

>PC Update

September 2019



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The newsletter of

Melbourne PC User Group

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

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Responsibility for content in this newsletter lies with individually named authors

Monthly Meeting Live Stream from 7.00pm on Wednesday 4th September at
<http://tv.melbpc.org.au>

Please remember to always bring your membership card to meetings

[SIG Listings](#) and up to date calendar are available on our [homepage](#)

Editorial August 2019



Hugh Macdonald

Thank you, David Stonier-Gibson!

I begin this month with a thank you to David, both for the stellar effort he has done over the past eighteen months in editing *PC Update* and for the help he is given me in transitioning into the role of editor. The good job that David has done in editing the magazine is universally acknowledged throughout Melbourne PC User Group. David has two articles in the month's edition, including an exciting one entitled Planning To Plan, so something tells me these pages will still feature his words on a regular basis.

Who are Hugh?

I briefly stepped into the editors chair back in May, but I suspect for a lot of members I am fairly unknown. I joined the club back in July 2018 to be a part of the Science and Tech Projects Group. Due to some expertise in marketing and social media (I teach it at tertiary level) I was asked to run for committee and as one the 12 nominations, found myself installed. Ever since I've been helping out with marketing efforts, and you might have seen me at monthly meetings and other events taking photos. I see editing *PC Update* as part of those marketing efforts, and I look forward to bringing you a good quality magazine each month with lots of interesting content.

But I'm not really new to the club. Back in 1994 when I was 11 years old, my father joined the club and purchased a NetComm V.Fast dial-up modem and signed up for the Internet service. We received our modem and Internet disk, installed Netscape Navigator 1.0 and were away. The early Internet was amazing for the times, and I got to experience it all thanks to the club. I also fondly remember the BBS and the shareware downloading and discussion services that it offered, as well as the very informative magazine *PC Update*. So all in all, I learned a lot about Information and Communications Technology from the club in those days, and now I'm back and learning more still. So to cut a long story short, I think it's a great club with a terrific history and a significant role to play into the future, and I'm honored to be able to make a small contribution to the place through the committee and *PC Update*.

The Times (of PC Update) Are A Changin'

After words by myself and David over recent months foreshadowing changes to the way *PC Update* is produced and presented, you'll notice that they have come to bear this month. I have prepared a detailed article inside which outlines exactly what these changes involve, but I ask that you trust me that these changes have been made to ensure that a quality publication is delivered each month. Some further tweaks may be made over the coming months. If you have any feedback (either positive or constructively critical) then I welcome hearing from you via email or Yammer.

From The President August 2019



John Hall

Supporting your local Interest Groups

Our Interest Groups (otherwise known as “SIGs” - for “Special Interest Groups”) have long been the life-blood of our organisation.

On Saturday the 7th of September we will be holding our annual “SIG Leaders Meeting” at Moorabbin where the leaders and helpers at those local Groups can provide us with feedback on how the attendees at their Meetings judge the work that we are doing in Head Office, so if you attend one of these Groups please be sure to talk to your SIG Leader if you have any concerns at all about the way our Club is being run and they will feed those concerns back to us.

If you do not attend your local Interest Group and you are fit and healthy enough to do so - please go along to one of their Meetings and I am sure that you will be surprised at how friendly and sociable these gatherings are.

One excuse that I hear from Members who do not attend an Interest Group is that they are “Too Technical” for them to participate. If you have read the PC Update Magazine Report of George Skarbek’s talk at the July East SIG Meeting you will see that he talked about a “Fitness Tracker Watch” that he had recently purchased.

We also have Groups that talk about Genealogy, Android Phones, Video and Photography plus of Course more Technical Subjects such as Linux or Windows.

As an example - after 3 years of concentrating on the running of our Moorabbin headquarters I am very much looking forward to getting back to being more involved with the Interest Groups that I attend at Wadham House, Mount Waverley.

These meetings take place on a Friday morning and on the first Friday we talk about “Multimedia” (which even includes evaluations of TV Sets etc.) then on the second Friday we talk about Computer Hardware (including Tablets and sometimes Mobile Phones), then on the 3rd Friday I attend Ian Bock’s “Digital Images” Group which looks at how you can improve your photos AFTER you have downloaded them to your PC and on the 4th Friday I run the “Raspberry Pi” mini Computer Group

which is now officially being touted as a replacement for a traditional “PC” .

To add to this, we also have the “East Workshop” which runs on the Second Sunday of the Month where you can take your PC and our Members will try to fix any problems that you are having as part of your Membership entitlements (i.e. at no charge).

We are very hopeful that we can establish similar “General Interest Groups” in our Moorabbin rooms and if you have a particular interest that you would like to see being supported at Moorabbin please write to Committee@melbpc.org.au so that these can be discussed at the next Committee Meeting.

If you would like to go along to one of the local Interest Groups in your area you can find a full listing of them on our Web Site at <https://www.melbpc.org.au/sigs/about/sig-list> .

September Monthly Meeting

The September Monthly Meeting will be held Wednesday September 4 at 7pm

Guest Topic: Australian Computer Society ICT Educators



Our guest speaker for September is Catherine Newington who leads the ICT Educators Program and is the community's moderator. Catherine is a registered teacher with over 12 years' experience in the classroom including 5 years as learning and teaching leader.

ACS ICT Educators is a program that supports teachers to build confidence and knowledge to deliver the Digital Technologies Curriculum across Australia. ACS has created a selection of resources that target F-10 teachers. Resources are aimed at teachers to help them unpack the curriculum topics and help them understand the curriculum expectation at each year level. Lesson plans and units of work showcase ideas on how to implement the Digital Technologies Curriculum. These lessons implement skills such as critical and creative thinking, collaboration and student driven learning.

Meeting Agenda

7.00pm sharp: Meeting opens. MC is Peter Bacon

Guest speaker: Catherine Newington

President's Report: John Hall

Social break

Q and A with George Skarbek

John Hall - Volunteer Award: David Simpson

John Hall - SIG Groups: Why We Need Them

What's New? with George Skarbek - An interesting roundup of computer and technology news from around the world

9.30pm: Close

Please remember your membership card or a photo of your QR code on your phone

The meeting is streamed live online at <https://tv.melbpc.org.au>

Don't forget, directly after the meeting WAFFLE SIG 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](#)

Planning To Plan

David Stonier-Gibson

The club's Annual General Meeting will take place on 6th November. That is when we elect a new committee for the coming year. I have been nominated for President next year by John Hall (President), seconded by Stephen Zuluaga (Vice President).

I was urged to stand by several people I respect. I expressed my willingness subject to John Hall making himself available to support and advise as required, and certain others nominating for Committee. I am hoping we get a 2020 committee that combines the energy of young, progressive members, the stabilising influence and recognition of club history of some older members, and hopefully some representatives of non-Moorabbin SIGs.

It's a little over six years since I joined Melb PC, with an interest only in the Microcontroller SIG. Over the last 2-3 years, as I expanded my horizon outside Microcontrollers to a larger "Moorabbin wide" view, I have instigated or been involved in a number of programs. Some have been successful, some have withered and died on the vine, or simply gone dormant for want of the right push at the right time. What I have learned from this is that you need not only a champion for a new undertaking, but also one or more "co-champions" so they can prop each other up when the passion hits a flat spot.

I hope I will (if elected!) be able to bring something positive to the club. I have many ideas, but I also know it is very difficult to implement ideas without on the ground, practical support from others. No one person can have the energy and the full skill set to bring a non-trivial project to fruition single-handedly. I am also painfully aware that I am in many ways the new boy on the block, that my view of the club has been somewhat myopically focused on tech, "making", micros and Moorabbin, and that there is a lot of significant club history I am unaware of. That is why I will seek to consult other longer term members on issues like non-Moorabbin ("regional") SIGs, the needs of older members, and club processes and procedures.

But there is something I believe is ultimately even more important: A long term vision and goal. Where do we see the club being in 5 years? 10 years? Maybe even 15 years? I don't have a clear vision, although by default I have been promoting a transformation into a Maker club. There are huge questions that need answering (not implying the answers here!): How many members will we have? What demographic? Will we still call Moorabbin home (will it even be affordable)? Can regional SIGs survive? What benefits will we be able to offer the membership of 2024, 2028, 2033?

I can't answer those questions on my own. But the answers to those and other similarly challenging questions are what will form a vision of our club going forward, they are what will define our long term goals and where we are headed. Those answers should also inform the decisions we make during 2020 so we can be confident that every decision, every expenditure of energy and funds, every change we make, we will help steer us in the right, agreed upon, direction. We can only aim for a destination, become proactive rather than reactive, if we know the destination. (It's called a business plan!).



For the last two years on committee I have often said or thought that the presidency is a poisoned chalice. This especially from seeing JohnHall and Stewart Gruneklee (as treasurer) stuck with the legacy of legal and Workcover matters (that I was blissfully unaware of at the time) and some poor business decisions trying to replicate past glories in a changed world. But those issues are now behind us and we can start to consolidate and stabilise the existing club and plan the transformations that will take us into the future.

I invite you to post any ideas you may have about the long range future of our club on [Yammer:All Company](#). I will take note of inputs but probably not respond - not only am I away until 1st October, but I also would like to see what comes up without influencing or commenting.

The Future of PC Update Publishing

Hugh Macdonald

Over the years PC Update has been produced using many different software packages. These have included Corel Ventura, QuarkXPress, and Microsoft Word. For about the past six months, it has been produced using LibreOffice Writer. Neither LibreOffice or Microsoft Word have been ideal, as they aren't strictly desktop publishing packages. So the search has been on for something better.

One of the prerequisites has been that the software package must be cross platform so that any volunteer within the club, whether they run Windows, Linux or Mac OS, could take over production. This has ruled out Microsoft Publisher. Scribus (an open source desktop publishing package) was trialed, but this proved to be too cumbersome to use. So this eventually led to WordPress, and a web first production and distribution model for PC Update.

This is in line with many publications around the world today. Some of the biggest publications in Australia, such as the Herald Sun, use WordPress as their platform. Many niche publications that provide ICT news and reviews also use WordPress as their platform.



With the addition of a plugin called PDF & Print the WordPress based publication of PC Update can be outputted in a print friendly format.

The new approach to producing and publishing PC Update will offer several advantages to members:

If you prefer to read the magazine from cover to cover in PDF or printed format, you can continue to do so happily. You'll now also find that every article is bookmarked, so you can use your PDF software to navigate easily to the articles you want to read.

If you prefer to read the magazine on your smartphone or tablet you'll now be able to do so in a format that is most appropriate for these devices. The entire Melbourne PC User Group website is designed to be responsive to different screen sizes, so you'll automatically receive the best formatted article for your specific device.

Going forward other innovations will be introduced which will further enhance the online viewing format.

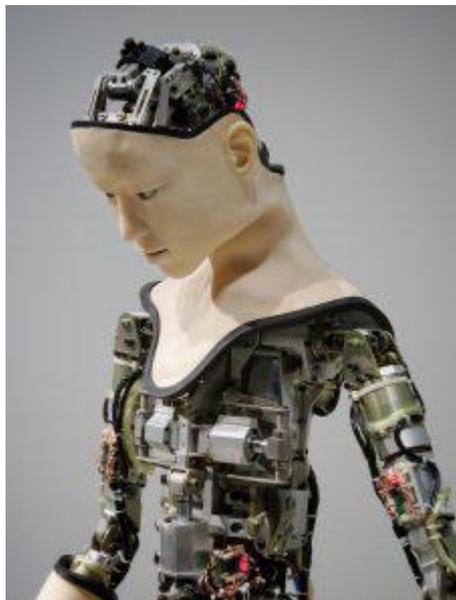
The last advantage is that it is now much less time consuming for the editor to produce the magazine. So this will allow time for more interesting articles to be included.

It is hoped that you enjoy the new dual format PC Update. A lot of thought, time and effort has been

put into this updated approach to its production and publication. However all feedback on it is welcomed, and if you have any thoughts, please express them via Yammer or email.

How Australia can make AI work for our economy, and for our people

Anthony Elliott, University of South Australia



The idea of robots taking our jobs is not radically new.

But artificial intelligence (AI) is now completely reorganising the global economy. Some estimates of productivity-driven economic growth conclude that AI will contribute approximately [\\$US16 trillion to the global economy by 2030](#).

Unfortunately - compared to the European Union, Japan, United States and United Kingdom - Australia has been relatively late in turning to address the challenges of AI, and creating the right policies to deal with its many implications (good and bad).

For our economy to thrive, what we need now is the right mix of governance, regulation, civil society participation, industry support and business compliance - as well as the development and deepening of digital literacy throughout Australian communities.

So how can we make that happen? A [report launched today](#) is designed to help.

Euphoria versus cataclysm

New developments in AI are very different from previous forms of automation. Technologies today are mobile, situationally aware, adaptive and in real-time communication with other intelligent machines.

Machine learning has been especially important in speeding up the spread and efficacy of AI. Machine learning encompasses smart algorithms that improve their performance unsupervised, often through sorting and classifying big data sets. Applications include weather prediction, medical diagnostics and personalised marketing (such as ads through Facebook).

Klaus Schwab, founder of the World Economic Forum, said the AI revolution is “[unlike anything](#)

[humankind has experienced before](#)".

The consequences of our increasingly automated global world involve a shattering of political orthodoxies. We have to be much more agile and prepared to change fast. Our policies and approaches should allow us to cope with the unexpected, unanticipated shifts coming from the digital revolution.

I have been pondering these massive global changes over the last nine months while working as a member of the Australian Council of Learned Academies Expert Working Group on Artificial Intelligence in Australia. The [ACOLA Report](#), launched today in Canberra, considers the full spectrum of issues arising from AI.

One big challenge we faced was to distinguish between euphoric and cataclysmic visions of AI. Another big task was to chart the public policy "sea change" arising from AI. Neither challenge was easy to confront.

Leveraging AI for Australia

The ACOLA Report lays out how we can improve Australia's economic, societal and environmental well-being while taking into account the ethical, legal and social issues linked with AI.

It highlights the importance of finding a balance between innovation and risk, and how we can weigh up the promise of unprecedented technological transformation of manufacturing, infrastructure and the economy on the one side, and the growing risks of technological unemployment and autonomous weapons ("[killer robots](#)") on the other.

The plan outlined in the report focuses on education, business operations, governance and regulation, social implications, research and skills.

In terms of education, for example, increased automation of routine tasks means people will be freed up in the workplace. This means there's likely to be an increased demand for employees with strong interpersonal skills and critical thinking.

The social sciences, humanities and creative arts have a big role to play in promoting ethical AI. Science, technology, engineering and mathematics are vital in advancing the next generation of AI researchers.

AI will demand new skills and capabilities, and adaptability, in our workforce. Micro-credentialing (a form of education in which "mini-degrees" are achieved in specific subject areas) is likely to become useful for certifying basic education and digital literacy in AI.

Schools, the vocational education and training (VET) sector and universities should encourage broad-based training and lifelong learning in AI development.

The ACOLA report also addresses the need for new policy relating to data harvesting and invasions of privacy (for example, involving tech giants Facebook and Google) and geopolitical concerns, especially where the spread of fake news has been powerfully weaponised by Russia and other countries.

Everything to play for

Getting the balance right between opportunity and risk arising from the AI revolution will be

essential to the future fabric of Australia. However the ACOLA report is only the start of the process of public engagement - much more needs to be done.

What is now urgently needed, I think, is a national summit on AI - involving politicians, policymakers, business leaders and industry representatives and people from the broader community. This can help us consider how Australia might best fashion a common framework for the ethical development of AI, both in our country and internationally.

Australia has come to this global policy debate somewhat later than some, but in terms of the AI revolution there's everything still to play for.

The arguments developed in this article are the author's own views, and not representative of ACOLA or the panel that contributed to the horizon scanning report on AI.

[Anthony Elliott](#), Dean of External Engagement and Executive Director of the Hawke EU Jean Monnet Centre of Excellence, [University of South Australia](#)

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East SIG Report August 2019

Neil Muller

Paul Woolard opened the August meeting with sad news of the sudden passing of member Andre Rigoni. Illness to another member resulted in a call for a permanent volunteer to assist with the mid break tea/coffee preparations. Paul then thanked Dave, Stuart and George for the many presentations they make at East and asked more members to consider giving presentations in the future.

The meeting then commenced with **George Skarbek** conducting his popular Q&A segment.

Q: I was given a “magnificent gaming keyboard” but I can’t get it to display a colon. The semi colon works, but the colon is the only key I’ve noticed that doesn’t work. I need the colon when entering internet address so this error is becoming a problem.

A: I suspect the keyboard may be the cause. Even though the semi colon is on the same physical key and displays correctly, the keyboard could still be at fault. This is possible due to an error in the row or column decoders in the keyboard.

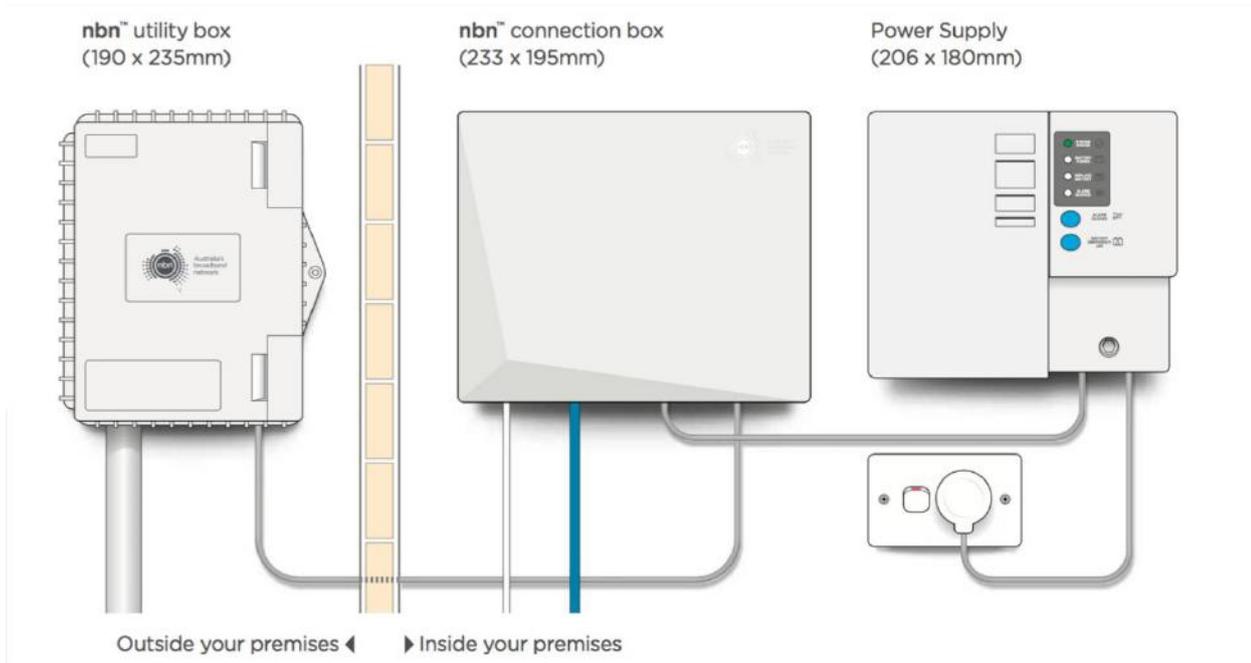
Audience suggestions:

- Possibly a key reassignment may solve this problem.
- Try another keyboard to see whether the cause is due to hardware or software.
- I had a similar problem with keys not displaying correctly. The error turned out to be due to software and not a hardware fault. My problem was solved by changing the keyboard to Swedish then back again to English, after which all faulty keys displayed correctly.

Q: This is a warning to members. Two acquaintances had the NBN connected recently and the installers seemed to pick the most inconvenient locations in the house to wire up their equipment. Therefore I suggest members keep a close eye on where the NBN box is installed. You can request the installation anywhere up to 30 metres from the house connection point so make sure you get the NBN box where you want it.

(Tech Ed: Regarding selecting an ‘inconvenient location’. Yes, you are fully entitled to nominate a location. NBN SHOULD take this into consideration. IMO, it should be a mutually convenient location, not necessarily one based on distance. A straight run of say 40 metres may be easier for the installer, than a 5 metre run, for instance. Be polite to the installer and put the kettle on and who knows!)

A: Yes, that’s good point. Don’t let the installers bluff you and insist on your NBN connection being where you want it not and what’s easiest for them to install. Once installed it becomes your expense to rewire if the equipment is in an inconvenient location.

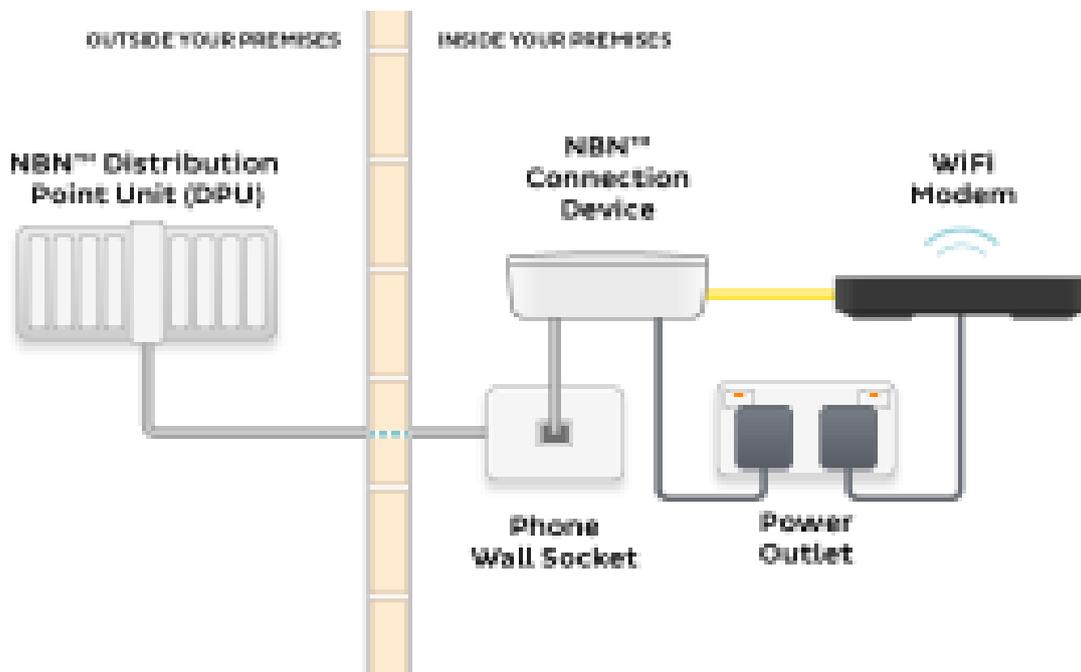


NBN Fibre to the Premises connection

Q: This is another comment on the NBN. I'm an Optus customer and have had the NBN now for 3 months. I opted for the middle package of 50mbps download. I was only getting 30mbps down and 1.5 up. I've battled and haggled with Optus for those 3 months and finally I'm now getting what I paid for. Persistence finally won the day and I received a \$50 credit to boot.

A: Well done. I also had a problem with the NBN and after the third attempt I went to the Telecommunications ombudsman. Hours later the problem was fixed. Keep that in mind that the ombudsman has a lot more clout than you or I have.

(Tech Ed: This is not necessarily true, as the TIO is somewhat restricted on what it can tell the NBN what to do, the RSP yes, but not NBN. I have even been told by customers that 'The man from NBN was very rude and I never want to speak to them again!' They are NOT the ultimate answer.)



NBN FTTC connection

Q: Recently a business I know had NBN installed with iinet. They are happy with the service and the 50mbps download and 20mbps upload speeds they are getting. The problem was that it took Telstra 4 to 5 days to transfer the business phone number over.

(Tech Ed: Generally speaking, if the phone line is important and you wish to keep the risk of delays on transfer down, then the most reliable way, is to stay with the same RSP.)

A: I've heard stories like that as well. I've no idea why it takes so long, it should be a matter of someone sitting at a keyboard and changing it with a few clicks.

(Tech Ed: On the face of it, this is true. However, there is no agreed process between the multitude of RSP's AND IMPORTANTLY, it needs to be co-ordinated with the NBN.

For mobile phones, there is an agreed process in place (government regulation) and there is only 3 players to co-ordinate and so much easier. There are many RSP's and some types of port are much more difficult (usually business type services). What it amounts to is 'BEST EFFORT' or not! Most RSP's have a queue to work through and your turn will come EVENTUALLY!

Q: I'm connected to the NBN at home and recently installed a new telephone system. A blinking light on the answering machine keeps telling me there's a message when there is none. I've spoken to Uniden and they told me they get a lot of complaints about that issue. Uniden claim the cause is from Telstra and the NBN. It's not a significant problem as a blue light also appears when there is an actual message. Have you heard of this problem before?

A: I've got a 5 station phone setup and not experienced anything like that.

Audience member: I'm with Optus and I've had the same thing. My cordless phone says there's a message and I just let it blink away. It's been blinking away for 2 years now.

(Tech Ed: I have a Uniden cordless phone and haven't experienced that problem. I suspect the issue is a setting in the modem, whether that setting is accessible to the user, is another matter. Personally, I turn off as many phone options as practical and use any functions (such as answering machine etc) and use the ones built into the phone.

The blue flashing light may be telling you that there is something on the RSP's system, but you're actually checking the messages, within the answering machine, or vice versa.

In that regard Uniden are correct, their phones aren't faulty, it's the confusing aspect, on what you are activating.)

(Tech Ed: On Yammer we have an 'NBN Questions & Comments' Group.

I would highly recommend, that MelbPC members go to this group and feel free to ask SPECIFIC questions, about their NBN connections. General NBN statements by others, while well meaning, can give the wrong impression, due to the many variables.)



Following Q&A **Paul Woolard** outlined some of his favourite websites. Most are technically oriented but one he uses for current issues and news is www.insidestory.org.au. Inside story is an independent Australian website featuring national and international news, current affairs, book reviews and culture. Articles are from leading writers and researchers through the support of Swinburne University of Technology and the University of South Australia. Articles display the number of words in each, with most articles around the 2000 word mark.

A recent article Paul found of particular interest was “Rolling Thunder”, an article on the atomic tests in outback South Australia in the 1950’s and 60’s. Although this article is slightly longer than most, Paul recommends it to members.

Technical sites Paul regularly refers to and displayed during his presentation were:

- “Make Use Of” at makeuseof.com
- “Make Tech Easier” at maketecheasier.com and
- “ZDnet” at com

Additional websites Paul uses and recommends can be found in the July 2018 East SIG report.

George Skarbek followed with a short talk on hard drive reliability. A study of 108,000 hard drives from various server locations were evaluated over the last 3 month period. Only drives with 60 or more representative samples were included in the study’s findings. George displayed a webpage from the study which listed the various drives, the number of samples and their annualised failure rate. It’s the annualised failure rate of a hard drive that is used to gauge its reliability. Toshiba had the lowest failure rate, followed by HGST (Western Digital) then Seagate the least reliable. Toshiba has held the top spot in these studies for the last 2 years or more. George’s conclusion, buy Toshiba.

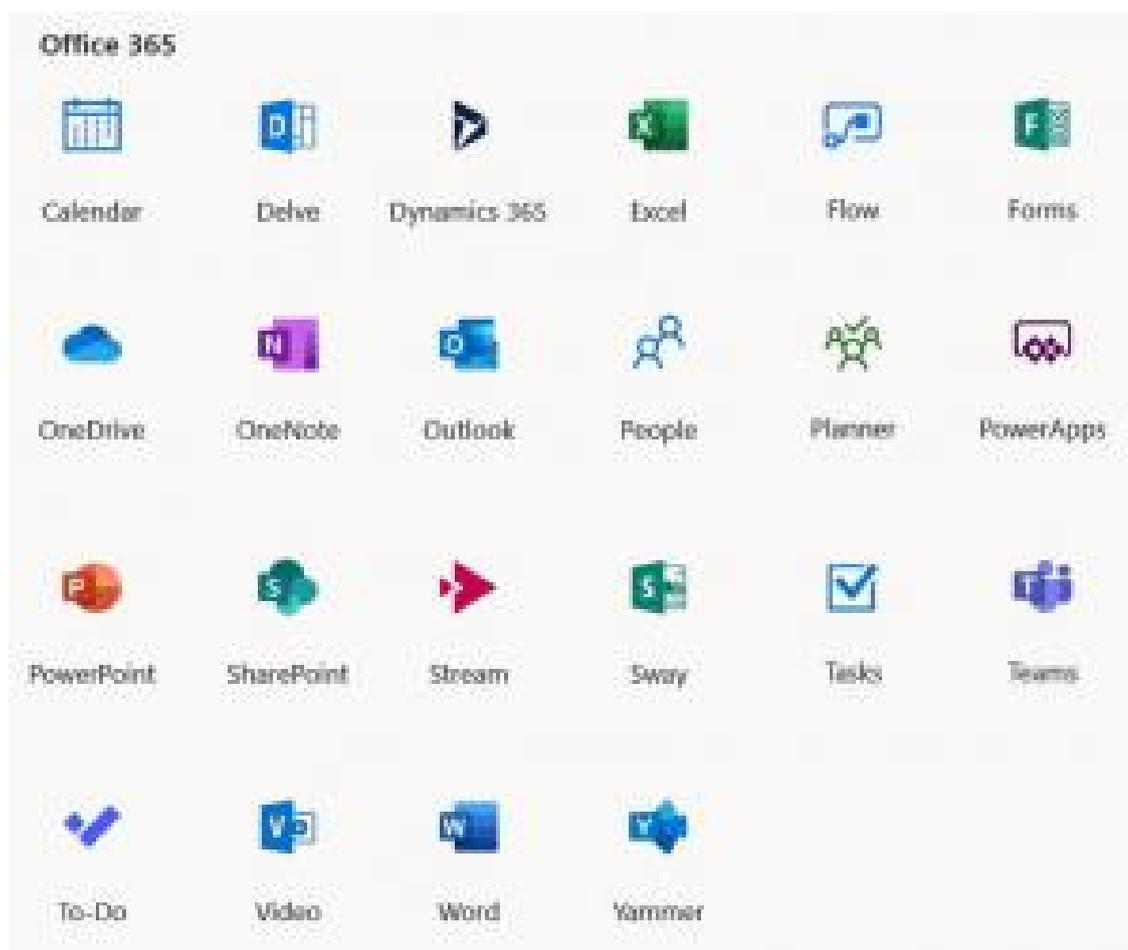
After a break **Dave Botherway** spoke about “Cloud Services for MelbPC Members”. All MelbPC members have an ID in the format of username@melbpc.org.au. Besides being used to access Members-Only areas of our website, it is also an email address with full mailbox facilities provided by Microsoft – so is actually a Microsoft ID.

Email can be accessed as Web Mail using a browser, or saved and processed on the PC using a Client email program such as Windows Mail (part of Windows 10), Outlook (within Office365), Eudora, Thunderbird, Mailspring etc.

Web Mail has the advantage that your email can be accessed and sent anywhere, using multiple devices such as Smart phones, tablets and PCs. It's arguably more secure because all emails are stored offsite in the cloud. However you need to be online to access your mail. A Client email program such as Thunderbird is best for historical storage, but still requires the user to be online to send and receive email.

Dave noted that many members have been confused by Microsoft's naming of its email programs when referring to MS Outlook. Outlook Express has been superseded by Windows Mail and is part of the Windows operating system. It no longer carries the name Outlook to avoid previous confusion. Microsoft Outlook is a much more capable program and is part of the Office suite.

Whereas MelbPC membership includes the cloud version of Office-365, a desktop version is also available to MelbPC members upon request. Annual subscriptions for Home, Personal and Business versions of Office 2019 are available at OfficeWorks at a significantly higher price than MelbPC members pay.



MS Office365 suite of programs

Dave went on to detail some of the programs in the Office 365 suite available to members. A full list of these programs is shown in the graphic above.

Alternatively, one-time purchase is possible for versions such as Office 2019 Home&Student, Office 2019 Home&Business and Office 2019 Business Pro. Some examples of OfficeWorks current pricing (August 2019) is shown in the graphic below.



Available as part of Office 365 is OneDrive. OneDrive is a cloud storage service from Microsoft and is part of the Windows operating system. OneDrive allows you to store important files in cloud storage with the ability to access those files anywhere on any device. A special OneDrive folder is created on your hard drive but files shown in the folder are stored in the cloud. i.e. it works just like a traditional hard drive, but it's on the internet. Dave noted that if you haven't used OneDrive for a certain period, access to OneDrive is removed.



OneDrive needs to be in Windows StartUp and turned on. 5GB of storage is free while 100 GB can be purchased at \$24/year. In comparison Dropbox gives 2GB free storage and charges \$185 per year for 2 Terabytes of storage. Google Drive is another cloud storage service and gives 15GB free storage and charges \$25/year for 100GB of storage. Portion of Google's free storage includes an allocation for mail and photos. However within Office-365 (as provided to MelbPC members), 1 Terabyte of storage is available. A demonstration of OneDrive followed.

Portions of this report on Dave's presentation have been taken from the Beast SIG website which covered a similar topic.

Science and Tech Group Report August 2019

David Stonier-Gibson

Hydroponics at Moorabbin

Lettuces? Basil? Radishes? What should we grow in our hydroponics setup? Interestingly that is the question least occupying the minds of us young folk in the Science and Technology (Sci/Tech) SIG. OK, so at 73 I can't really call myself young, but young at heart, I hope, and hanging out with a bunch whose median age is probably under 30 is certainly enlightening.



So whether it's tomatoes or African violets we grow, at this stage the "Hydroponics at Moorabbin" project is more about the journey than the destination. The project is bringing together a group of individuals with diverse backgrounds and skills in a project where they can work together towards a shared goal. It is a relatively complex project, with mechanics, plumbing, chemistry, lighting, instrumentation and control. Oh, and I almost forgot, botany, and should probably add project management.

We have even found a good reason to put it all online.

We had our first reasonably focused meeting on Sunday 18th August. There was a fairly free-flowing discussion around the mechanical structure and grow containers, and also about the electronics and lighting.

We are aiming at a strong metal framework that can hold two Bunning's plastic bins for two grow areas, stacked one above the other. A couple of the people are right into steel work, welding etc, so

they will be coming back with reasonably firm ideas and design sketches. And hopefully a rough costing! Under the two grow areas there will be a space for ancillary equipment such as pumps. The design has to be such that water spills or leaks can't cause damage. The system will almost certainly be on castors so it can be wheeled around to show off, maybe in future club open days.

Because the system will be sitting essentially unattended for up to 3 weeks between Sci/Tech meetings, the aim is to have it online so it can be watched over and managed remotely. This raises the question of the control and monitoring system. It's also where I have some expertise - instrumentation and control. But I have zilch knowledge about Internet connectivity, whereas many others do. So we agreed on an architecture that would allow multiple processor boards (read: Arduino) to be bussed together on a simple serial data bus, and use a more powerful board (ESP or rPi) for master control and IoT functions, and very likely to support a webcam. This has the benefit of making it simpler for several people to work on different aspects in their own processors, and simply join together on the bus. With an Arduino Nano clone costing about \$5, that is not overly extravagant.

The lighting will be LEDs, almost certainly using RGB LEDs so we can control the mix of wavelengths in software. One intriguing possibility is to use the LED strings that are now available, and affordable, which contain lots of RGB LEDs but where each one can be individually controlled for colour and brightness. That opens up the possibility of having different zones within the one grow space, so we can experiment with the effects of different colour mixes. This is an area NASA have done a lot of research on.

There are a number of parameters that can be measured, relevant to plant growth: Electrical conductivity (EC), oxygen reduction potential (ORP), pH balance, soil (growth medium) moisture, temperature. Some of these are relatively simple to do, some are difficult to get right (ORP, pH). We expect to start out with the basic and add on as the need or motivation arises. The modular bus architecture will help provide flexibility for such expansion.

It is still early days yet, we haven't yet "broken ground". But the hydroponics project is a nice example of a project that can encourage teamwork and collaboration.

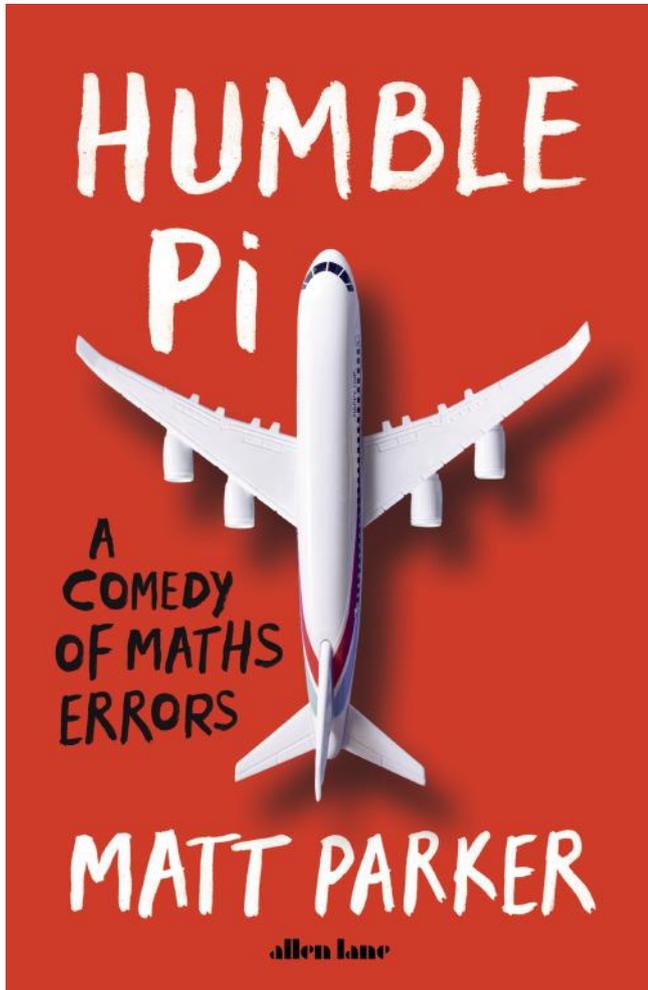
Book Review: Humble Pi

Tim McQueen

Programmers, mathematicians, engineers and statisticians should all enjoy Humble Pi (a comedy of maths errors). Matt Parker is Australian and currently Engagement in Mathematics Fellow at Queen Mary University in London. The pages are numbered from 313 to 0, with the index starting at 4,294,697,293 (apparently a Microsoft InstallShield error exit code). He starts the book illustrating how poor we are at understanding large numbers. We all toss around millions, billions & trillions, but do we remember that although a million seconds is less than a fortnight, a trillion is around 31,000 years? He believes we naturally perceive numbers logarithmically rather than linearly and are easily confused by negative quantities. We all make maths mistakes; he claims to have left three uncorrected in the text, but I didn't spot them.

Losing track of time discusses the concept of storing elapsed time in seconds and what can happen when the number gets greater than the word length can store as was the case with the rollover of some early GPS systems. Time can be managed much better with 64 bits; no reset is required for more than 500 million years. He discusses calendars and the differences between sidereal & tropical years. Parker suggests opening the default iPhone calendar in year view and scrolling back to 1847.

In ***Engineering mistakes*** he postulates that engineers learn by experimenting with new methods and materials using current state of the art analysis. He cites well known examples like the Millenium Bridge in London; there had been few indications of lateral (rather than vertical) oscillations before that. He also shows examples of how changes to designs made without recalculation of loads can lead to loss of life.



Little Data illustrates the issue that there are real people with surnames like Null, Test, Blank and Sample which can cause havoc in databases. Parker bemoans the fact that so many people use Microsoft Excel as a database rather than a spreadsheet with all the problems that can lead to. Guess what Excel makes of the gene March5.

Out of shape covers a couple of his bugbears: soccer balls shown as made entirely of hexagons, illustrations of the crescent moon with stars visible inside the crescent and intersecting cogs that can never move.

You can't count on it discusses counting, particularly 'off by one' errors as well as combinations, permutations, postcodes and the dangers of truncation. There is a whole section on division by zero.

Probably wrong covers probability. A coin toss can result in the coin landing on its edge, particularly on grass.

Put your money where your mistakes are traces typos, copying errors and the like for over 5 000 years. This section also covers automated stock trading.

A round-about way considers rounding and significance. Is it true that putting clocks forward for daylight saving causes an increase in heart attacks on the following Monday?

Too small to notice includes incidents like the grinding error with the Hubble telescope. Parker also uses a melting swiss cheese analogy for accident causes.

Units, conventions and why can't we just get along; the metric system, decimals, and how some Trump supporters think that \$360 million divided amongst 317 million people is more than \$1 million per person.

Stats the way I like it; correlation versus causation. Between 1990 & 2009 the number of Maths doctorates awarded in the US had an 87% correlation with the number of people who tripped over their own two feet and died.

TLTLOALY RODANM covers the difficulty of generating truly random numbers.

Does not compute includes examples of some obscure languages like brainf_ck.

Finally, **So what have we learned from our mistakes** ties all the themes together.

Time Machine: Sharp Actius A150 Ultra Light Notebook

John Oswald

Every month we delve into the PC Update archive to take a look at what computing was like in the past...this month, a laptop review from July 1999.

I have always wanted a portable computer, or at least since the early days of computing. I remember lugging my computer components to a meeting of the Ballarat SIG many years ago. There had to be a better way.

As portables became laptops and as laptops eventually led to palmtops, I enthused that the time for a purchase was imminent. However, people were still lugging portables around in one case, with their other needs in a separate case. This, of course, meant that they would be well balanced, a heavy weight on each side. The desirable ones were also all very expensive.

So I considered what I needed, and waited till the right machine came along. I wanted:

A lightweight inexpensive machine

A good screen

Good life battery

A sizeable hard disk

State-of-the-art Windows (98) with fairly universal connectivity.

The tiny Toshiba Libretto appealed, but the keyboard was too small, and the screen pedestrian and compact.

I did not want to carry around a heavy external power source, or a

Floppy disk Large keyboard

Mouse

CD-ROM

Multimedia paraphernalia

Printer.

But I would want them to be available on my desk at home.

So I was delighted when I read that Sharp had released its new ultra-light notebook, the Actius A150. It is only the size of an A4 sheet of paper, and 21.2 mm thick (for those of you who are wedded to American technology, that is less than one inch!). It was the star of the USA autumn (Fall) Comdex and won the PC Magazine Editors' Choice Award, January 1999. It weighs only 1.4 kg! The price, under \$4,000!

It had:

A 266 MHz Pentium Processor

64 MB of EDO RAM

2 MB video RAM

A 4.3 GB hard disk

A 28.7 cm (11.3 inches) SVGA (800 x 600 dots) TFT LCD with High Aperture technology, which provides a 250:1 contrast ratio (2.5 times higher than the average notebook PC). An unbelievable screen

A very usable keyboard, with a beautiful feel

A built-in 56 kbps modem, and a high-speed infrared port

A great glide pad to control the mouse

A PCMCIA2 slot for a network card and a USB port

A built-in battery with a 2.5 hour life, and a lightweight, small external power source

An infra-red port

Multimedia capability.

It also has, as an external port replicator, a floppy disk device, which in turn can be connected to keyboard/ mouse, and printer. An external CD-ROM and a long life (eight hour) external battery were also available.

It has a video port at the back, so if I need to do a PowerPoint presentation, it is just a matter of plugging in the cable.

The computer fits in one half of my satchel, leaving plenty of room for other papers and paraphernalia. It has a case made from wetsuit material, but even in this jacket it is only the size of a small handbag.

Everywhere I take the Sharp, people want to talk about it. It is impressive, from its compactness, to its brilliant screen, to its magnesium alloy case.

So what else could I ask for? Perhaps the port replicator could be more convenient, constructed as a base plate, with the floppy, CD-ROM, printer, screen and power source connections, with a bayonet lock to secure the Actius as a top layer. Perhaps more user-friendly power management tools, and instantaneous boot up, but that might be up to Microsoft.

The next model was scheduled for release in the USA on 4 June. The Actius 250, has a 300 MHz chip, a built-in 10Base-T and a 100Base-TX LAN port, and a bigger hard disk. The retail price of the new machine is under US\$2,500. So how long can you wait before you plunge in? I will be happy with my Sharp for a long time to come.

September Calendar



SIG & Other Meetings — Sep-2019

Latest version of this Calendar is at: <https://www.melbpc.org.au/> (see Quick Links)

This version is: V1-updated-27-aug-2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 Science & Tech Projects Group Moorabbin 1pm - 5pm	2	3	4 North East Genealogy SIG 80 Hawdon Street Heidelberg 10am - 12noon MONTHLY MEETING Melb PC HQ, Moorabbin 7pm - 9:30pm then Supper (WAFFLE) at Fonq's 9:35pm	5 Sunbury Daytime SIG New Users 9:30am - 12noon	6 Essendon SIG Main meeting Avondale Heights 9:30am - 12noon Multimedia Home Entertainment SIG Mount Waverley 10am - 12noon	7
8 East Workshop SIG Mount Waverley 10am - 12noon	9 Access (database) and Excel SIG Moorabbin 6:30pm - 8:30pm Video Production Group Moorabbin 7pm - 9:30pm Please confirm if meeting on Queen's Birthday.	10 Investment Tools - WASINT SIG Moorabbin 10:30am - 12:30pm	11 Video Production - Sony SIG Moorabbin 10am - 12noon North East Daytime & Photography SIG Heidelberg 10am - 12noon Communications SIG Moorabbin 7pm - 9:30pm Microcontroller SIG Moorabbin 7pm - 9:30pm	12 Sunbury Daytime SIG Advanced 9:30am - 12noon East SIG Blackburn South 7:30pm - 9:30pm	13 Essendon SIG Open Forum Avondale Heights 9:30am - 12noon Hardware SIG Mount Waverley 10am - 12noon Casey SIG Beaconsfield 1pm - 3:30pm	14 Microcontroller Workshop SIG Moorabbin 12noon - 5pm Raspberry Pi - Moorabbin SIG 2pm - 4pm
15 Beginners East (BEAST) SIG Vermont South 10am - 12noon MACE (Atari Computers) SIG Moorabbin 10am - 2pm Genealogy East SIG Vermont South 12:30pm - 2:30pm Science & Tech Projects Group Moorabbin 1pm - 5pm	16 Mornington Peninsula SIG General inc Q&A Mornington 9:30am - 12noon Family History Mornington 1:30pm - 4:30pm Northern Suburbs Linux SIG Watsonia 7:30pm - 9:30pm	17 Everything Apple SIG Moorabbin 2pm - 4pm Melb PC Committee Moorabbin 7pm	18 North East Android SIG Heidelberg 10am - 12noon	19 Sunbury Daytime SIG Main Meeting 9:30am - 12noon Bayside SIG Brighton 10am - 12noon	20 Essendon SIG Various topics. Avondale Heights 9:30am - 12noon Digital Images SIG Including Photoshop Mount Waverley 10am - 12noon PC Update - Articles Deadline	21 Windows Plus SIG Moorabbin 10am - 12noon
22 Website Design SIG Tutorials Moorabbin 2pm - 4pm Troubleshooting Moorabbin 4pm - 6pm	23	24	25 Video Production - Pinnacle SIG Moorabbin 10:00am - 12:30pm Mornington Peninsula SIG Family History - Advanced DNA (LAST Wed of month) Mornington 2pm - 4pm. PC Update - Reports deadline	26 Sunbury Daytime SIG Maintenance & Linux (Fourth & fifth Thu of month) 9:30am - 12noon	27 PUBLIC HOLIDAY Raspberry Pi - Mt Waverley SIG 10am - 12noon	28 Microcontroller Workshop SIG Moorabbin 12noon - 5pm
29	30	Legend SIG meeting at Melb PC HQ, Moorabbin. Non-Moorabbin meeting. Cancelled Meeting Changed Meeting To be confirmed	Changes Please advise changes to: calendar-admin@melbpc.org.au	Other SIG (Special Interest Group) information: https://www.melbpc.org.au/signs/about/ Recent Changes: https://www.melbpc.org.au/signs/about/recent-changes/	Have A Question Post it on Yammer Yammer: http://yammer.com/melbpc.org.au/	