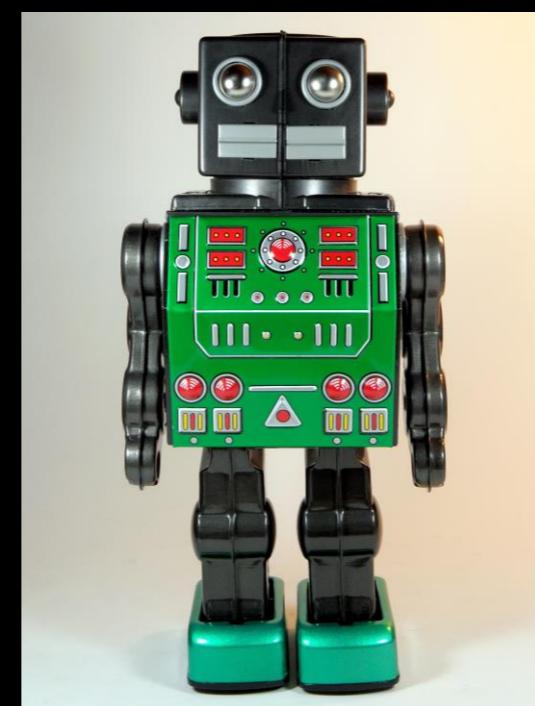


C10 Ethics & Security

Part 1: Introduction

What comes to your mind when you look at the word ‘Computing’?



Are these computing?



Computing is **not** purely a technological phenomena.

Computing is **socio-technical**.



It exists in many aspects of our lives and impacts our **lifestyle** and **workplace**.



Computing is

the **evolving variety of artefacts**,

and their **socio-technical systems** of
manufacturing and use, for gathering,
storing, retrieving, processing, analyzing and
transmitting **information**.



What makes computers so revolutionary?

What is revolutionary about computers is **logical malleability**. - James Moor



malleable → can be **shaped and molded** easily

computer → do any activity that can be characterized in terms of **inputs, outputs**, and connecting **logical operations**.

The logic of computers can be massaged and **shaped in endless ways** ...

Computers provide us with **new capabilities** and these in turn give us **new choices for action**.

Computing's property of logical malleability means society isn't always prepared for the introduction and widespread adoption of computing.

What are the implications of such new capabilities and new choices of action?

A typical problem in **computer ethics** arises because there is a **policy vacuum** about how computer technology should be used.

- James Moor

Policy Vacuum → no policies for conduct exist or existing policies seem inadequate

A difficulty is that along with a policy vacuum there is often a conceptual vacuum.



Whatsgoodbro : *** kid
rayion : lol
Itsukix : have 4 12 gauge
Whatsgoodbro : go cut ur wrists
Whatsgoodbro : no1 likes u
Itsukix : 2 20 gauge
Whatsgoodbro : go suicide off a bridge
Daetor : Now Lamitrov
Itsukix : 2 .22 rifle
Itsukix : s
Whatsgoodbro : fking ***
Aluto : that escalated quickly
Daetor : I'm fine, but...
Itsukix : 5 different hacdguns
Daetor : If I get hit while I'm playing music
Whatsgoodbro : ur mom escalated on this dig

How should we **behave and **live** with computing?**

How are productivity, employment, competition, trade affected?

A broader understanding of **computing as socio-technical** change in paradigm is essential to examining these impacts.

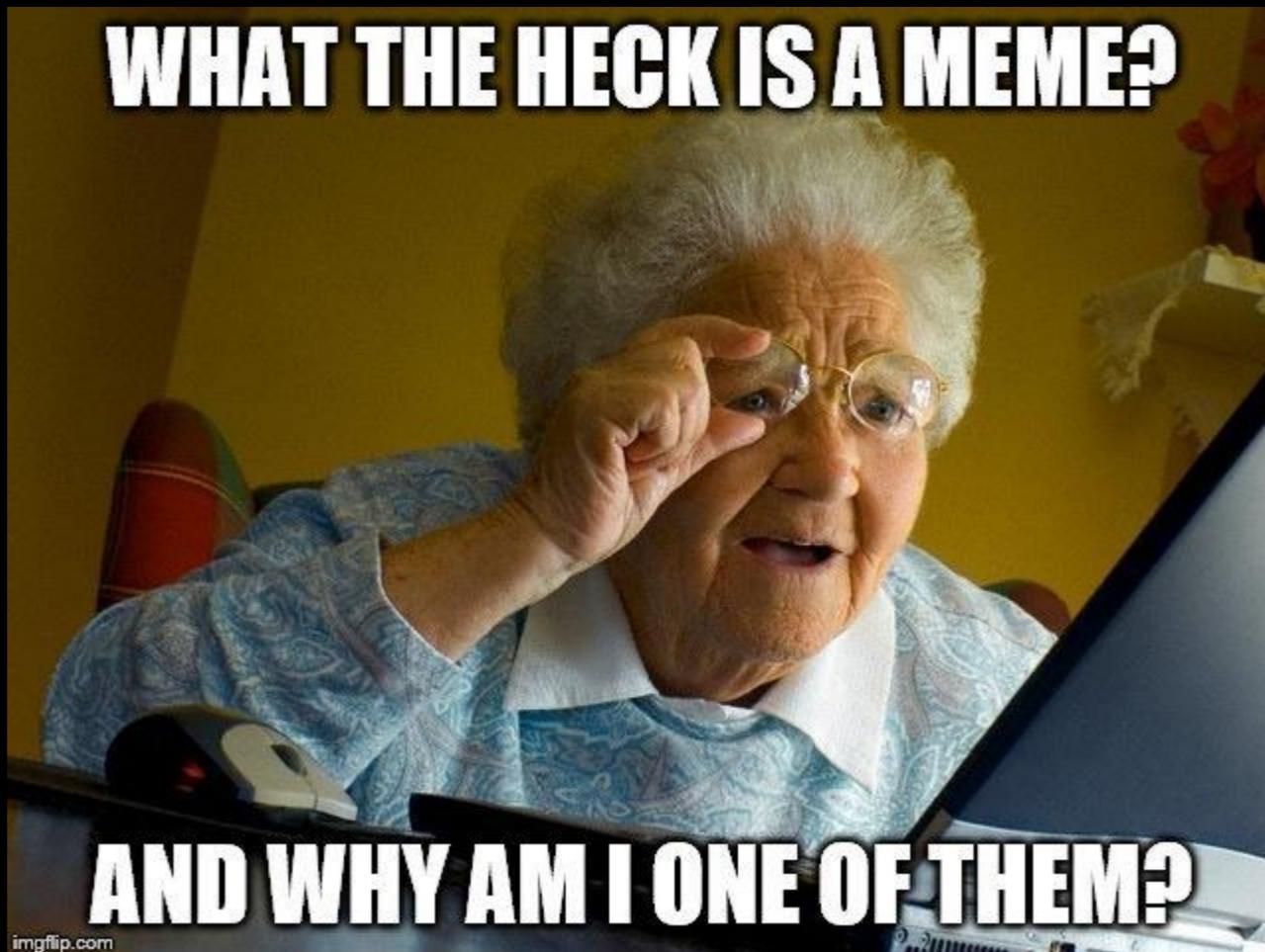
Computing is not just about technical artefacts, but the **systems around their use and manufacture**.

What are some issues that arise with computing?

1) Intellectual Property & Computing

fair use of intellectual property in computing

WHAT THE HECK IS A MEME?



**FORCED TO PAY LICENCE FEES
FOR USING A POPULAR MEME**



**NOT SURE IF
FUNNY**

OR COPYRIGHT INFRINGEMENT

What is Intellectual Property?



What is Intellectual Property?

- Intellectual Property (IP) refers to the **labour of the mind** (e.g. inventions, literary and artistic works, business ideas, design, names) that has **commercial values**.
- IP is protected in law by patents, copyright and trademarks.
- Content on the internet are protected by IP laws which specify how they should be used and distributed.

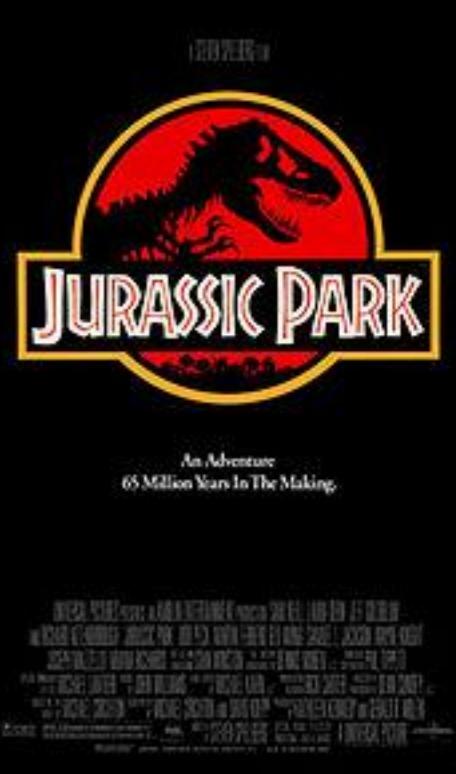
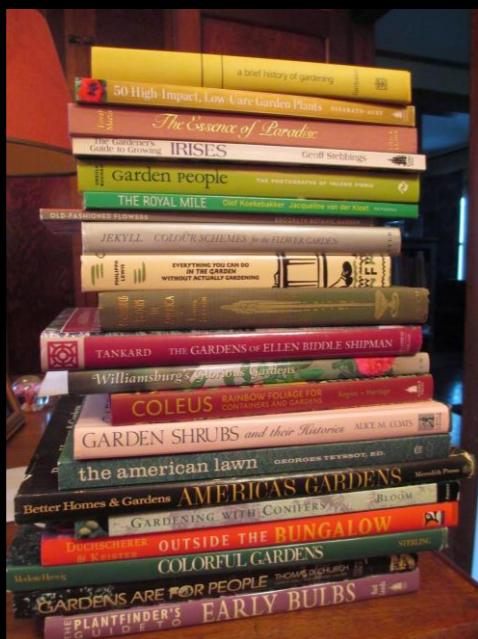
Why do you think IP should be protected?

What is Copyright?

Copyright is a legal term used to describe the rights that creators have over their **literary and artistic works**. It protects the skill, labour, judgement used in creating that expressed form.

Works covered by copyright range from books, music, paintings, photographs, sculpture and films, to computer programs, databases, advertisements, maps, and technical drawings/models.

These rights enable a copyright owner to **control the commercial exploitation** of his/her work.



Copyright Act

In Singapore, the legislation is the [Copyright Act](#).

It gives owner of the copyright the rights to:

- (i) to reproduce the work in a material form;
- (ii) to publish the work if the work is unpublished;
- (iii) to perform the work in public;
- (iv) to communicate the work to the public;
- (v) to make an adaptation of the work;

Essentially copyright is a negative right to prevent others from copying, selling, distributing, trading works **without license/consent of the copyright owner**.

There is infringement of copyright if the above is done without license/consent from the owner.

Acquiring Copyright

You do not need to register for copyright protection. Copyright is automatically granted as soon as you create and express your original work in a tangible form, such as in a recording or writing.

There are a few things you can do to protect yourself and your original work. Click here to find out:

1. Include a copyright symbol © on your work, followed by your name, and year the work was first created.

Example: © John Tan 2017

This symbol is a notice of your claim to the work. While it does not give you any substantive right, the use of this symbol could come in useful if you are involved in an infringement proceeding. If the infringement party claims that he did not know the material was protected under copyright law, the use of the symbol would generally stop him from successfully relying on this argument.

<https://www.ipos.gov.sg/protecting-your-ideas/copyright>

2. Maintain your proof of originality

There are a number of ways you can maintain proof that you are the original author of the work:

1. Deposit a copy of your work with your lawyers or in a depositor
2. Send a copy of your work to yourself by post, leaving the envelope unopened so that the date stamp and the unopened work could establish the date of the work's existence
3. Make a declaration before a Commissioner of Oath stating the fact of ownership and the date of creation.

Copyright FAQs

What if two identical or similar works were in fact produced **independently** of each other?
There is no infringement of copyright by one of the other.

Are ideas protected by copyright?

No. The following are not protected by copyright: Ideas (e.g. a new business idea that have not been documented), Concepts (e.g. an idea for a new app that has not been documented), Procedures (e.g. the steps involved to create a new cloud-based legal services), Methods (e.g. the unique solution to a mathematical problem), subject matter that has not been made in a tangible form in a recording or writing (e.g. speech or dance that has not been written down or recorded)

Duration of copyright?

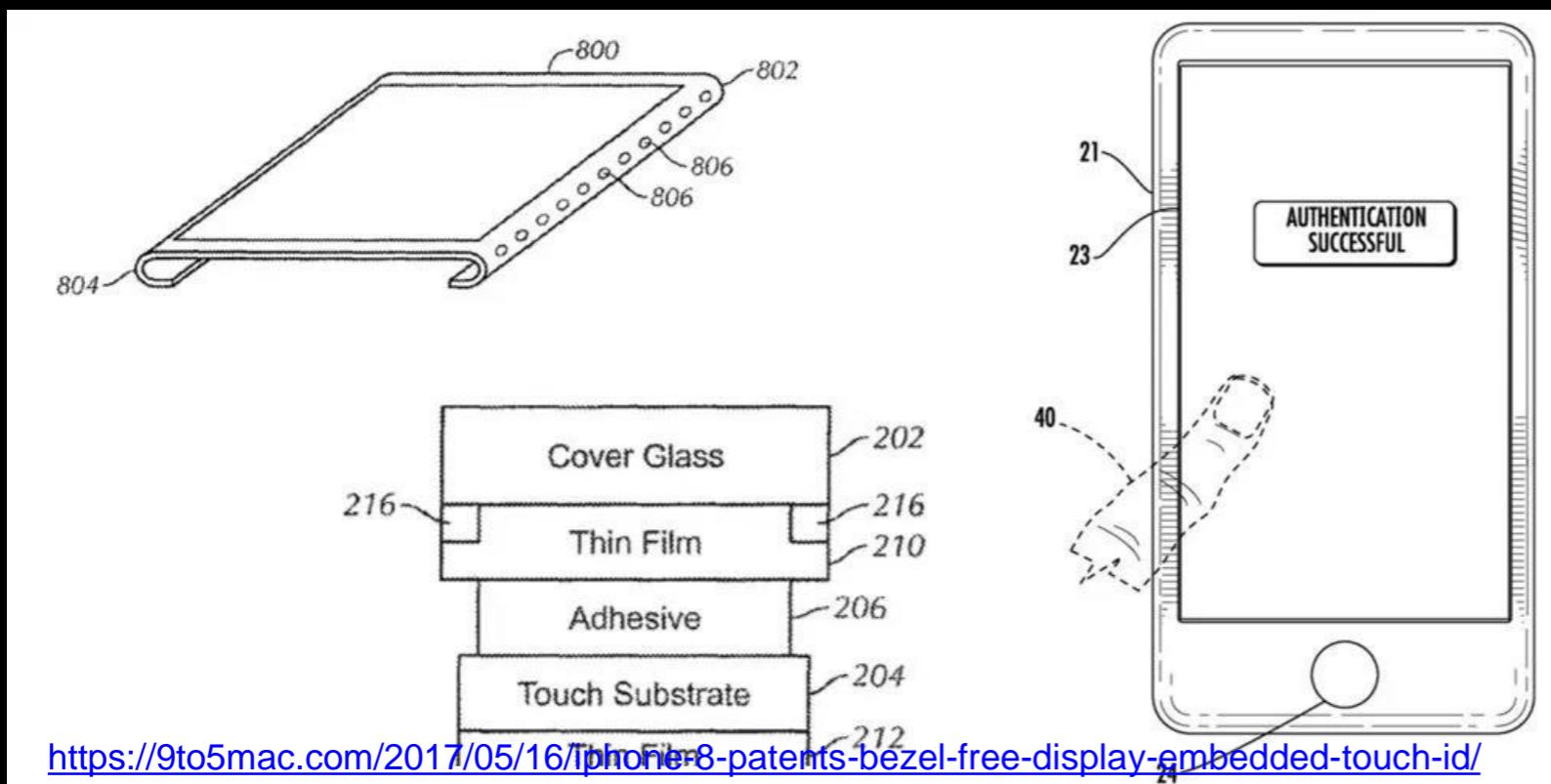
Copyright in a literary, dramatic or musical work, or in an artistic work other than a photograph, subsists during the life of the author plus 70 years after his/her death.
For sound recording and film, copyright subsists until the expiry of 70 years after the expiry of the calendar year in which the recording or film was first published.

Duration of copyright protection for a broadcast and cable programme is 50 years from the end of the calendar year in which the broadcast was made or the programme was first included in a cable programme service.

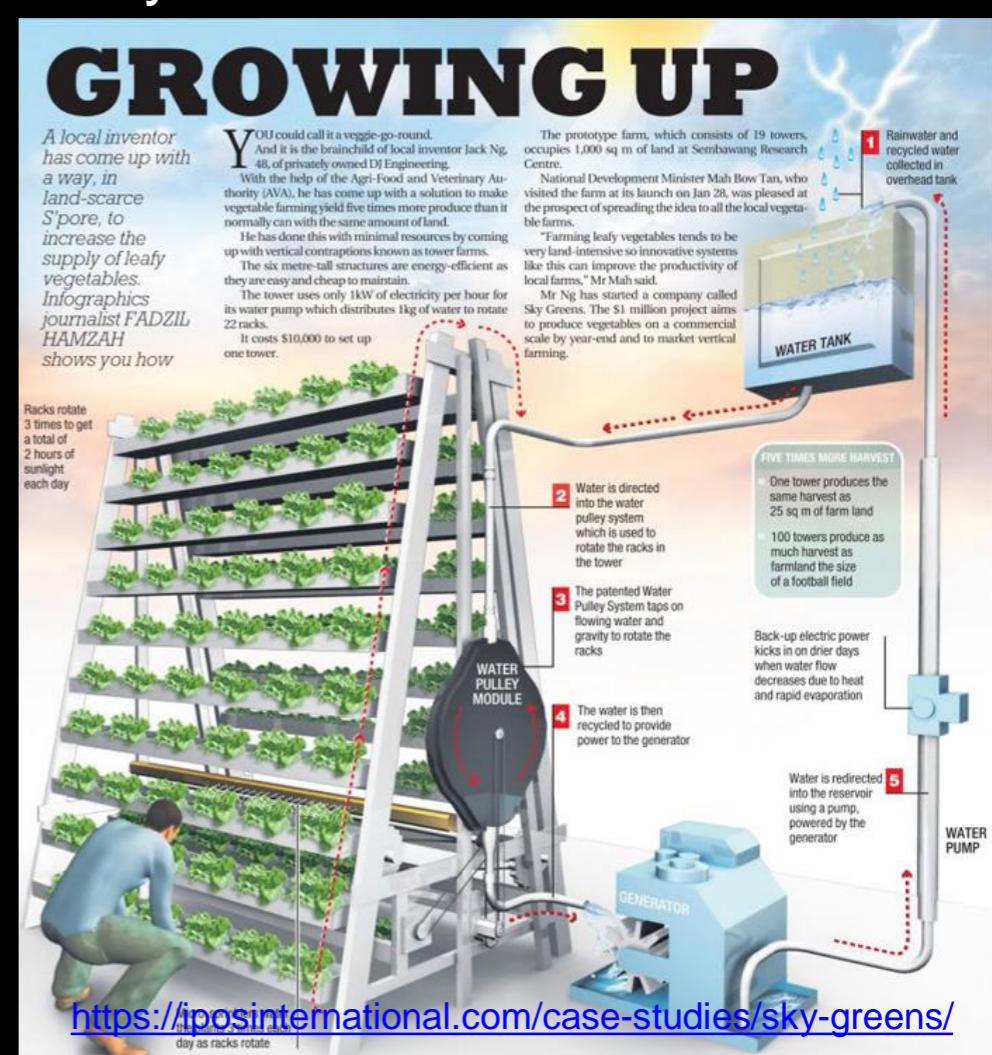
What is Patent?

A patent is a right granted to the owner of **an invention** that prevents others from copying, replicating, using, selling, trading or licensing the invention without permission or consent of the patent owner.

Patent for edge-to-edge display, touch ID in screen: Apple iPhone 8



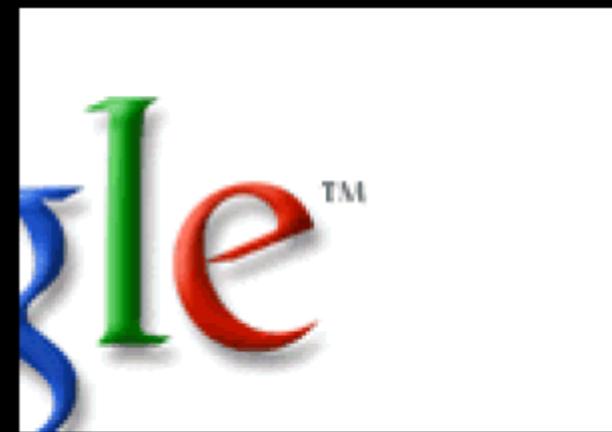
Patent for vertical farming:
Sky Greens



What is Trade Mark?

Any sign (e.g. logo) capable of being represented and of **distinguishing** one's goods or services from those of others.

A passing off action involves a deception made by a person or a legal entity (such as a company) to sell his own goods or services as if they are the goods or services of another. Such unfair business practice affects the brand or goodwill of another.

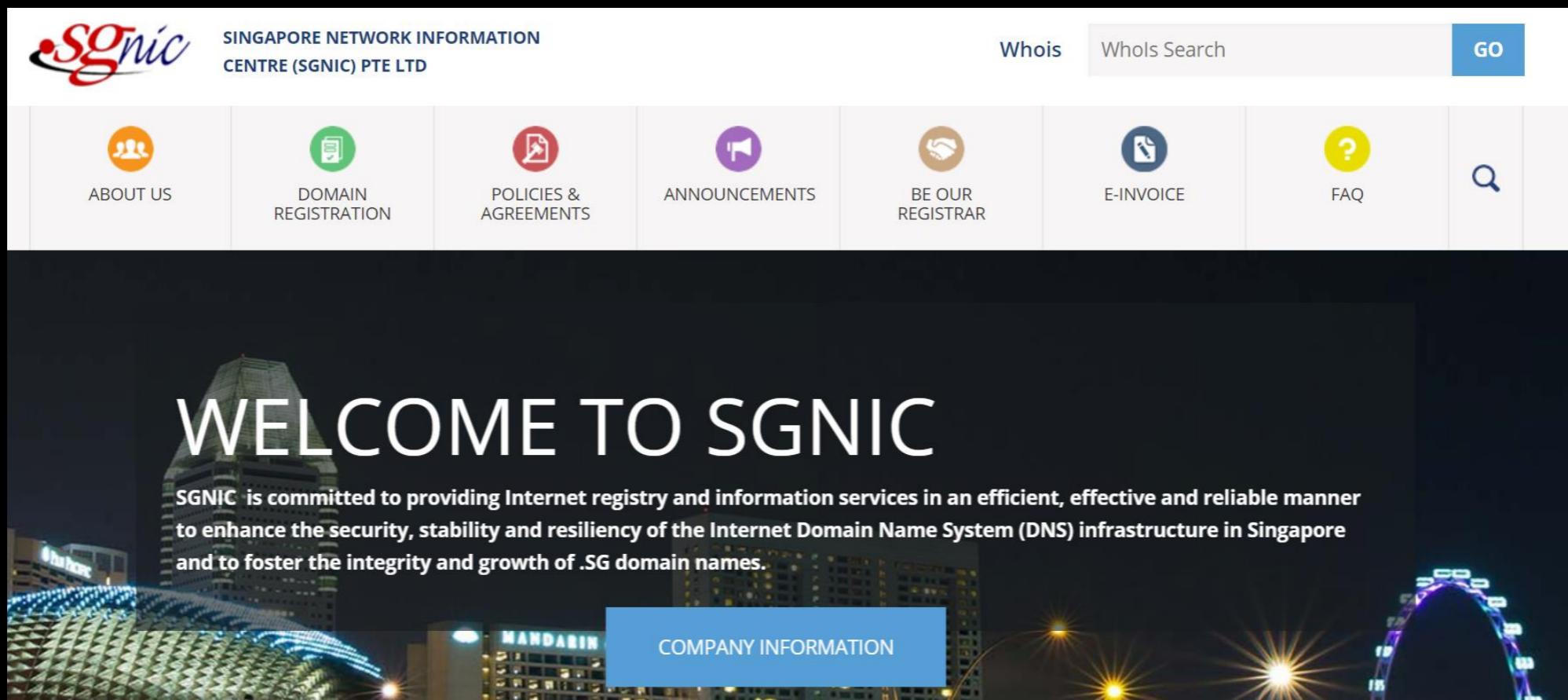


Trademarks (Domain Names)

Domain names are key to branding. Domain names that are unique can be trademarked.

Booking of domain names is on a first-to-register basis, except that one cannot register a domain that is the trade mark of another
(e.g. www.Microsoft.sg)

Domain registration can be done at Singapore Network Information Centre (SGNIC): <https://www.sgnic.sg/home.html>



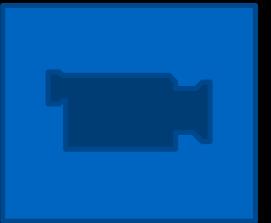
Common Violations of IP

- Copyright infringement
 - Piracy (e.g. software, music, video games)
 - Plagiarism (of content)
- Trademark infringement
 - Passing off action
 - Domain name squatting
- Business IP infringement
 - Patent/IP thefts
 - Leaking of confidential or critical information(creation) by business/political rival



Intellectual Property (Alternatives)

- The creative commons



Intellectual Property (Alternatives)

- Free and Open-source software (FOSS)



Meme copyright- Fair Use Doctrine

An Internet Meme is in legal terms, *a derivative work*, and usually copyright owner is the only party with the legal right to create a derivative work.

However, the rights of the copyright owner are not exhaustive or absolute.

If the person who makes the “derivative work” makes “fair use” of the copyrighted image, this is a defense to a claim of Copyright Infringement.

<https://thelawtog.com/memes-violate-copyright-law/>



<https://www.publicknowledge.org/blog/copyright-for-meme-makers/>

Intellectual Property & Computing

Will Singapore stay ahead of the IP game?

Republic needs to step up to challenges and threats regarding use and abuse of intellectual property rights emerging around the world

© TUE, AUG 21, 2018 - 5:50 AM

FRANCINE TAN



Singapore came in 9th in a recent global IP index, ahead of Switzerland and second to Japan in the Asia-Pacific. The ranking was carried out by the Global Innovation Policy Centre. PHOTO: EPA-EFE



Maintaining Singapore's position

As a well-regarded pioneer on many fronts (from water innovation and management, to smart city technology solutions) and as a thought leader in Asia in the world of IP, Singapore has to be resilient in tackling and responding to new issues and challenges and to guard against an erosion of all it has achieved.

Government agency leaders and representatives from the industry from countries far and wide including the Cook Islands, Mongolia and Myanmar have visited Singapore's shores to learn about IP administration, protection and its importance to the economy.

They appreciate there is an economic value in protecting brands and IP, which translates to jobs and tax dollars.

Trademark-intensive industries directly contribute half of Singapore's GDP, and indirectly contribute to 55 per cent of GDP, according to an analysis by economics consultancy firm Frontier Economics in 2017.

Intellectual Property & Computing

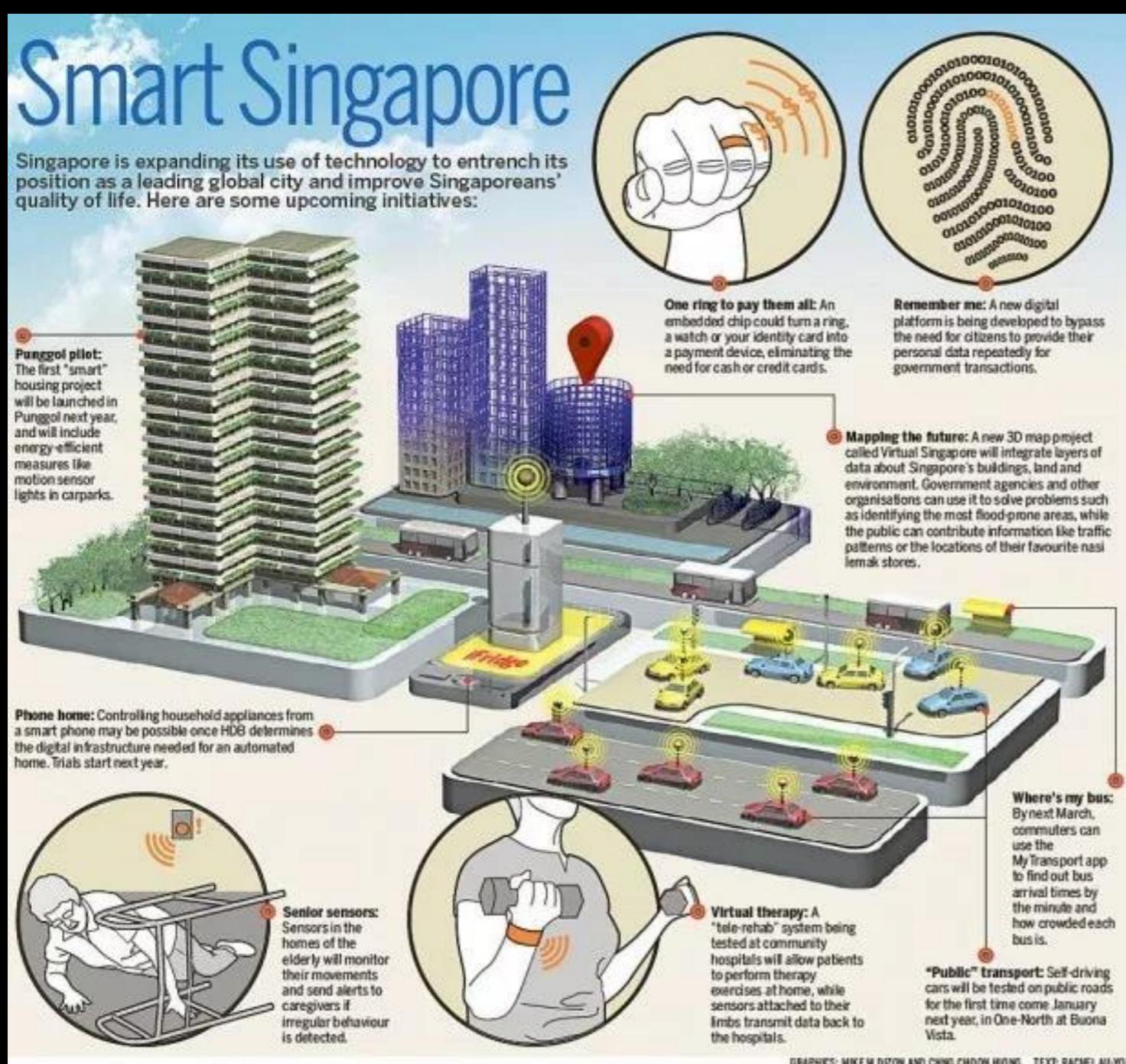
- How can we ensure that we **protect our creations** in the digital world?
- How can we ensure that we **do not infringe on IP** laws while using/distributing content online?
- What are some of your guiding principles?

What are some issues that arise with computing?

2) Internet of Things

widespread use of smart devices

Internet of Things

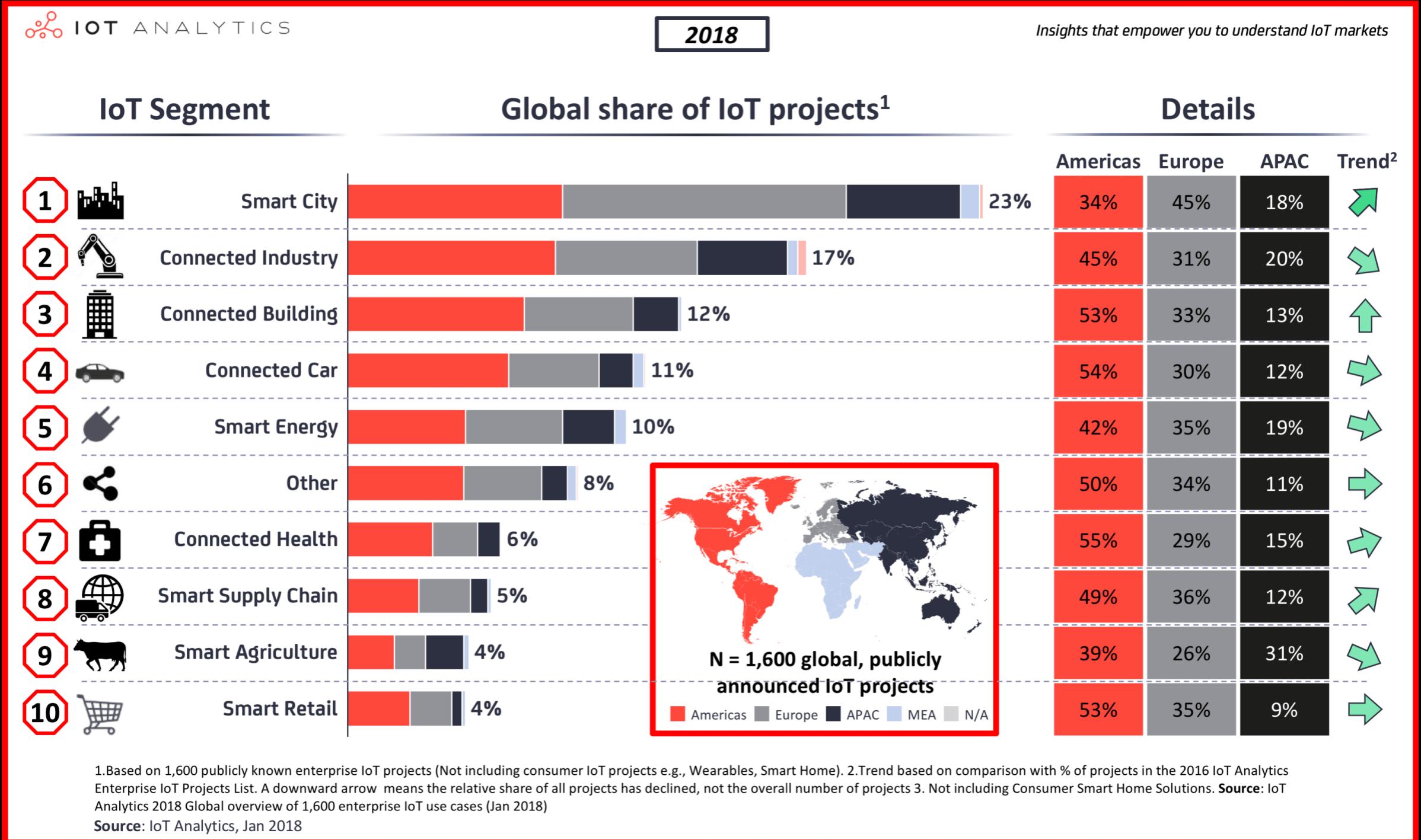


Unlike the infamous Skully helmet, the Argon Transform works with any helmet and won't cost you a bomb.

Singapore-based startup Whyre believes it has the perfect solution, and the result



Internet of Things- Trends



With massive amount of data transmitted over the network, what are some concerns you might have as a user of IoT devices?



Internet of Things-Threats



TECHNOLOGY

My baby monitor started a cyberattack? IoT industry suffering from security growth pains



By Kevin Kwang
@KevinKwangCNA

23 Jul 2018 06:15AM
(Updated: 23 Jul 2018 10:27AM)



Bookmark



Technology

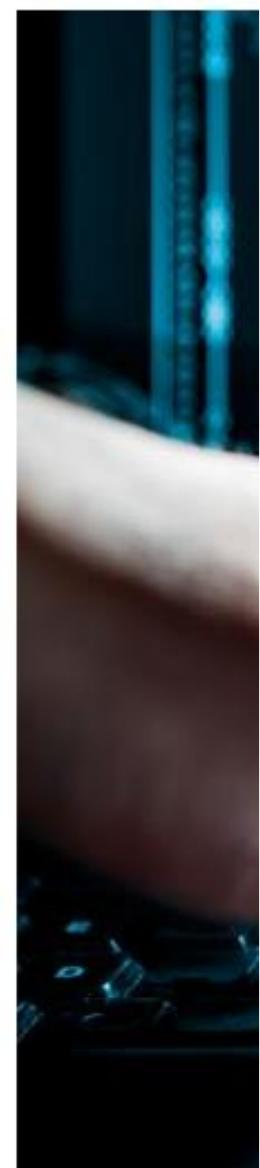
My baby monitor started a cyberattack? IoT industry suffering from security growth pains

There are currently no established Internet of Things security standards, and Singapore recognises that steps need to be taken to ensure minimum standards of protections in this space, says CSA.



BRANDED CONTENT

Decoding cyber threats



Every day, Mindef alone experiences hundreds of web exploitation attempts. These include cross site scripting (XSS) attacks, injection attacks, website defacements, or even intrusion attempts by Advanced Persistent Threats, which are more targeted in nature, and may be perpetrated by cyberwarfare agencies of foreign governments.

This is where the breakwater of DCO comes in. Even in peacetime, analysts like Ms Ong work tirelessly, standing steadfast against increasingly prevalent cyber threats.

“It is not an easy job,” says Ms Ong. “The heavy reliance that companies, government agencies and other organisations have on the Internet has given rise to new opportunities for malicious threat actors to exploit. And with every new technology, comes a new threat.”

The emergence of Internet of Things-enabled (IoT) devices opens up a whole new realm of vulnerabilities. For instance, in 2016, StarHub experienced a pair of outages that were eventually attributed to cyber attacks launched from customers’ compromised devices.

More recently, this past July saw the worst cyber attack in Singapore’s history, with the medical records of over 1.5 million Singaporeans compromised.

With the ever-changing nature of cyber threats, it takes highly trained cybersecurity specialists to try and cover every possible angle of attack.

Every day, the De

© PUBLISHED ON

Are smart devices helping or harming?

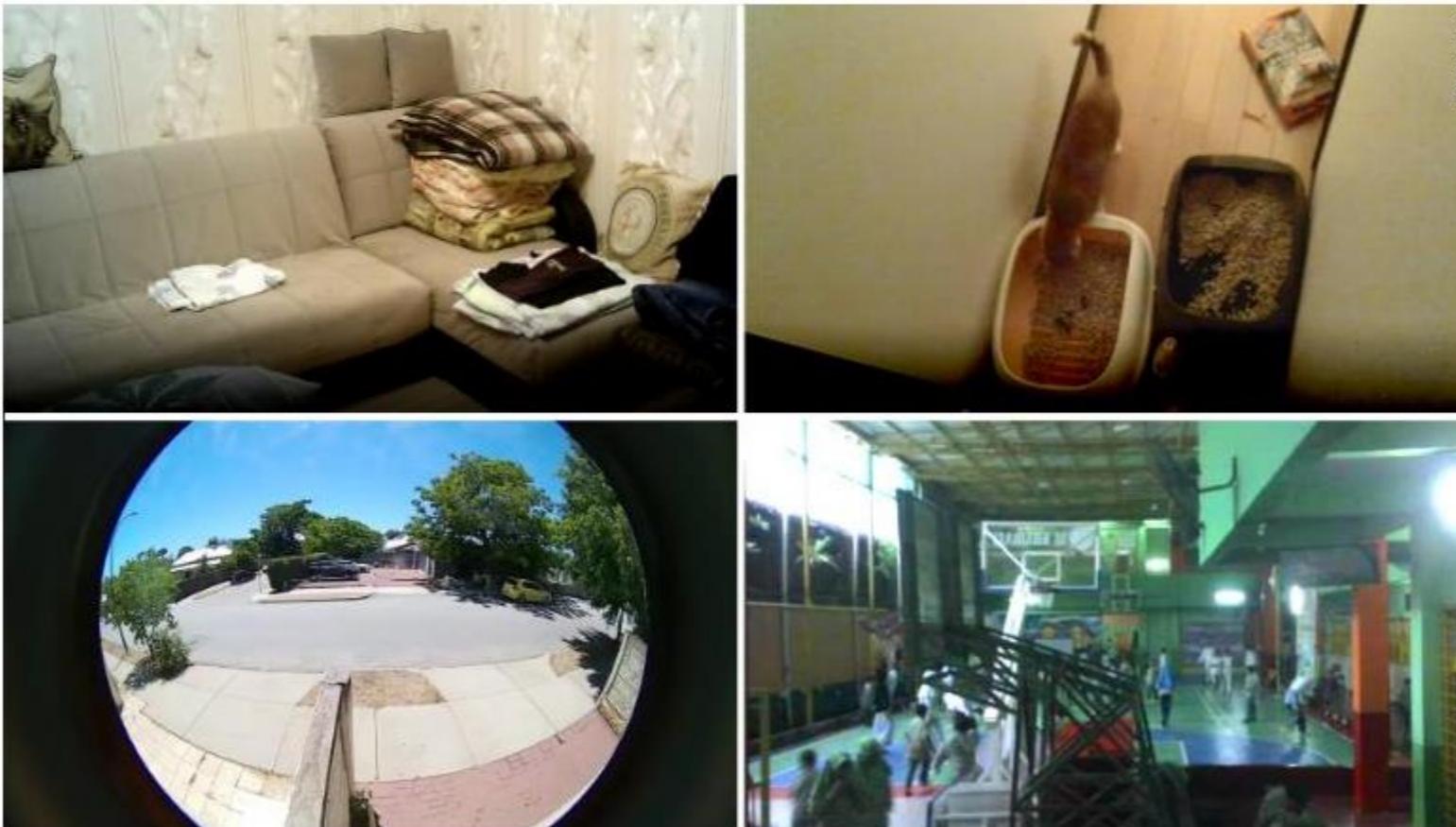
<https://www.youtube.com/watch?v=ipdTLJcIkWI>

'Internet of things' or 'vulnerability of everything'? Japan will hack its own citizens to find out



By **James Griffiths**, CNN

Updated 0259 GMT (1059 HKT) February 2, 2019



Screenshots from a series of internet-connected cameras accessed by CNN via the internet of things search engine Shodan. None of the cameras had any security checks.

News & buzz



US arms sold to Saudi Arabia and UAE end up in wrong hands



Holy cabbage! Couple grows giant vegetable

Ad ExpressVPN.com

The advertisement features several green and red icons: a speech bubble with a question mark and exclamation mark, a shield with a checkmark, a smartphone with a music note, a speedometer, a padlock, and a hexagonal code snippet. The text "ExpressVPN.com" is at the top right, and there are five stars above the icons.

Internet of Things

- How can we **safeguard ourselves** in this age of IoT?
- How can we use IoT in a **responsible** manner?
- What are some of your guiding principles?

What are some issues that arise with computing?

3) Info-media

creation, spread and use of data and content on digital platforms

Real or Fake?

Forwarded

Breaking News from CNN :-

Dr. Li Wenliang, China's hero doctor who was punished for telling the truth about Corona Virus and later died due to the same disease, had documented casefiles for research purposes and had in the casefiles proposed a cure that would significantly decrease the impact of the COVID - 19 Virus on the human body. The chemical **Methylxanthine, Theobromine** and **Theophylline** stimulate compounds that can ward off these virus in a human with atleast an average immune system. Whats more shocking is that these complex words that were so difficult for people in China to understand is actually called **Tea** in India, YES, our regular Tea has all these chemicals already in it. The main **Methylxanthine** in tea is the

Forwarded

SERIOUS EXCELLENT ADVICE by Japanese doctors treating COVID-19 cases. Everyone should ensure your mouth & throat is moist, **never DRY**. Take a few sips of water every 15 mins at least. WHY? Even if the virus gets into your mouth...drinking water or other liquids will WASH them down through your oesophagus and into the stomach. Once there in tummy...your stomach ACID will kill all the virus. If you don't drink enough water more regularly...the virus can enter your windpipes and into the LUNGS. That's very dangerous. Please remind everyone about this !

日本

Forwarded

From tomorrow onwards there are new communication regulations.

All calls are recorded

All phone call recordings saved

WhatsApp is monitored

Twitter is monitored

Facebook is monitored

All social media and forums are monitored

Inform those who do not know.

Your devices are connected to ministry systems.



The authority is very serious about it, they don't give any chance. At Ya Kun Compass1, 1 of their customers was fined \$300 for sitting in the X space. So don't sit on the tape with (/) or (X) ya. Same as queue up.

Forwarded

Information from patients recovering from the Hospital ...

Every day we are there:

1. Take Vit C-1000
 2. Vitamin E
 3. 10:00 - 11:00 sunlight for 15-20 minutes.
 4. Egg one item
 5. Take a rest /get a 7-8 hour min sleep
 6. Drink 1.5 L of water daily and every meal, should be warm not cold.
- That's what we do at the hospital.

This is to tell all of us that the pH for the coronary virus varies from 5.5 to 8.5

What we need to do, to defeat the coronary virus, is to consume more alkaline foods above the virus's pH level.

Some of them are:

- * Lemon - 9.9 pH
- * Lime - 8.2 pH

Good news, Wuhan's corona virus can be cured by one bowl of freshly boiled garlic water. Old Chinese doctor has proven it's efficacy. Many patients has also proven this to be effective. Eight (8) cloves of chopped garlic add seven (7) cups of water and bring to boil., Eat and drink the boiled garlic water, overnight improvement and healing. Glad to share this.

2:56 PM

Forwarded

All Singapore Citizens Entitled to withdraw \$2000 Dollars a one time payment from 1st April 20 due to the spread of COVID-19; Novel Coronavirus.

Read full article here on how to make claim:

<https://bit.ly/2vme6X>

1:216:56



By Chew Hui Min

Singapore

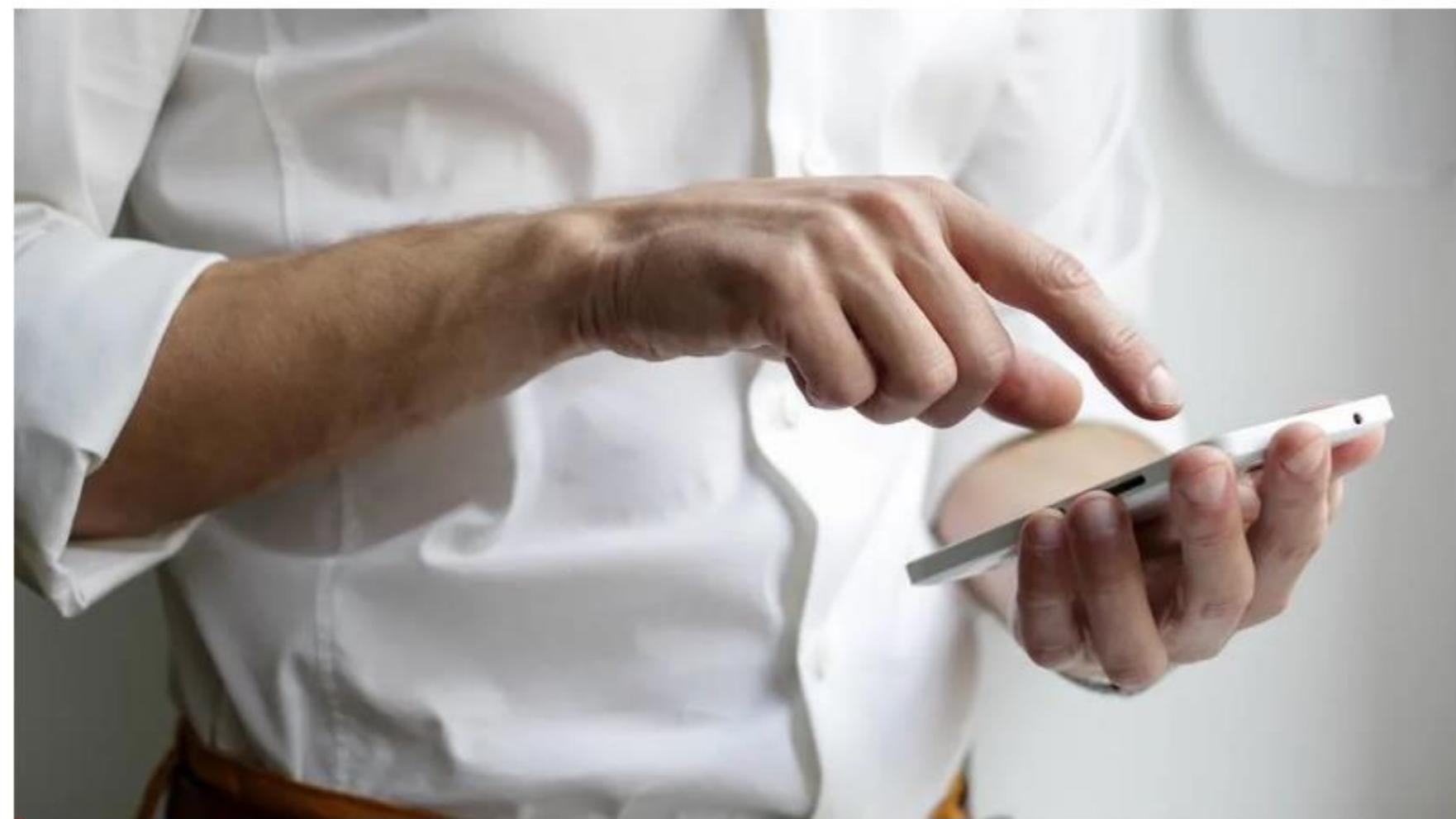
6 in 10 people in Singapore have received fake COVID-19 news, likely on social media: Survey

21 May 2020 06:50PM

(Updated: 21 May 2020 07:02PM)



Bookmark



(Photo: Unsplash/NordWood Themes)

Fake News

- Deliberate disinformation or hoaxes
- Spread via traditional news media or online social media.



Cyber propaganda

- Misuse, alteration and spread of biased content with political agenda
 - Disinformation campaign: Modern warfare?



How Fake News Fanned The Flames Of War in Ukraine |

The Truth About Fake News | CNA Inside



Singapore Fake News Laws: Guide to POFMA (Protection from Online Falsehoods and Manipulation Act)

Last updated on February 3, 2020



What is POFMA and What Does It Cover?

POFMA seeks to prevent the electronic communication of falsehoods (i.e. false statements of fact or misleading information), as well as to safeguard against the use of online platforms for the communication of such falsehoods.

POFMA also puts in place various measures to counteract the effects of such communication and to prevent the misuse of online accounts and bots (i.e. computer programmes that run automated tasks).

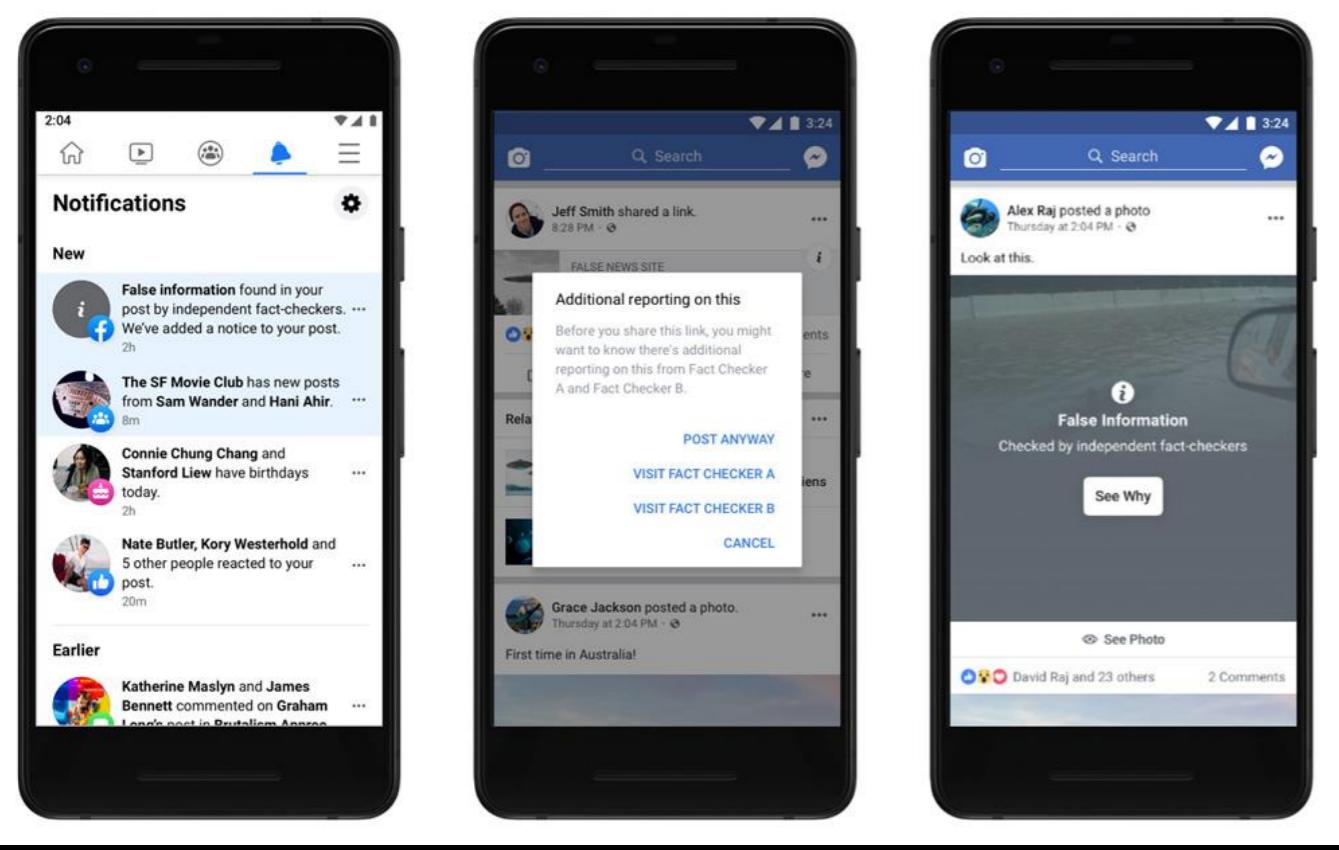
Why was POFMA implemented?

Fake news has been an ongoing phenomenon in Singapore. As early as 2007, a picture of “halal pork” allegedly being sold in FairPrice outlets island-wide went viral, forcing the supermarket chain to lodge a police report and assure customers that this was a falsehood.

Then in 2016, a hoax was widely shared about the alleged collapse of a roof at Punggol Waterway Terraces. This false news caused anxiety among residents, and led to the wastage of substantial resources, as grassroots leaders, police and Singapore Civil Defence Force personnel had rushed down to the scene over fears of mass casualties.

The POFMA was therefore implemented to tackle growing concerns over the scourge of fake news and misinformation, communicated particularly through various online and social media platforms.

Fact Checkers





Friday

22 May 2020

26 - 33 °C

24Hr PSI 56-64PSI

FACTUALLY

EXPLAINERS

ARTS
& CULTURE

DEFENCE
& SECURITY

E
&
MORE ▾

FEATURES

RESOURCES ▾

CONTACT

Q

Clarifications: Misinformation, rumours regarding COVID-19

Not sure, don't share.

11 min read | Published on 23 Apr 2020

Share : |



There have been a number of fake messages and unfounded rumours circulating related to the COVID-19 (Coronavirus Disease 2019).

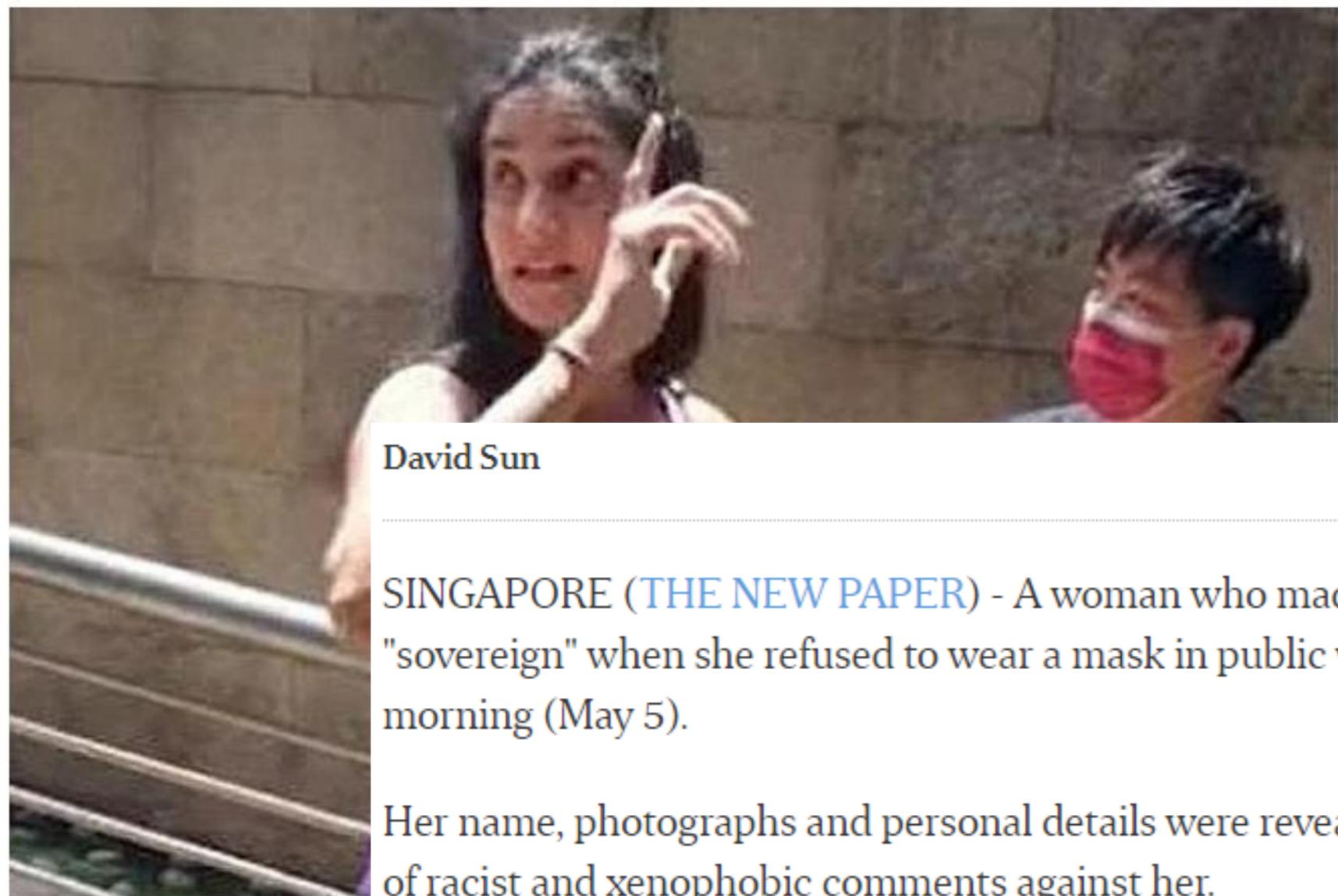
If you receive these messages or any other unsubstantiated information over WhatsApp or other online platforms, we urge you not to forward or circulate them. Remember, if you are not sure, don't share.

PART OF A SPECIAL FEATURE

**COVID-19
(Coronavirus
Disease 2019)**

THE HEALTH OF ALL

Doxxers wrongly identify tech CEO as 'sovereign' woman



David Sun

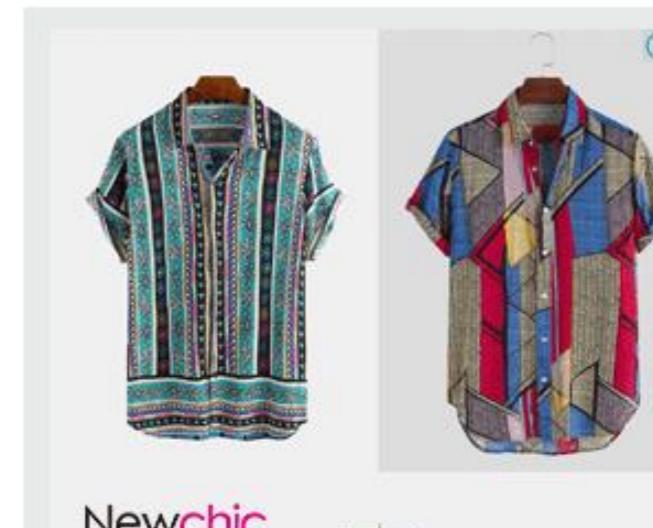
SINGAPORE (THE NEW PAPER) - A woman who made headlines after claiming to be a "sovereign" when she refused to wear a mask in public was apparently ousted on Tuesday morning (May 5).

Her name, photographs and personal details were revealed on social media, prompting a string of racist and xenophobic comments against her.

But in identifying her as the chief executive officer of a tech company, the doxxers had targeted an innocent party who was not involved in the incident at Shunfu Mart on Sunday.

Paramjeet Kaur was charged in court
LEONG/FACEBOOK

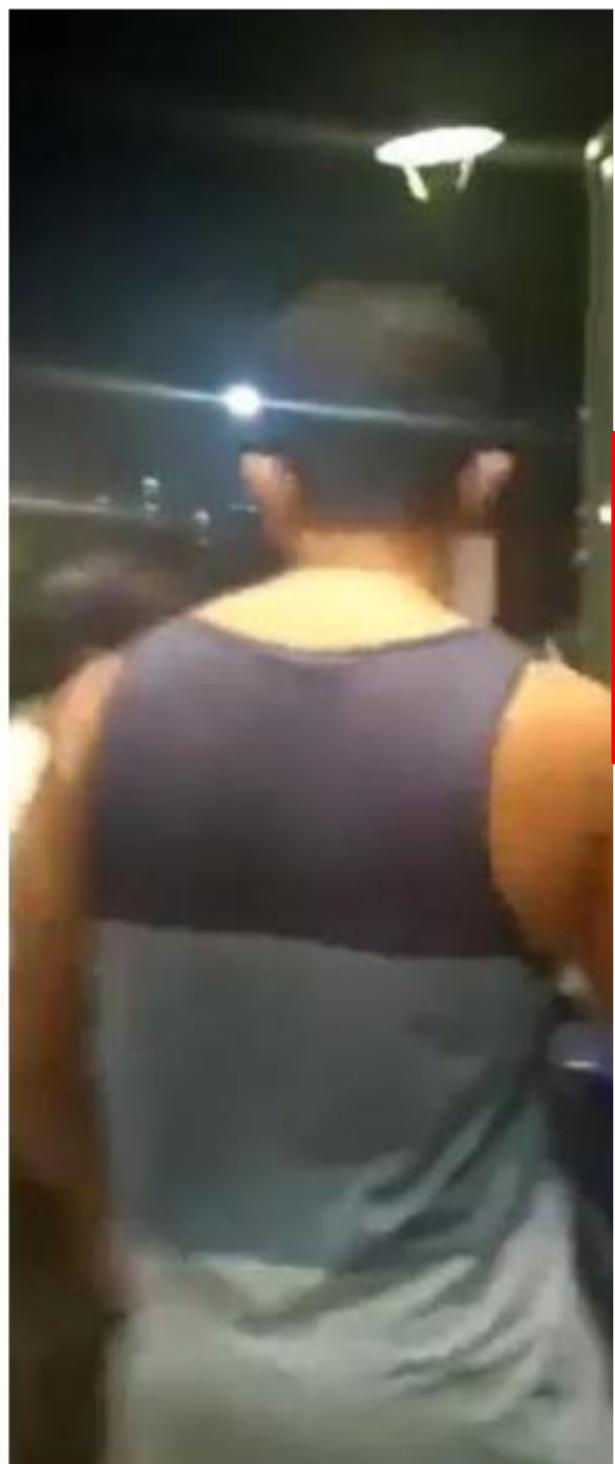
© PUBLISHED MAY 6, 2020, 1:00 F



Newchic

Condo resident, who verbally abused security guard, makes police report against harassment

By JANICE LIM



SINGAPORE — A police report against harassment was made by a condominium resident who was **filmed abusing a security guard** in a video that has gone viral.

In response to TODAY's queries, the police confirmed that the report has been filed by the resident. A separate police report was made by the security guard.

ADVERTISEMENT

In May, Parliament passed amendments to the Protection from Harassment Act, which made it a crime for online vigilantes to publish someone's personal information with the intention to harass, threaten or facilitate violence — an act known as doxxing. It is unclear if the amended laws have come into force. TODAY has sent a query to the authorities.

The video was first posted last Saturday (Oct 26) morning. It showed the resident of Eight Riversuites — who identified himself as Ramesh and is understood to be a Singapore citizen — having a dispute with the security guard over a condominium rule requiring guests who arrive after 11pm to pay for parking.

Since then, the video has been reposted and commented upon by many online users, including some who dug up personal information about the resident, based on his now-defunct LinkedIn profile, for example.

Many slammed his behaviour, while others called on his company, JP Morgan, to fire him. A petition urging the multinational investment bank to do so has gathered more than 18,000 signatures as of 10pm on Tuesday.

Protection from Harassment Act (POHA)

Examples of Doxxing

What is considered doxxing:	What is not considered doxxing:
Publishing abusive and insulting comments about a person's alleged sexual promiscuity and including that person's contact details and photos to allow others to contact him	Posting a video of reckless driving on an online forum with the intention to warn people to drive safely
Sharing a person's personal information on social media and asking others to "teach him a lesson"	Posting a video of a public dispute on social media in order to provide a factual account of the incident
Posting a person's personal information on an online forum where other users have called for that person to be identified, so that he can be attacked	Sharing a person's personal information with the authorities or emergency services so that necessary action can be taken
Posting a video of a public figure that includes his contact details, and asking others to threaten the person	Posting a video of a public figure where that person is being interviewed about publicly known facts

With massive amount of data
readily available on the
internet, what are the potential
concerns?

What are some concerns you
might have regarding the use
and disclosure of your
personal data on the web?



Facebook Privacy Scandal



Facebook could be fined billions of dollars following data breach of millions of users

Six million Coffee Meets Bagel dating app accounts hacked



What was acquired were app users' names and e-mail addresses prior to May last year, CMB said in its e-mail. The CMB accounts were on sale for 0.13 bitcoin on the Dark Web, The Register said.

Data is the new oil

Applications of big data:

- Behavioural analytics
- Smart advertising
- Profiling

- Optimization
 - Early detection of manufacturing issues
 - Yield Optimisation
 - Prediction models

- Machine Learning



In this age where data is one of the most valuable commodity, there is a need to safeguard and ensure that our data is not subjected to unauthorised access and misuse.

Personal Data and Privacy

<https://www.youtube.com/watch?v=jNTjFsEOeR4>

Personal Data Protection Act (PDPA)

https://www.pdpc.gov.sg/-/media/Files/PDPC/elearning_2017/index.html#/mod00pg01

The image shows a news article from SINGAPORE. The title of the article is "Privacy watchdog proposes mandatory notification for certain data breaches". It is written by Rachelle Lee. The article discusses proposed changes to the Personal Data Protection Act (PDPA) in Singapore, specifically regarding mandatory reporting of data breaches. The text states that the purpose is to give affected individuals the opportunity to take steps to protect themselves from the risks and impact of a data breach. The commission also aims to avoid overly onerous regulatory burdens and notification fatigue. The notifications will be mandatory only when there is a risk of impact or harm for the customers.

SINGAPORE: Singapore's privacy watchdog has announced proposed changes to the Personal Data Protection Act (PDPA), including the required reporting of certain data breaches to customers.

This is to "give affected individuals the opportunity to take steps to protect themselves from the risks and impact of a data breach", the Personal Data Protection Commission (PDPC) said in a press release on Thursday (Jul 27).

To avoid imposing "overly onerous regulatory burdens on organisations" or "inadvertently create notification fatigue for individuals", the commission proposes that the notifications be mandatory only when there is a risk of impact or harm for the customers.

Info-media and Computing

- How can we **discern** authentic facts from fake news?
- How can we **protect ourselves** from online harassment?
- How can we **safeguard** our personal data online?
- How can we use data online in a **responsible** manner?
- What are some of your guiding principles?

What are some issues that arise with computing?

4) Artificial Intelligence

use of artificial intelligence in daily lives

Artificial Intelligence

- **Artificial intelligence:** simulation of human intelligence processes by computer systems.
- These processes include **learning** (the acquisition of information and rules for using the information), **reasoning** (using rules to reach approximate or definite conclusions) and **self-correction**.
- Particular applications of AI include expert systems, speech recognition and machine vision.

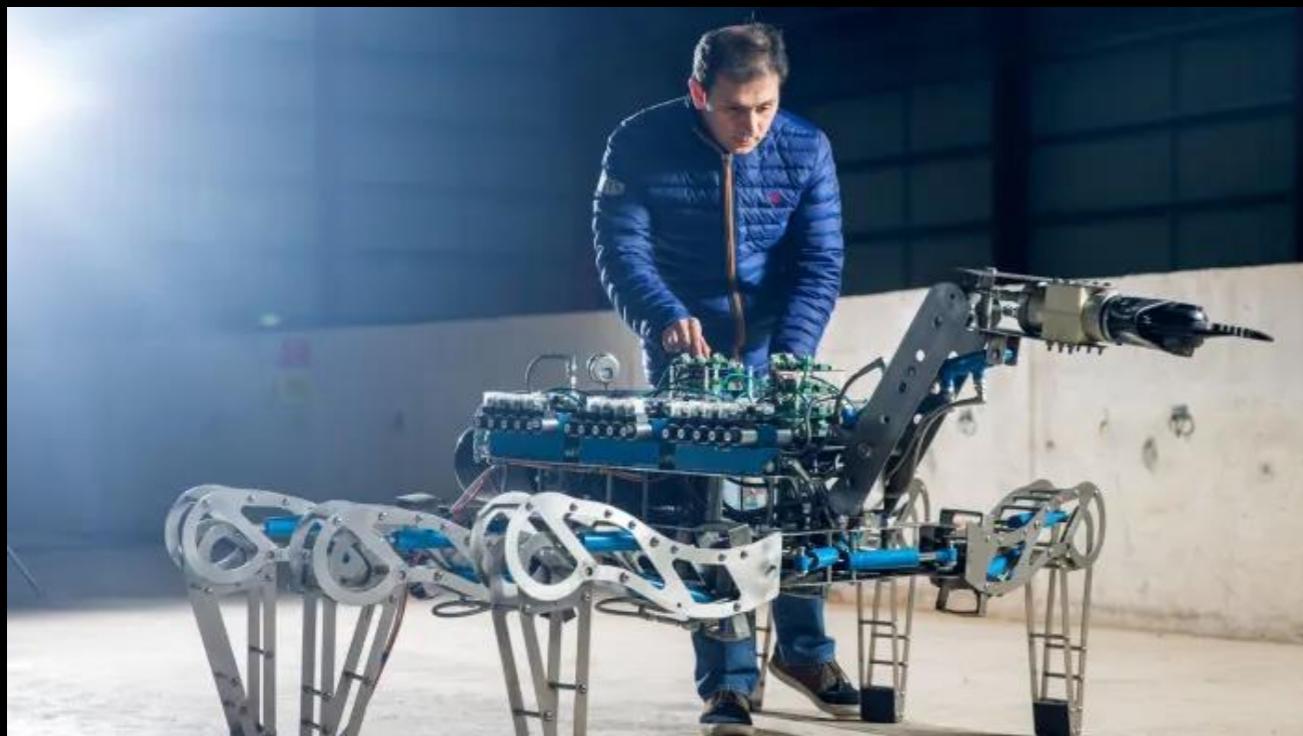
Humans need not apply

Luddite Horses

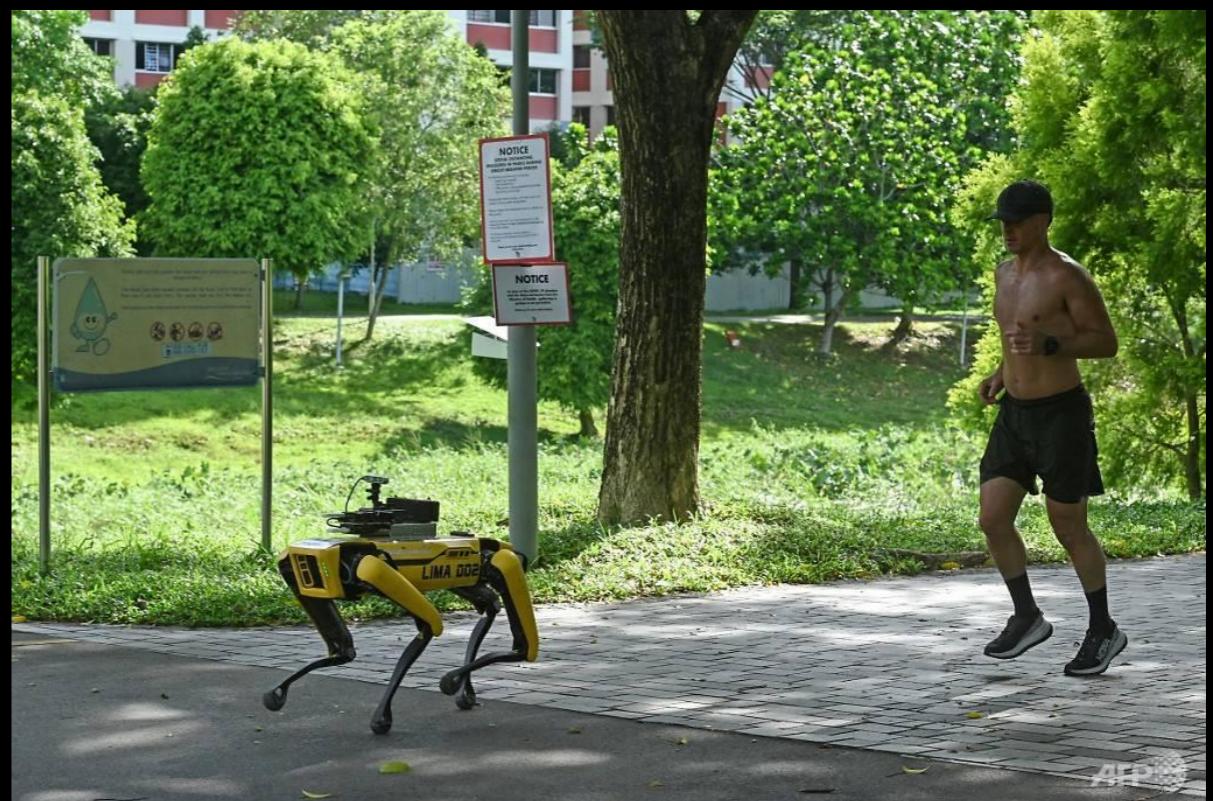
<https://www.youtube.com/watch?v=7Pq-S557XQU>

AI: friends or foes?

- Smart machines can come in handy in cases where there are manpower crunch
- It may also be beneficial when it takes on tasks that humans shun or deem too dangerous
- But what if your job can be completely replaced by AI?



Automation: AI replacing human



Getting AI to do your homework?



Marrying an AI?



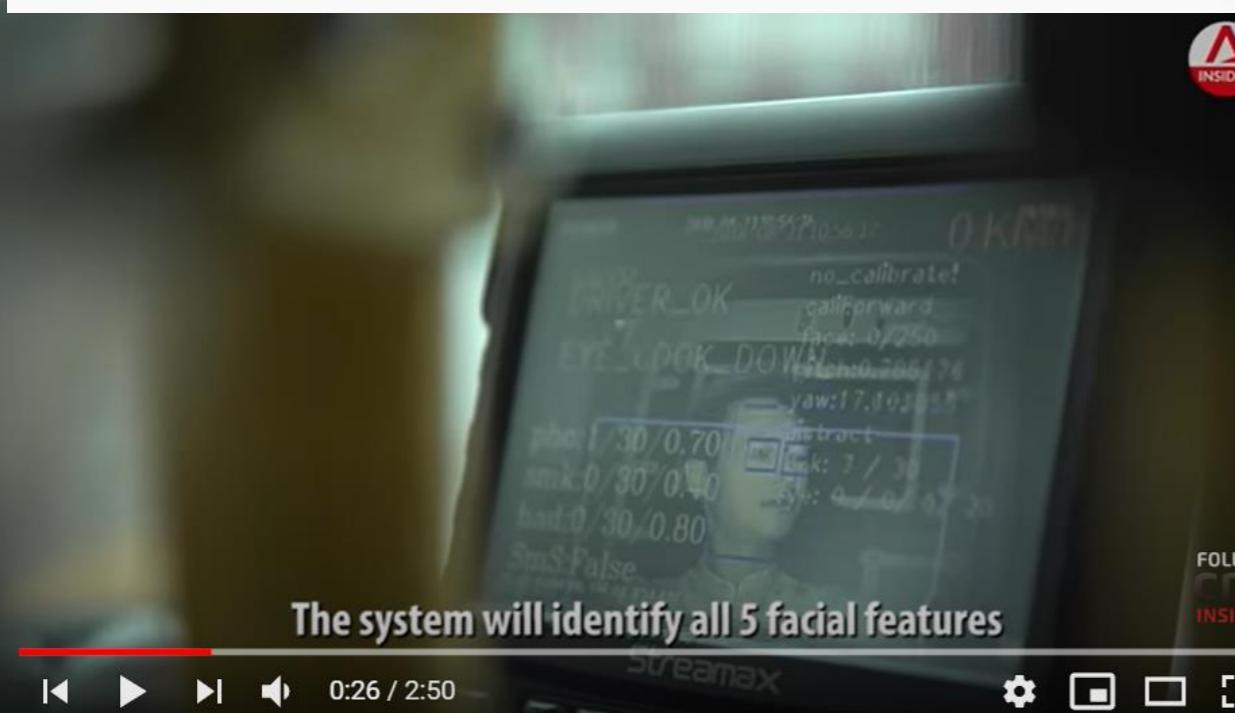
Facial Recognition: Surveillance vs Privacy



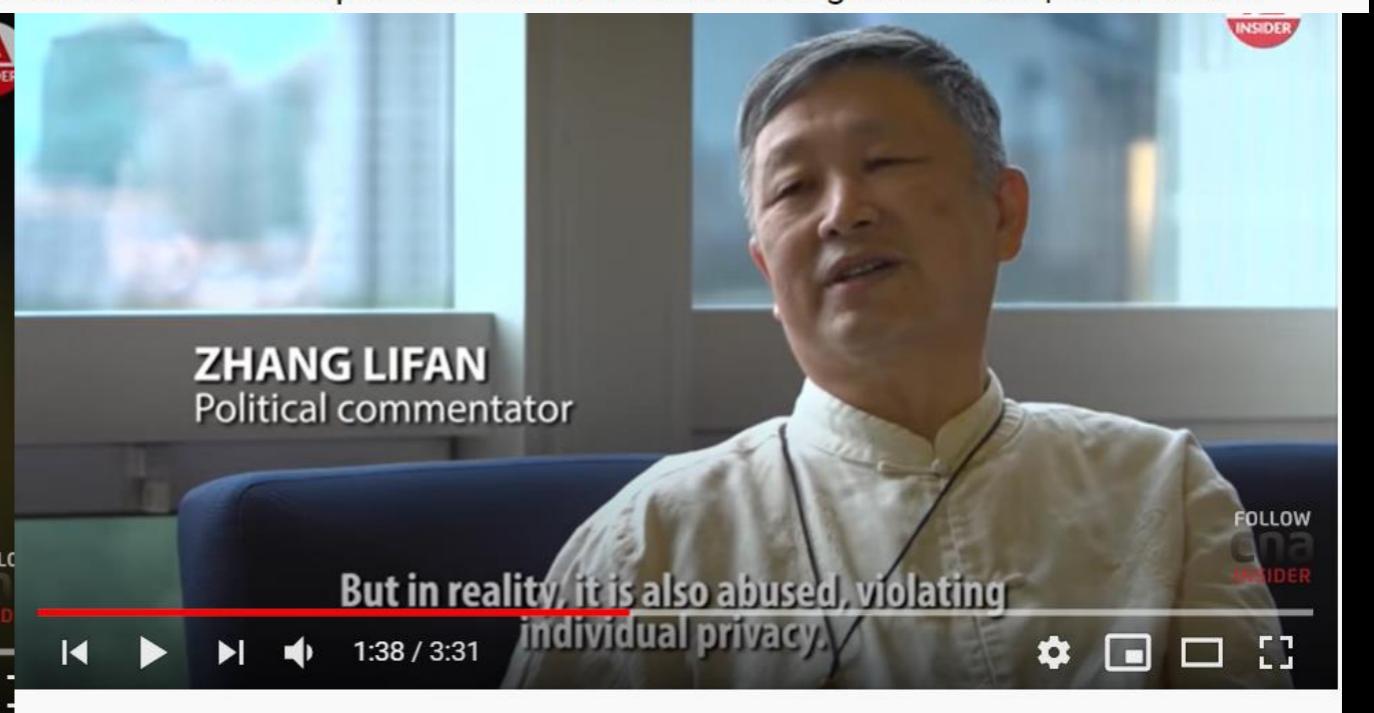
#PrisonBreak #CaptainofLives
Breaking Up Prison Fights With Artificial Intelligence



#10yearchallenge #WhyItMatters
China Foils Toilet Paper Thieves With Facial Recognition Tech | CNA Insider



Curbing Unsafe Bus Driver Habits In China, With Artificial Intelligence



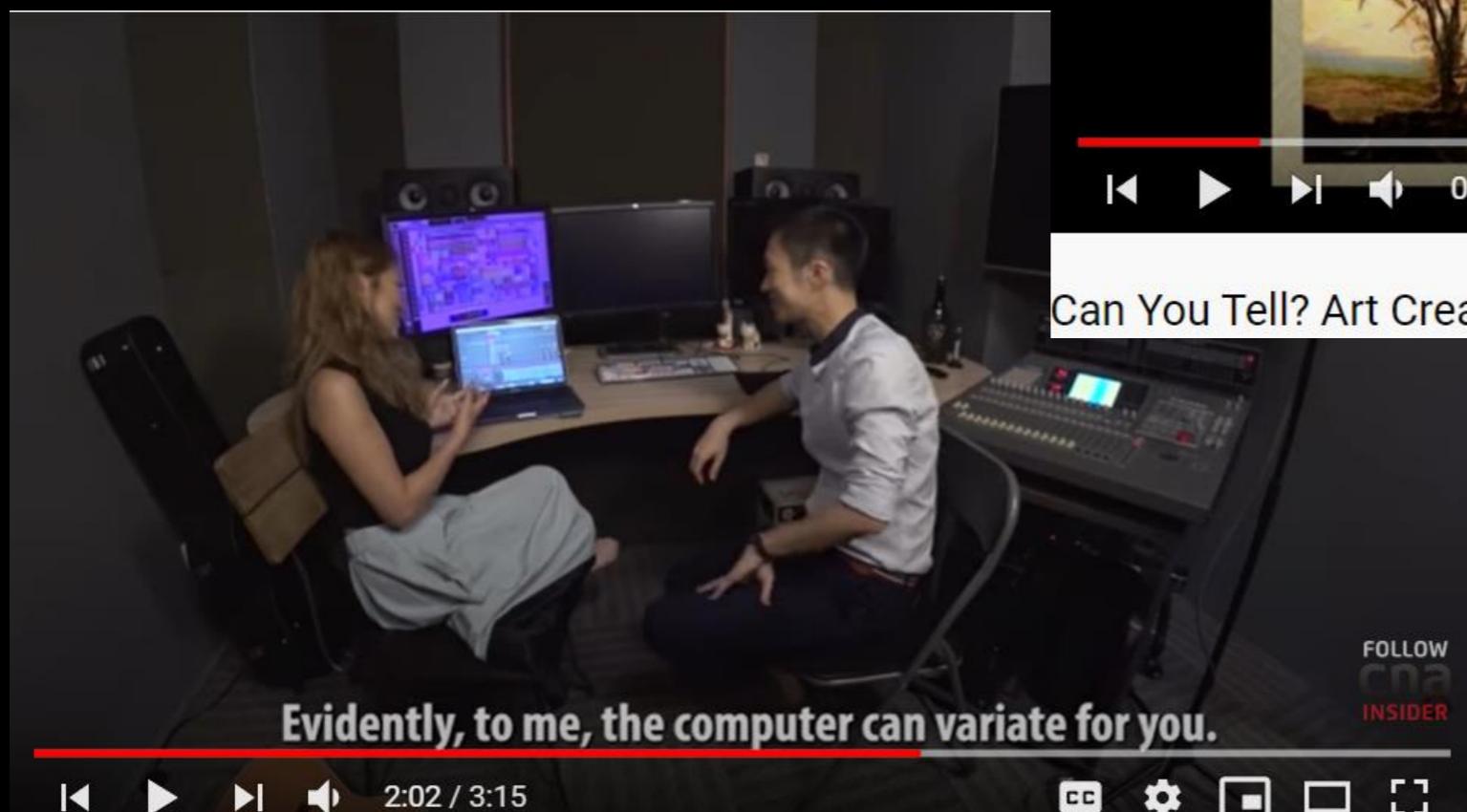
#WhyItMatters
We Try To Outwit China's 'Big Brother' Cameras

Man abducted as child in China reunited with family after 32 years, thanks to facial recognition



<https://www.straitstimes.com/asia/east-asia/man-abducted-as-child-in-china-reunited-with-family-after-32-years-thanks-to-facial>

Creativity no longer unique to humans?



FOLLOW
CNA
INSIDER

#nowplaying #robotmusic #newmusic

How Inch Chua Uses Artificial Intelligence To Write Her Latest Hits

IBM's AI takes on world-class debater in argument about preschool

KHARI JOHNSON @KHARIJOHNSON FEBRUARY 11, 2019 6:06 PM



Ad closed by Google

Above: Project Debater

Image Credit: Khari Johnson / VentureBeat

IBM's Project Debater, an AI system that can engage in live debate with humans, today faced off with 2016 World Debating Championship grand finalist and 2012 European Debate champion Harish Natarajan. The debate was about preschool subsidies, with Project Debater arguing in favor and Natarajan arguing against.

Biasness in Machine Learning

Three notable examples of AI bias

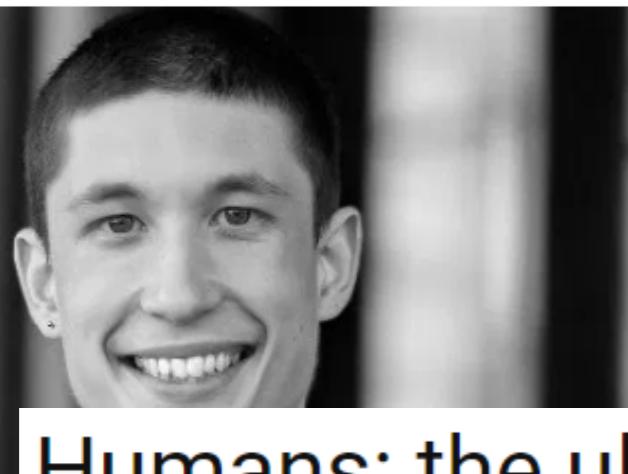
 Share

 Facebook

 Twitter

 LinkedIn

 Email



by **Michael McKenna, Toptal** 14 October 2019

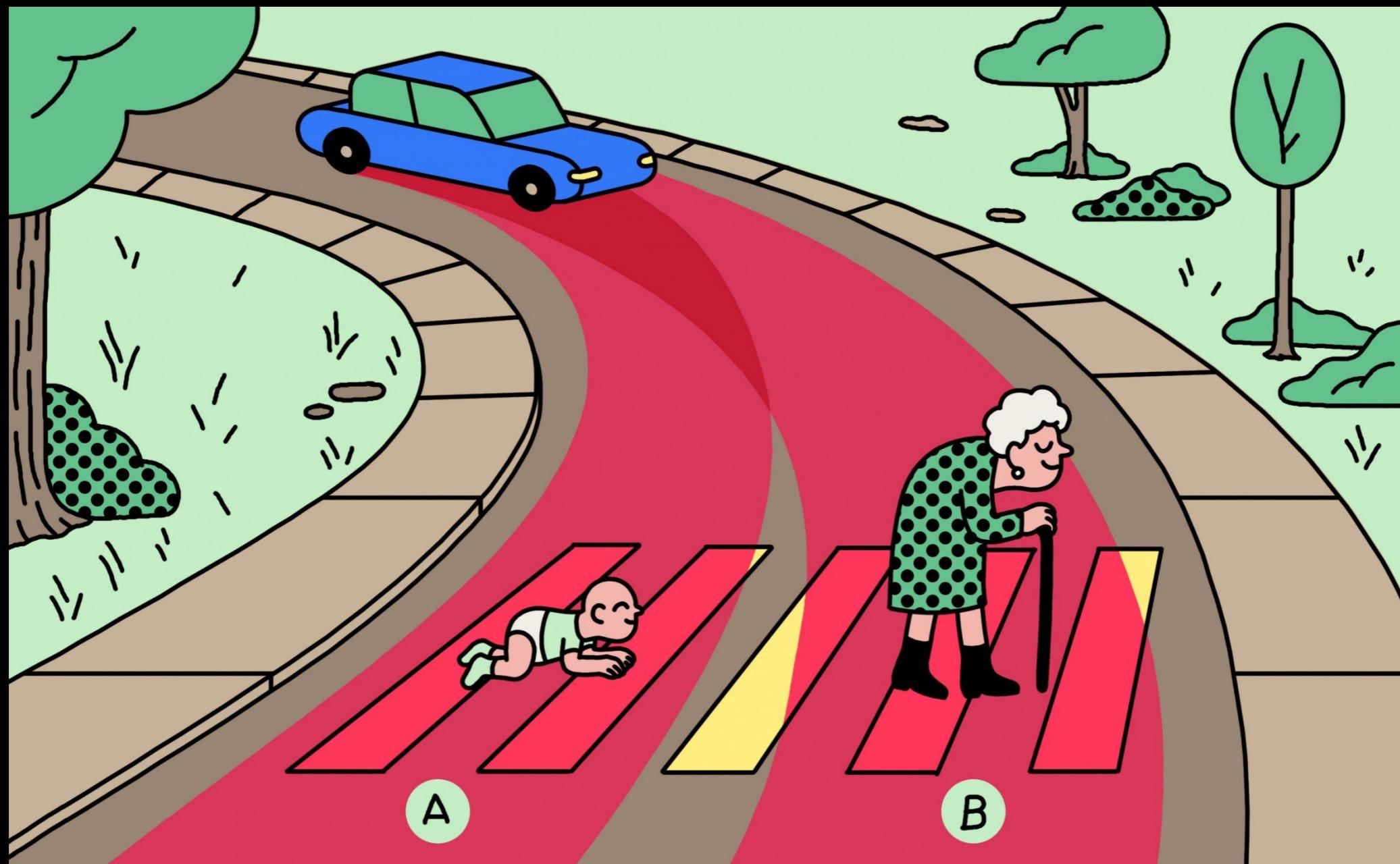
In 2016, the World Economic Forum claimed we are experiencing the fourth wave of the Industrial Revolution: automation using cyber-

Humans: the ultimate source of bias in machine learning

All models are made by humans and reflect human biases. Machine learning models can reflect the biases of organizational teams, of the designers in those teams, the data scientists who implement the models, and the data engineers that gather data. Naturally, they also reflect the bias inherent in the data itself. Just as we expect a level of trustworthiness from human decision-makers, we should expect and deliver a level of trustworthiness from our models.

Moral Machines

Should a self-driving car kill the baby or the grandma?



Issues with AI:

Over-reliance on AI in decision making

AI as machines that make moral decisions dealing with life and death

How do we make a moral decision?

Code biases

Inherent biases in algorithm

AI can be as bias as humans

Fighting biases in algorithm

Job loss?

AI replaces tasks, not jobs

Reliability of software

Our critical dependence on computing is increasing.

Machines are moving from taking over tasks to taking over decisions.

It's important to understand how we can improve the reliability of our software, avoid failures, be aware of biases we build into it, and make machines morally capable.

How can we ensure that we will not be replaced by AI?