	Available online at any time
<b>Email</b>	<a href="mailto:kazkev@melbpc.org.au">kazkev@melbpc.org.au</a>
<b>Location</b>	Melb PC Yammer online forum
<b>Convenor(s)</b>	Kevin Martin Evening only - 5964 7627 or 0407 343 162

## Programming

<b>Date Jan</b>	<b>In Recess</b>
<b>Feb-Nov</b>	<b>In Recess - seeking volunteer leaders</b>
<b>Dec</b>	<b>In Recess</b>
<b>Time</b>	
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8

## Raspberry Pi - Moorabbin

<b>Date Jan</b>	<b>Second Sat of month</b>
<b>Feb-Nov</b>	<b>Second Sat of month</b>
<b>Dec</b>	<b>Second Sat of month</b>
<b>Time</b>	2pm - 4pm
<b>Email</b>	<a href="mailto:raspi-moorabbin@melbpc.org.au">raspi-moorabbin@melbpc.org.au</a>
<b>Location</b>	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
<b>Convenor(s)</b>	Mohan Gupta - 0421-214-081 Rob Brown - 0419 285 806



## Raspberry Pi - Mt Waverley

<b>Date Jan</b>	<b>Fourth Fri of month</b>
<b>Feb-Nov</b>	<b>Fourth Fri of month</b>
<b>Dec</b>	<b>No Meeting</b>
Time	10am - 12noon
Email	<a href="mailto:raspi@melbpc.org.au">raspi@melbpc.org.au</a>
Location	Wadham House, 52 Wadham Parade, <b>Mount Waverley</b> Melway:61.E12
Convenor(s)	John Hall - 9803 2731 <a href="mailto:johnhall@melbpc.org.au">johnhall@melbpc.org.au</a> John Swale - 0471 530 766 <a href="mailto:jswale@melbpc.org.au">jswale@melbpc.org.au</a>

## Science & Tech Projects

<b>Date Jan</b>	<b>First &amp; Third Sun of month</b>
<b>Feb-Nov</b>	<b>First &amp; Third Sun of month</b>
<b>Dec</b>	<b>First Sun of Dec (no second meeting in Dec)</b>
Time	1pm - 5pm
Email	<a href="mailto:tech-projects@melbpc.org.au">tech-projects@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	Stephen Zuluaga Dani Martin

## Sunbury Daytime - New Users

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>First Thu of month</b>
<b>Dec</b>	<b>First Thu of month</b>
Time	9:30am - 12noon
Email	<a href="mailto:sunburydaytime@gmail.com">sunburydaytime@gmail.com</a>
Location	Sunbury Senior Citizens Centre (back room), 8 O'Shanassy Street, <b>Sunbury</b> Melway:382.E4
Convenor(s)	Kevin Hale - 9740 5786

## Sunbury Daytime - Advanced

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Thu of month</b>
<b>Dec</b>	<b>Second Thu of month</b>
Time	9:30am - 12noon
Email	<a href="mailto:sunburydaytime@gmail.com">sunburydaytime@gmail.com</a>
Location	Sunbury Senior Citizens Centre (back room), 8 O'Shanassy Street, <b>Sunbury</b> Melway:382.E4
Convenor(s)	Kevin Hale - 9740 5786

## Sunbury Daytime - Main Meeting

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Third Thu of month</b>
<b>Dec</b>	<b>No Meeting</b>
Time	9:30am - 12noon
Email	<a href="mailto:sunburydaytime@gmail.com">sunburydaytime@gmail.com</a>
Location	Sunbury Senior Citizens Centre (back room), 8 O'Shanassy Street, <b>Sunbury</b> Melway:382.E4
Convenor(s)	Kevin Hale - 9740 5786

## Sunbury Daytime - Maintenance & Linux

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Fourth Thu and Fifth Thu of month.</b>
<b>Dec</b>	<b>No Meeting</b>
Time	9:30am - 12noon
Email	<a href="mailto:sunburydaytime@gmail.com">sunburydaytime@gmail.com</a>
Location	Sunbury Senior Citizens Centre (back room), 8 O'Shanassy Street, <b>Sunbury</b> Melway:382.E4
Convenor(s)	Kevin Hale - 9740 5786

## Video Production

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Second Mon of month</b>
<b>Dec</b>	<b>Second Mon of month</b>
Time	7pm - 9:30pm
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	John Hall - 9803 2731 <a href="mailto:johnhall@melbpc.org.au">johnhall@melbpc.org.au</a>

## Video Production - Pinnacle

<b>Date Jan</b>	<b>No Meeting</b>
<b>Feb-Nov</b>	<b>Fourth Wed of month</b>
<b>Dec</b>	<b>No Meeting</b>
Time	10:00am - 12:30pm
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	Wayne Spicer - (03) 5971 1617 <a href="mailto:spisawn@optusnet.com.au">spisawn@optusnet.com.au</a> Tony Pickup - 9878 0706 <a href="mailto:tonypick@melbpc.org.au">tonypick@melbpc.org.au</a>

## Video Production - Sony

<b>Date Jan</b>	<b>Second Wed of month</b>
<b>Feb-Nov</b>	<b>Second Wed of month</b>
<b>Dec</b>	<b>Second Wed of month</b>
Time	10am - 12noon
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	Roger Wragg <a href="mailto:rdwragg@fastmail.fm">rdwragg@fastmail.fm</a>

## WAFFLE - wine & fine food lovers event

Date Jan	No Meeting
Feb-Nov	First Wed of month
Dec	First Wed of month
Time	9:35pm (after the Monthly Meeting)
Email	<a href="mailto:phil@melbpc.org.au">phil@melbpc.org.au</a>
Location	Fong's Chinese Restaurant, 725 Centre Rd (cnr Francesco St), <b>Bentleigh East</b> Melway:77.J1
Convenor(s)	Phil Lew - 0418 567 019 Tom Rado - 0407 955 747 <a href="mailto:trado@melbpc.org.au">trado@melbpc.org.au</a>

## Website Design - Tutorials

Date Jan	No Meeting
Feb-Nov	Fourth Sun of month
Dec	No Meeting
Time	2pm - 4pm
Email	<a href="mailto:webdesign@melbpc.org.au">webdesign@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	Fleur Stephens - 0407 330 963

## Website Design - Troubleshooting

Date Jan	No Meeting
Feb-Nov	Fourth Sun of month
Dec	No Meeting
Time	4pm - 6pm
Email	<a href="mailto:webdesign@melbpc.org.au">webdesign@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	Fleur Stephens - 0407 330 963

## Windows Plus

Date Jan	No Meeting
Feb-Nov	Third Sat of month
Dec	No Meeting
Time	10am - 12noon
Email	<a href="mailto:winplus@melbpc.org.au">winplus@melbpc.org.au</a>
Location	Melb PC HQ, Level 1, 479 Warrigal Rd, <b>Moorabbin</b> Melway:78.D8
Convenor(s)	John Swale - 0417 530 766 Barry Stone

**This is the last time the SIG list will be published in PC Update. Why? A significant amount of work goes into simply getting the formatting right, and the same information is on the website and constantly updated. The home page <https://melbpc.org.au> has calendar links in the lefthand sidebar, and the SIG list is in the top menu. The time spent doing this would allow one or two more *interesting* items to be included!**

# August Calendar

<div>  <h2>SIG &amp; Other Meetings — Aug-2019</h2> <p>Latest version of this Calendar is at: <a href="https://www.melbpc.org.au/">https://www.melbpc.org.au/</a> (see Quick Links) This version is: V1-updated-21-jul-2019</p> </div>						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
<b>Legend</b> SIG meeting at Melb PC HQ, Moorabbin. Non-Moorabbin meeting. Cancelled Meeting Changed Meeting To be confirmed	<b>Changes</b> Please advise changes to: <a href="mailto:calendar-admin@melbpc.org.au">calendar-admin@melbpc.org.au</a>	<b>Other SIG (Special Interest Group) information:</b> <a href="https://www.melbpc.org.au/sigs/about/">https://www.melbpc.org.au/sigs/about/</a> <b>Recent Changes:</b> <a href="https://www.melbpc.org.au/sigs/about/recent-changes/">https://www.melbpc.org.au/sigs/about/recent-changes/</a>	<b>Have A Question Post it on Yammer</b>  Yammer: <a href="http://yammer.com/melbpc.org.au/">http://yammer.com/melbpc.org.au/</a>	<b>1 Sunbury Daytime SIG</b> <i>New Users</i> 9:30am - 12noon	<b>2 Essendon SIG</b> <i>Main meeting</i> <i>Avondale Heights</i> 9:30am - 12noon  <b>Multimedia Home Entertainment SIG</b> <i>Mount Waverley</i> 10am - 12noon	<b>3</b>
<b>4 Science &amp; Tech Projects Group</b> <i>Moorabbin</i> 1pm - 5pm	<b>5</b>	<b>6</b>	<b>7 North East Genealogy SIG</b> <i>80 Hawdon Street Heidelberg</i> 10am - 12noon  <b>MONTHLY MEETING</b> <i>Melb PC HQ, Moorabbin</i> 7pm - 9:30pm then Supper (WAFFLE) at Fong's 9:35pm	<b>8 Sunbury Daytime SIG</b> <i>Advanced</i> 9:30am - 12noon  <b>East SIG</b> <i>Blackburn South</i> 7:30pm - 9:30pm	<b>9 Essendon SIG Open Forum</b> <i>Avondale Heights</i> 9:30am - 12noon  <b>Hardware SIG</b> <i>Mount Waverley</i> 10am - 12noon  <b>Casey SIG</b> <i>Beaconsfield</i> 1pm - 3:30pm	<b>10 Microcontroller Workshop SIG</b> <i>Moorabbin</i> 12noon - 5pm  <b>Raspberry Pi – Moorabbin SIG</b> 2pm - 4pm
<b>11 East Workshop SIG</b> <i>Mount Waverley</i> 10am - 12noon	<b>12 Access (database) and Excel SIG</b> <i>Moorabbin</i> 6:30pm - 8:30pm  <b>Video Production Group</b> <i>Moorabbin</i> 7pm - 9:30pm Please confirm if meeting on Queen's Birthday.	<b>13 Investment Tools - WASINT SIG</b> <i>Moorabbin</i> 10:30am - 12:30pm	<b>14 Video Production – Sony SIG</b> <i>Moorabbin</i> 10am - 12noon  <b>North East Daytime &amp; Photography SIG</b> <i>Heidelberg</i> 10am - 12noon  <b>Communications SIG</b> <i>Moorabbin</i> 7pm - 9:30pm  <b>Microcontroller SIG</b> <i>Moorabbin</i> 7pm - 9:30pm	<b>15 Sunbury Daytime SIG</b> <i>Main Meeting</i> 9:30am - 12noon  <b>Bayside SIG</b> <i>Brighton</i> 10am - 12noon	<b>16 Essendon SIG</b> <i>Various topics.</i> <i>Avondale Heights</i> 9:30am - 12noon  <b>Digital Images SIG</b> <i>Including Photoshop</i> <i>Mount Waverley</i> 10am - 12noon	<b>17 Windows Plus SIG</b> <i>Moorabbin</i> 10am - 12noon
<b>18 Beginners East (BEAST) SIG</b> <i>Vermont South</i> 10am - 12noon  <b>MACE (Atari Computers) SIG</b> <i>Moorabbin</i> 10am - 2pm  <b>Genealogy East SIG</b> <i>Vermont South</i> 12:30pm - 2:30pm  <b>Science &amp; Tech Projects Group</b> <i>Moorabbin</i> 1pm - 5pm	<b>19 Mornington Peninsula SIG</b> <b>General inc Q&amp;A</b> <b>Mornington</b> 9:30am - 12noon  <b>Family History Mornington</b> 1:30pm - 4:30pm  <b>Northern Suburbs Linux SIG</b> <i>Watsonia</i> 7:30pm - 9:30pm	<b>20 Everything Apple SIG</b> <i>Moorabbin</i> 2pm - 4pm  <b>Melb PC Committee Moorabbin</b> 7pm	<b>21 North East Android SIG</b> <i>Heidelberg</i> 10am - 12noon	<b>22 Sunbury Daytime SIG</b> <i>Maintenance &amp; Linux</i> <i>(Fourth &amp; fifth Thu of month)</i> 9:30am - 12noon	<b>23 Raspberry Pi - Mt Waverley SIG</b> 10am - 12noon  <b>PC Update – Articles Deadline</b>	<b>24 Microcontroller Workshop SIG</b> <i>Moorabbin</i> 12noon - 5pm
<b>25 Website Design SIG</b> <i>Tutorials</i> <i>Moorabbin</i> 2pm - 4pm — <i>Troubleshooting</i> <i>Moorabbin</i> 4pm - 6pm	<b>26</b>	<b>27</b>	<b>29 Video Production – Pinnacle SIG</b> <i>Moorabbin</i> 10:00am - 12:30pm  <b>Mornington Peninsula SIG</b> <b>Family History – Advanced DNA (LAST Wed of month)</b> <b>Mornington</b> 2pm - 4pm.  <b>PC Update – Reports deadline</b>	<b>29 Sunbury Daytime SIG</b> <i>Maintenance &amp; Linux</i> <i>(Fourth &amp; fifth Thu of month)</i> 9:30am - 12noon	<b>30</b>	<b>31</b>

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