

Issue 222

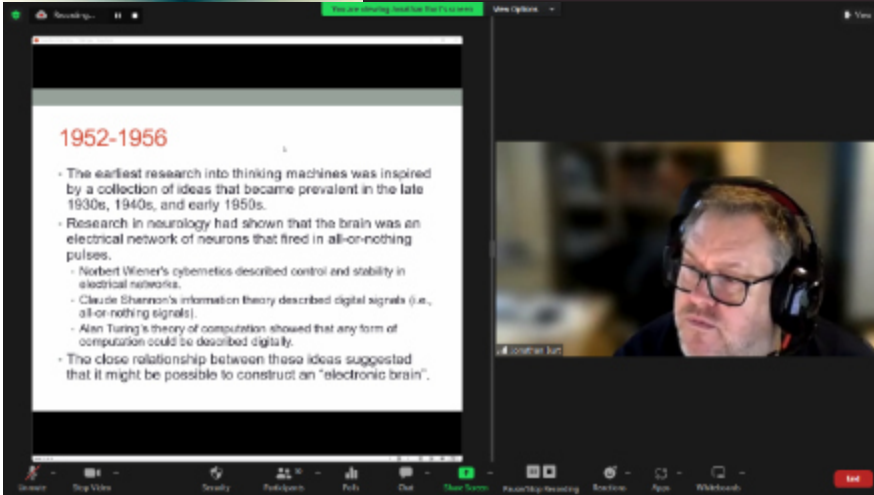
AUTUMN 2023

ISLE OF WIGHT PC USER GROUP



HOT KEY

October 2023

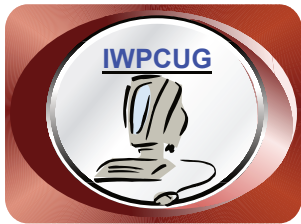


At our September meeting Jonathan Burt gave us a talk on the history, and current uses of Artificial Intelligence.

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The Isle of Wight Personal Computer User Group

We welcome anyone who has an interest in computers and related technology and what you can do with them.

We are a group which seeks to exchange ideas and new information.

Membership is £12 per annum

Our meetings are normally held on the first Wednesday of each month from 7.00 to 9.00 pm. Until further notice these will be held online via Zoom.

Visitors are always welcome.

If you would like to know more about us, you are most welcome to come along to one of our meetings, or you can contact one of our Committee Members listed on page 3.

The Club web site address is www.iwpcug.org

We also have an e-group discussion area on

Groups.io: <https://groups.io/g/iwpcug>

Details of how to join are on page 4.



FUTURE MEETINGS

<u>Date</u>	<u>Subject</u>	<u>Speaker</u>
1 November	Security	Graham Murphy
6 December	Christmas Meeting	
3 January	PartPicker	Jonathan Burt
5 February	AGM followed by Q&A session	
6 March	Currently being planned	

ISLE OF WIGHT PC USER GROUP COMMITTEE

Chairman : David Groom

Secretary : position unfilled

Treasurer : Mike Hoar

Membership and Database Secretary : Roger Skidmore

Committee Member : Steve Sutters

Committee Member: Sven Alleblas

Committee Member : Susanne Bone

Treasury Supervisor : Phil Rogers

Note

**Contact details removed prior to publishing on
the internet**

Suggestions for new events, topics or speakers for talks are always
welcome.

Please contact Steve Sutters, or any committee member, with your ideas.
If necessary we may be able to find a speaker for your subject.

Chairmans Report

An apology for the non appearance of the summer edition of HotKey, with only one article submitted by other members I had to find content to fill most of the pages, and it took some time, and then I ran into a busy period and August disappeared, by the time I looked at HotKey again it was almost ready to start the October edition, so I decided to skip the summer edition. That was the first edition which has not come out since I started editorship, and its something I was sad about. The good news is that largely due to Roger Skidmore's efforts we already have a number of articles for the January edition, though other articles are also welcome.

Sadly due to poor weather during August it was not possible to hold the summer BBQ, a traditional event enjoyed by those who do attend.

We now have a full calendar of members evenings right through until the AGM in February. It does appear that the number of members joining us on Zoom has been falling, I would welcome a discussion on the egroup why this might be, or send me an email if you don't want to comment publicly.

Our AGM is in February, perhaps one or two of you might consider putting your name forward to join the committee?

David Groom

Joining the Email Discussion Group

Send an email to: iwpcug+subscribe@groups.io, you will receive a confirmation email, follow the instructions in that email, and then wait for your approval request to be approved by one of the moderators.

All members are encouraged to join this group (it's free and private to club members) so you can keep in touch with events and join in with the discussions.

You can also keep in touch by regularly visiting www.iwpcug.org

Edit Your Photos With Open Source Artificial Intelligence

Upscayl is a free and open source program that uses open source artificial intelligence to upscale low-resolution images, available for download from <https://www.upscayl.org>

I've been interested in photography ever since I co-opted my father's Kodak 620 camera as a young boy. I used it to take pictures of the flora and fauna of our neighbourhood. My love of photography led me to an Instamatic camera in high school, and eventually to digital cameras as they entered the marketplace in the late 1990s. Early digital cameras provided portability and the ability to quickly capture and easily share images on the internet. But they lacked the quality and complexity of the best of film photography. Of course digital cameras have improved a lot since then. But I have years of digital photographs that just look a little, well, little on modern devices.

Until recently, my go-to tool for upscaling digital images has been GIMP. A couple of years ago, I tried to use GIMP to upscale a thumbnail image of my father that was taken in the mid-1940s. It worked, but the photo lacked the detail, depth, and clarity that I wanted.

That's all changed since I learned about Upscayl, a free and open source program that uses open source artificial intelligence to upscale low-resolution images.

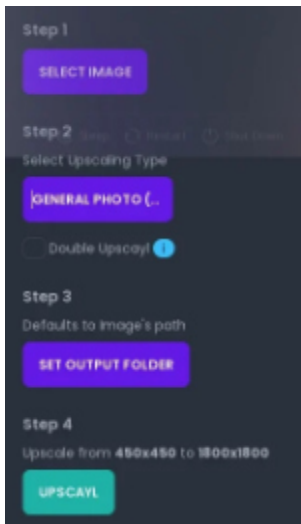
Upscayl works on Linux, Windows, and macOS.

It's easy to install on Linux whether your system uses RPM or DEB packages, and its website contains a universal Linux AppImage too.

For macOS and Windows, you can download installers from the project's website. Upscayl is released with an AGPL license.

Once installed, you can begin upscaling your images. The GUI software is very easy to use. The software makes your old images look like they were taken yesterday with image resolutions that far exceed the originals. In addition, you can batch scale entire folders and photo albums of images and upscale them all at once.

Launch the software and click the Select Image button. Find the image or folder of images you want to upscale.



Once the image is loaded, select the type of upscaling you want to try. The default is Real-ESRGAN, and that's a good place to start. There are six options to choose from, including a selection for digital art:

- General photo with Real-ESRGAN
- General photo with remacri
- General photo with ultramix balanced
- General photo with ultrasharp
- Digital Art
- Sharpen Image

Next, select the output directory where you want your upscaled images to be saved.

And finally, click the Upscayl button to begin the upscaling process. The speed of conversion depends on your GPU and the image output choice you make.

Upscayl is one of my favorite upscaling applications. It does depend heavily on your GPU, so it may not work on an old computer or one with an especially weak graphics card. But there's no harm in giving it a try. So download it and try it. I think you'll be impressed with the results.

Don Watkins

<https://opensource.com/article/23/4/edit-photos-open-source-ai>

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I tried to get the program to work on both Windows & Linux, but without success, though my computers are old and it's very probable that my graphics card and processor are not up to the task. I'd be interested if anyone else tries and has success.

David Groom

Using ChatGPT to Write Code (continued from last issue)

In the last issued of Hotkey I wrote about how I had tested the output of ChatGPT against code I had already written, to compare how it fared. I ended that article by saying I thought I would use ChatGPT in the future when I got stuck on how to write a particular piece of code.

In early June I found myself regularly using ChatGPT for code assistance, and in the space of a few weeks I had probably asked for its help on at least ten occasions. I was using a new programming environment, and once again writing a lot of JavaScript. ChatGPT probably saved me days of work, and it is in fact possible that I would not have been able to complete the project without its assistance.

It surprised me how soon after writing that first article I found myself using AI for real, and I can only wonder how, in the coming months and years, it will have an even greater impact.

David Groom

HD Webcam

It's not often I do physical product reviews, but one recent purchase I made was such good value I thought I would draw it to your attention.

My laptop only has a 640 x 480 resolution internal webcam, so for Zoom meetings I use an external webcam, and the one I had been using for a number of years had failed. A quick search on Google led me to the "LarmTek 1080P Webcam with Microphone and Privacy Cover", available on eBay for £8.99 with free postage (see back cover for photo).

My first impressions on opening the package were good, a reasonably thick USB cable, which was 1.7m long. There was no driver CD, but Windows recognised the web cam immediately, it will also work on Linux.

The colour accuracy is perhaps not the best, but it is good enough. Windows reports that it has a resolution of 1920 x 1080 pixels, what is referred to as full HD. It has quite a wide field of view, which I judge to be over 90 degrees.

The model supplied to me was a "W4". Which no longer appears on the Larmtek web site, perhaps this is why it was so cheap on eBay?

David Groom

Exploring Electron.js

A few months ago I received an email asking if I could help build an information display for a new visitor attraction on the Island.

As I clearly advertise myself as a web site designer I assumed that the potential client wanted me to develop a web site which his information screens would connect to.

However after meeting with him it became apparent that what he wanted was a desktop application to run on a number of individual computers. I could see the logic, no central web site meant no one potential point of failure. However I was not a desktop applications developer, I am a web site designer. Was there a way I could use my web site design skills to build a desktop application?

I searched on Google, explored a few options and settled on Electron.js, an open-source framework that claimed to empower developers to build cross-platform desktop applications using familiar web technologies.

What is Electron.js?

Electron.js, commonly referred to as Electron, is a powerful framework developed by GitHub in 2013 (initially named "Atom Shell") and later renamed Electron in 2015. It combines the power of Chromium, the open-source web browser engine powering Google Chrome, and Node.js, a server-side JavaScript runtime, to create desktop applications using web technologies like HTML, CSS, and JavaScript. It should be noted that because any app developed in Electron bundles its own version of the Chromium browser engine, even a simple app, with only a few pages and very little graphics, will be over 100Mb in size.

How Does Electron Work?

At its core, Electron runs two main processes: the main process and the renderer process. The main process, running on Node.js, controls the application's lifecycle and manages various application-level tasks, including interacting with the underlying operating system and handling system events. Meanwhile, each Electron window runs a separate renderer process, which is a Chromium-based browser window that displays the application's graphical user interface using HTML, CSS, and JavaScript.

The use of web technologies for the user interface gives Electron the ability to create visually appealing and interactive desktop applications, just like traditional web applications. Furthermore, the separation of the main and renderer processes ensures that the application's user interface remains responsive even if a particular renderer process becomes unresponsive.

Key Features and Benefits of Electron.js

1. **Cross-Platform Compatibility:** One of the most significant advantages of Electron is its ability to run on multiple platforms, including Windows, macOS, and Linux. Developers can write a single codebase for their desktop application, saving valuable time and effort.
2. **Web Development Stack:** Electron empowers developers with web development skills to transition smoothly into desktop application development. This accessibility opens up the world of desktop software to a broader range of web developers such as myself.
3. **Native Integration:** While Electron applications are primarily built with web technologies, they can seamlessly access native operating system functionalities through Node.js APIs. This means developers can interact with the file system, create system notifications, and more, just as they would in a traditional desktop application. Though this ability to interact with the file system does bring security risks which need to be borne in mind when developing the app.
4. **Extensibility:** Electron's rich ecosystem of third-party modules available through npm allows developers to enhance their applications with numerous plugins and add-ons, facilitating rapid development.
5. **Automatic Updates:** Electron simplifies the update process for users by supporting automatic updates for the main codebase. This ensures that users are always running the latest version of the application without manual intervention.

Use Cases of Electron.js

The versatility of Electron.js has led to the creation of a wide range of desktop applications:

1. **Code Editors:** Some of the most popular code editors, such as Visual Studio Code and Atom, are built on Electron, offering a seamless coding experience across platforms.
2. **Communication Tools:** Desktop communication applications like Slack and Microsoft Teams have leveraged Electron to provide unified experiences on various operating systems.
3. **Media Players:** Several modern media players, including Spotify,

leverage Electron to deliver high-quality audio experiences while ensuring cross-platform compatibility.

4. **Productivity Apps:** Electron powers various productivity tools, such as Evernote and Trello, enabling users to stay organised and productive regardless of their chosen platform.

Alternatives

To overcome some of the disadvantages of Electron.js, in particular its large app size, a number of alternatives frameworks have been developed, the two best known probably being Taiti and Neutralino.js. I have yet to investigate these.

Conclusion

Electron.js has revolutionised desktop application development by allowing developers to leverage their web development skills to create cross-platform applications with native-like experiences. Its ease of use, extensive capabilities, and large community support have propelled Electron to the forefront of modern application development.

However apps developed in Electron will be larger in size, have a higher memory consumption, and likely will be slower than apps written using traditional programming techniques.

Lastly I'm happy to say that the client was very pleased with the information display app I built.

David Groom

Laser Printer Woes

A month ago, whilst in a rush, I loaded paper which should have been used in an inkjet printer into my colour laser printer. The first sheet that I printed melted and bubbled as it passed through the fuser unit. The printer immediately came up with an error message on its small LCD display. I quickly removed the fuser unit from the printer and managed to remove the melted paper from it. I rotated the fuser roller through 360° and was pleased to notice that there was no damage and nothing sticking to it, so I put the fuser unit back into the printer, but unfortunately the message still came up "saying fuser error, call service engineer".

Now the printer is probably eight or nine years old, and certainly not worth calling out a service engineer for. I wondered if I could reset the error message through either the software, or the menu buttons on the actual

printer, but a search online did not indicate any way of doing this.

I first considered buying a new fuser unit, but the cost was over £70 pounds, and there was no guarantee that this would fix the problem. However whilst researching online I noticed that there were a number of so-called fuser reset kits available for £16. There are set number of pages which a fuser unit is supposed to be able to print before it reaches its supposed end of life, and I believe that these reset kits are normally used to fool the printer into thinking a new fuser unit has been installed, thereby extending the life of the existing fuser unit.

It would appear that on my printer a new fuser unit has a fusible link in it. When you first put the new unit in the printer, the printer detects that there is an electric circuit across this fuseable link, and this is how it knows a new cartridge has been installed. The printer then puts enough current across the terminals to blow the fuseable link, so that it now thinks it no longer has a brand new unit. However because it knows a new cartridge has been inserted it resets the fuser error message. The fuser reset kit was simply a cable with a fusible link in it. If you insert this cable between the printer and the fuser cartridge it fools the printer into thinking a new fuser unit has been installed, and the printer then blows the fusible link in the reset kits cable. I ordered one of these kits and a few days later it arrived. Rather alarmingly in order to insert the new cable I had to disconnect the existing cable by sharply pulling it out of the existing socket at a 45 degree angle, and I had visions of the cable snapping as it was quite thin. However it didn't snap, and I connected the link between the end of the cable and the socket to which it was originally plugged in, and with some trepidation switched the printer back on. I was very pleased to find that there was no error message, and the printer was now working!

The slightly annoying thing is that the actual cost of components in the reset kit would be a few pence and I was charged £16 for it. However, I am pleased to report that the printer has been working without problem for the last few weeks. Undoubtedly my search online saved me £60. It is also annoying that there was no way to reset the error message through software since there obviously was no fundamental problem with the existing fuser unit and the only way of getting my printer working was to fool it into thinking a new unit had been installed.

There are two morals to this story, firstly don't put the wrong paper type in your laser printer, and secondly do some research on line to find out how to cure any problems you may have.

David Groom

New Honorary Member

The committee is delighted to welcome as a new honorary member Dr Peter Huckle.



Following a degree in Electrical Engineering at The University of Leeds in the UK, Peter undertook a PhD in Applied Mathematics analysing the problem of communicating with space vehicles when they re-enter the earth's atmosphere. After a period as a lecturer at London University Peter joined IBM where he worked first as a programmer and then as system manager at IBM's Scientific Centre where his team worked on an implementation of what was probably the first deployment of a relational database under the direction of Ted Codd.

Peter then worked in Silicon Valley on team collaboration software where they developed a language for the expression of page layouts for the then new laser printers – the language being known as GML – the precursor of today's HTML, the language of the Internet for the layout of web pages.

In parallel with his Conference Group activity, Peter and a colleague from his days at Digital Equipment established and successfully built one of the first online businesses selling books and media on subjects about transport. He also ran a business which advised companies about using the internet to expand their business by reaching new markets. Customers included business associations, fashion retailers and real estate.

Peter moved to New Zealand in the early years of the new millennium where he continued his business of building websites for tourism, accommodation and local communities. More recently Peter has retired back to the Isle of Wight with his wife Lesley and they now live in Newport where he is presently developing educational software for the Havenstreet Railway.

Based on an article at <https://pagemakers.co.nz/peter-huckle/>

Book Review

LORENZ: Breaking Hitler's top secret code at Bletchley Park. By Jerry ROBERTS. History Press 2017.

In 1943 German high command messages relating to the forthcoming Battle of Kursk were sent by radio using a telegraphic, non-morse code. The messages used machines termed Schlüsselzusatz, designed and built by Lorenz AG. They were decrypted by hand at Bletchley Park and the intelligence sent to Stalin, disguised as the product of a wonderful spying operation. The Lorenz SZ machine automatically applied three levels of encryption using twelve wheels. The BP "Testery" department, named after Major Tester, employed a seven stage process to break the key settings and to translate to clear German text. The Russian victory at Kursk denied the Germans access to the oilfields and marks a turning point in the war.

Later in the war the German volume of traffic ramped up, and to speed up the BP attack the "Newmanry" deployed "Colossus". Max Newman gave his name to the department. Alan Turing was an adviser early on. The Colossus was a machine using thermionic valve electronics which was designed by Tommy Flowers and a team at the Post Office research station. The faster Mk II version was delivered late in 1944.

After the war Churchill ordered the destruction of all Lorenz papers. When a "General Report on Tunny" was written by three members of the Newmanry it barely mentioned the role of the Testery. Only in the 21st century has the Lorenz story been declassified, and Captain Jerry Roberts, then 87, set about getting the histories re-written. Mathematician Bill Tutte and engineer Tommy Flowers died without due honours.

The background story is that the 5 bit telegraphic Baudot code was patented in 1874, to be used on a single wire connection. It seems the keyboard was operated with 2 fingers of one hand and 3 of the other and the operator could reach 30 words per minute!

In 1919 Gilbert Vernam obtained a patent for an additive encryption process. Or indeed an "additive polyalphabetic stream cipher". A letter is encrypted by addition of another letter, then decrypted by addition of the same letter, all using modulo 2 arithmetic. In the Lorenz SZ machine the whole process is made more elaborate by streaming a key generated by a stack of wheels of varying lengths and starting positions and doing this twice more on the message. So unbreakable, thought the Germans.

The non-morse traffic was known to BP as Fish. There was a Siemens machine called Geheimschreiber and know as Sturgeon. This was reverse engineered by the Swedish mathematician Arne Beurling. The Lorenz traffic was known as Tunny. The BP mathematician Bill Tutte reverse engineered the Lorenz machine from two messages transmitted with the same key. The achievement of Bill Tutte is stunning as an exercise in pure logic with nothing known about the hardware.

These particular messages were around 4,000 places long but the Tunny messages could be much longer. The system was used by the top generals and by Hitler himself for top level communications. On the other hand Enigma messages required a team of three to prepare and send by hand, so the machine was used in forward bases not at HQ level. In any case resistance organisations targeted telegraph lines so that the Germans would be obliged to use radio.

This book is clearly written and is a delight to read. Roberts arrives at an estimate of 64,000 Tunny messages processed by the Testery in the course of the war. Many more Enigma messages were decrypted. However the Tunny traffic contained intelligence "gold dust". Captain Roberts had an audience with the Queen in 2011 and received an MBE in 2013. He campaigned for recognition for his colleagues, in particular Bill Tutte and Tommy Flowers and dedicates the book to them.

Alex Lawson

Useful links:

What was Lorenz and how it works: www.youtube.com/watch?v=GBsfWSQVtYA

Bill Tutte memorial: <https://billtuttememorial.org.uk/>

Tom Hepworth honours Jerry Roberts with stamps: www.bbc.co.uk/news/uk-england-22113297

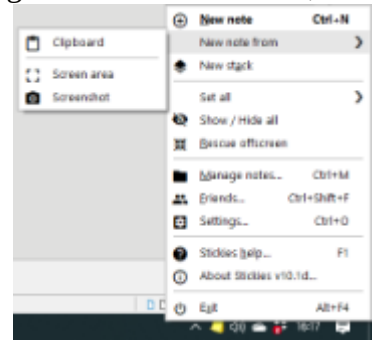
General Report on Tunny: <https://codesandciphers.org.uk/documents/newman/newman.pdf>

Stickies

I reviewed Microsoft's default "Sticky Notes" app in the January 2021 of HotKey, but it is not a program which I have come to use at all.

After my review, Roger Skidmore mentioned that he liked an alternative app for taking quick notes called Stickies (<https://www.zhornsoftware.co.uk/stickies/>), and I can confirm that whenever I visit his house and look at his monitor there always appears to be a number of "Stickies" windows in use.

The program is small in size (the installer is only 2.8Mb), but it does have an impressively long list of features. Once I installed it I did however come across an immediate problem – how to create a new Stickies note! I had assumed that clicking the program item in the start menu would be what I needed to do, but this seemed to have no effect, and the web site provided no guidance. I decided to make a phone call to Roger to see what he does, and he told me that he right clicks the icon in the system tray, which then brings up a menu (see the image to the right) which has an option to create a new note. Another option on this menu brings up a comprehensive help file. It should be noted that initially on my computer the icon in the system tray was hidden, and I had to go to Windows settings to display it without needing to click the “show hidden icons” arrow.



There are two types of note you can create - a text note and an image note. Text notes contain formatted text (internally it's RTF) which may include an image along with the text, and image notes contain just an image (a PNG). Image notes can be created either from a screen screenshot of the whole desktop, or by selecting a portion of the desktop (this latter task can be quickly carried out using the “Alt+W” key combination. I am sure this will now be my preferred method of grabbing quick screenshots when I need them rather than using the Windows Snip tool, or one of my favourite programs Icecream Screen Recorder (see HotKey January 2016).

Pasting text from, say a Word document, into a sticky note preserves as much formatting as possible, but if you hold down the shift key whilst pasting the text all formatting is removed.

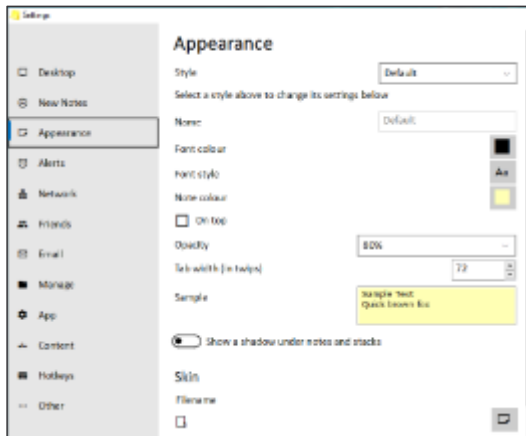
Having briefly used the program I am fairly sure I will now be using it regularly, and I have already uninned the default Microsoft sticky note app from my taskbar. There are so many more things the app can do, I really would encourage you to download it and experiment, but remember to read the manual! There is an impressive amount of configurable settings, see image on back cover.

For another review of the Stickies program see the following www.guidingtech.com/56768/stickies-superior-alternative-sticky-notes/

David Groom



The LarmTek 1080P Webcam, see page 7



For such a small program there are an impressive number of options in the settings menu of “Stickies”, see review on pages 14 & 15.

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