Raspberry Pi Report by Michael Souprounovich

What does it do

What is the state of the art of this new technology?

The Raspberry Pi is a minicomputer, the size of a credit card. It is a highly popular computer for creating, playing, programming and hacking, mainly because of its minimal price tag of $50AUD. The latest version is the Pi 4, which features two HDMI outputs! It contains a state of the art 64-bit ARM CPU clocked at 1.5GHZ, up to four gigabyte RAM and USB 3.0 for speedy data bandwidth. It contains 40 general purpose input/output which can be connected to virtually anything from motors to robots to other computers. An Ethernet port is bundled for Internet connectivity. Power is supplied by a USB-C port.

What can be done now?

It is mostly used to create ingenious inventions that make life easier. For example, Dave Akerman blew up a balloon and tied a Raspberry Pi onto it and sent it to space. He took photos of the solar system and of the world that are now famous. His website [1]. Another example of a cool idea with the Pi is to connect it to a water pump, which you can then control when to spray water onto your garden, so you don't have to do it yourself. It is particularly useful when going away from home for a long time, but don't want your plants to die. A tutorial is available [2]. One of the best things about it is that it consumes very little power, so people often build clusters of Pis that work together to complete a task faster than a single Pi. One common use of it is to use it for a server, or as an IOT device.

What is likely to be able to do be done soon (say in the next 3 years)?

One of the things we will be able to do soon, when the Pi increases in processing power and decreases in size, is to play modern video games at a playable frame rate! Some people already have ditched their bulky x86-based CPU PCs in favour of the tiny computer, which we will see a lot more soon. Because nobody likes bulky computers, right? People might start embedding them in TVs and computer monitors so all you really need is the monitor! The increased processing power, and RAM will be useful for many things, which include using it as a server to host a website. I personally have done this myself. But in three years, the Pi might be powerful enough to host and maintain a game online, something similar to Agar.io [3]! I envision 300, maybe 500 Pis working together to render scenes for a game – maybe for VR or on an 8K TV – at 200+ frames per second.

What technological or other developments make this possible?

I am going to discuss about the Pi clusters. Obviously, the hardware specifications are what makes all of the ideas possible. Although one of the developments that contribute is the speed of the internet. The most popular way to distribute tasks to each node – each Pi – is through the internet, so speed, especially latency (how fast each node responds) is important if you want to ensure speedy completion of a task. There need to be another computer to distribute tasks to each node, or you can use one of the nodes to do it. There are simple Python libraries that will accomplish this task.

What is the likely impact

What is the potential impact of this development?

The potential impact of this development is huge. Computers will still get smaller and faster and consume less and less energy. Soon big, old black PC boxes will become a legend and something that few people remember. Another impact the Pi have made on our world is that it encourages us to tinker, program and hack, leading to children getting interested in programming, which is extremely important in a world that is covered in computers. Soon coding will be a necessary skill for each child and will be included in school curriculum all around the world.

What is likely to change?

With the Pi, task automation is a perk that is very useful. Soon we won't need to even get out of our bed. The Raspberry Pi or some other minicomputer will tip our bed over so that we land on our feet. Then it will serve us our breakfast, stuffing the food in your face. After that, it will dress us. Brush our teeth. The list goes on – you get the idea.

Which people will be most affected and how?

In my opinion, the people most affected by the phenomenon described in the last paragraph will be those who have a disability – not being able to look after themselves. Tiny computers, and most likely AI, will make sure that those people lead a healthy and happy lives. People without a disability, however, can still benefit from these computers in many ways, which include entertainment, productivity, content creation, among others.

Will this create, replace or make redundant any current jobs or technologies?

The future is fuzzy – it is really difficult to predict what will happen – but one thing definitely will happen is since computers are taking over the world, job demand will plummet. I will list some examples of jobs that will become redundant as computer application evolves. One is carpentry, as there are now 3-D printers big enough to create buildings. Those machines will still need to be set up by people, though. Another example is people who work with shops – managers, people who stock goods, etc. Robots will replace them. Jobs that doesn't require people to come up with original ideas, activities, etc, that is impossible for computers to do, will become a demand.

How will this affect you

In your daily life, how will this affect you?

It will obviously affect my everyday life as I have described above. Computers will do all our work that doesn't require original ideas. Imagine the robots from the film WALL-E but apply it to the world (although not everyone will be really fat, it wouldn't be healthy). I wouldn't really have to do anything. Jobs that require programming and making up ideas will be the norm, so I will most likely be on the computer for the rest of my life – telling the computer – verbally - my ideas, and then the computer will convert them to code, which it will then automatically send it to a server or something – I have no idea!

What will be different for you?

Since I am deaf, instead of verbally talking to the computer, I will be signing in Auslan to the computer, which then translates to code.

How might this affect members of your family or your friends?

The affect Raspberry Pi or any other small computing devices will have on my family and friends is the ability of having an affordable computer that is also extremely portable. The ability to be able to communicate and share an idea with family members would affect them greatly, especially with the open source software these devices run on. A minicomputer the size of a flash drive would help friends understand what I am thinking not just understanding what I am saying.

[1] https://www.daveakerman.com/

[2] https://www.techradar.com/how-to/computing/how-to-automatically-water-your-plants-with-the-raspberry-pi-1315059

[3] https://agar.io/