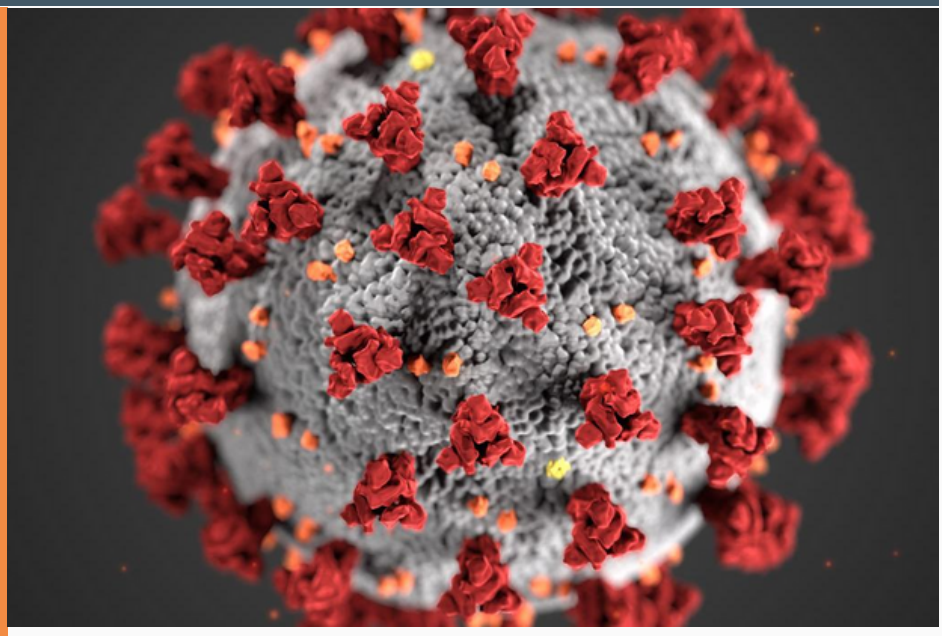
2020-21 | ISSUE 1

ASCII NEWS LETTER

ASSOCIATION OF STUDENTS OF COMPUTER SCIENCE FOR INFORMATION INTERCHANGE

WHAT'S INSIDE THIS ISSUE



Welcome!

The ASCII Club is launching the first issue of the academic year 2k20-21. Our aim is to make this newsletter a platform for all Computer Sciences students to share on, be it news, a story, a poem or even a joke! We look forward to your contributions over the many editions to come

Department of Computer Science and Engineering

Vision

To be acclaimed internationally for excellence in teaching and research in Computer Science & Engineering, and in fostering a culture of creativity and innovation to responsibly harness state-of-the-art technologies for societal needs.

Mission

Mission 1: To assist students in developing a strong foundation in Computer Science and Engineering by providing analytical, computational thinking and problem solving skills.

Mission 2: To inculcate entrepreneurial skills to develop solutions and products for interdisciplinary problems by cultivating curiosity, team spirit and spirit of innovation.

Mission 3: To provide opportunities for students to acquire knowledge of state-of-the-art in Computer Science and Engineering through industry internships, collaborative projects, and global exchange programmes with Institutions of international repute.

Mission 4: To develop life-long learning, ethics, moral values and spirit of service so as to contribute to the society through technology.

Mission 5: To be a premier research-intensive department by providing a stimulating environment for knowledge discovery and creation.

B.Tech Programme Educational Objectives (PEOs)

The Computer Science & Engineering Program graduates will

PEO1: Strive on a global platform to pursue their professional career in Computer Science and Engineering.

PEO2: Contribute to product development as entrepreneurs in inter disciplinary fields of engineering and technology.

PEO3: Demonstrate high regard for professionalism, integrity and respect values in diverse culture, and have a concern for society and environment.

B.Tech Programme Outcomes (PO's) and Programme Specific Outcomes (PSO's)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design and development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

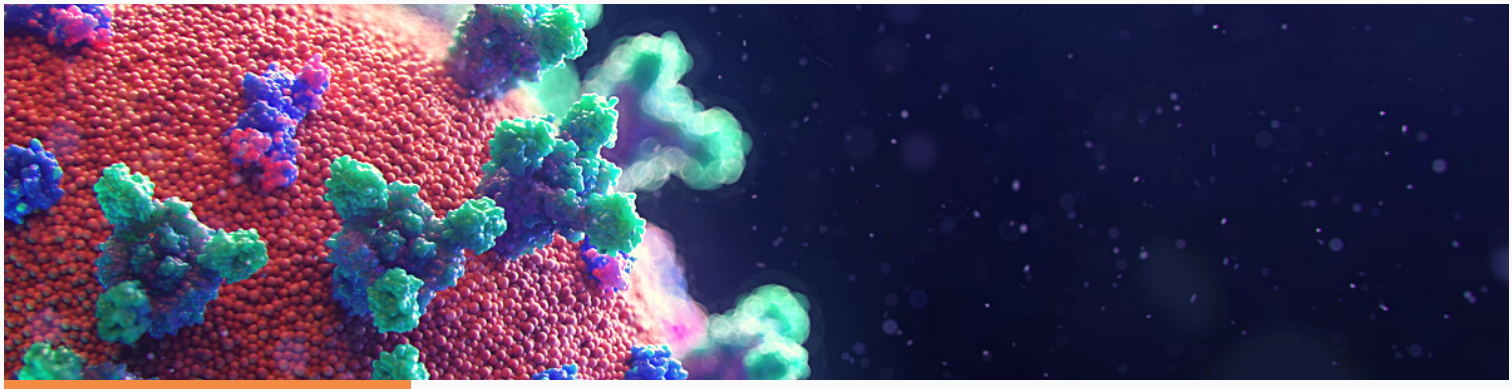
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSO1: Adopt Standard Practices: Ability to design and engineer, innovative, optimal and elegant computing solutions to interdisciplinary problems using standard practices, tools and technologies.

PSO2: Research and Innovation: Ability to learn emerging computing paradigms for research and innovation

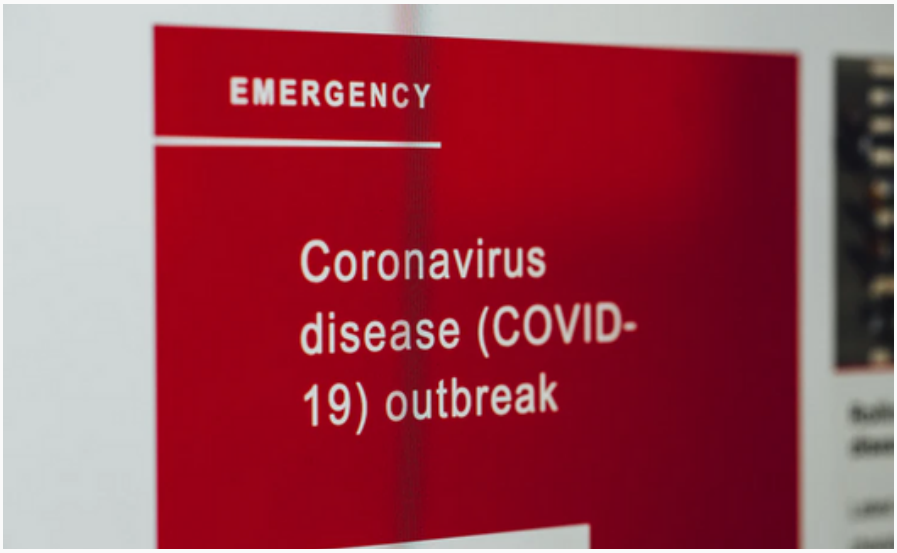


United we stand

BY NIRMAL K

When the WHO was notified that several citizens of the Chinese city of Wuhan were coming down with pneumonia from an unidentified virus, they were worried. Unidentified viruses are always a headache, their workings and effects on human beings being unknown. This one seemed especially potent, spreading like a wildfire and bringing an entire city to its knees within days of it being identified.

Named SARS-CoV2 and belonging to the family of coronaviruses, this virus causes the respiratory disease COVID-19 (Coronavirus disease - 2019). Starting out as a virus that primarily affected birds, the virus has gone on to infect over a million people (at the time of writing) and is still spreading worldwide. It has caused approximately 60,000 deaths (at the time of writing) and has brought the citizens of European nations and the USA turmoil.



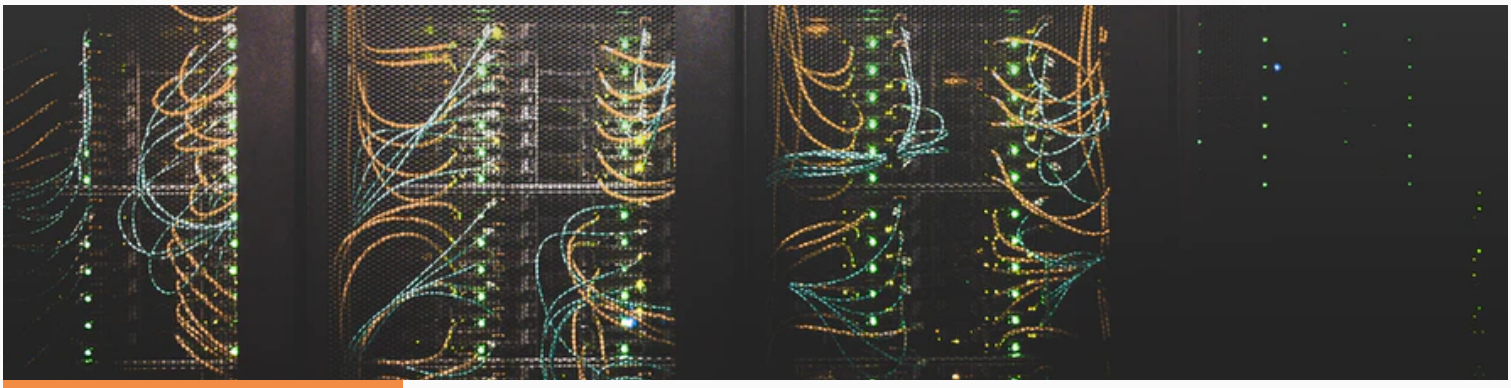
In this article, I'd like to talk about the concept of distributed computing and how it's helping in cure research for several diseases, including COVID-19.

Fact Files

Spanish Flu	: 5 million
Common Flu	: 290,000
SARS	: 774
H1N1	: 284,000
Ebola	: 11,325
COVID-19	: 123,481

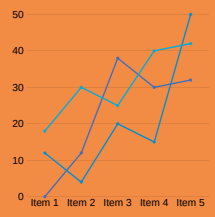
The number of deaths caused by the most popular viruses to date

(AS OF 14 APRIL)



Fact files

1375 TB



The supercomputer Tianhe-2 has the highest amount of system memory, totaling to 1373 TB - 1.37PB.

DISTRIBUTED COMPUTING

Imagine a supercomputer. It usually plays host to a very large number of processors, either with a vast pool of shared memory or sometimes with individual memory modules. It will emit enough heat to damage components when stacked close to each other, making extensive cooling a necessity. They occupy a lot of room and consume a lot of power. Such computers are extremely costly to construct and maintain. For example, the K Computer is a water-cooled supercomputer, with 80,128 processors each with eight cores, contained in 864 cabinets. Every processor is accompanied by 16 GB of Random Access Memory. This computer uses up 10 MW and costs around 76 crores annually to run and maintain.

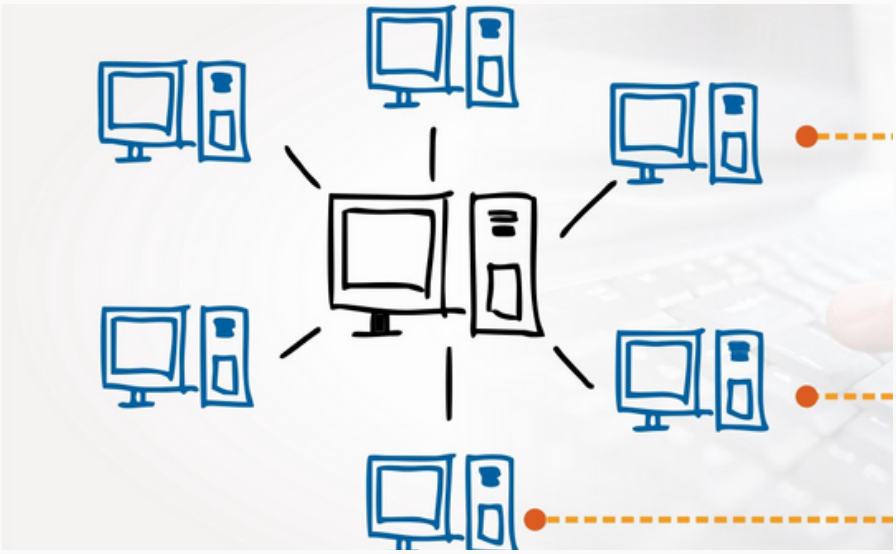
An alternative to this model of computing is distributed computing. This can mean both computers that are in the same place, networked to each other and functioning as a system and computers that are spread over different geographical regions and networked to form a system. This model offers obvious benefits, in the form of reduced running costs and improved scalability. It is also redundant, as individual machines can be taken down for maintenance and replaced easily. Different machines can run on different Operating Systems as long as there exists software that achieves distributed computing on these Operating Systems.

Distributed Computing

A distributed system is a collection of independent computers that appears to its users as a single coherent system

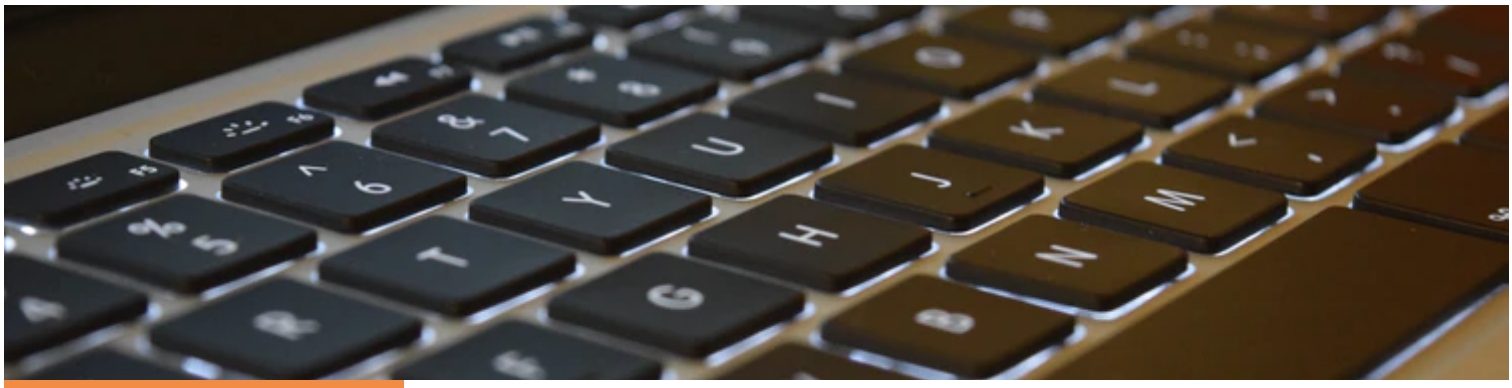
DISTRIBUTED COMPUTING

It is the technique of splitting an enormous task, of which no single computer is capable of practically executing on its own, into many smaller tasks, each of which can fit into a single household machine. You split your huge task into many smaller ones, have them execute on many machines in parallel, aggregate the data appropriately and you have solved your initial problem. Significant programming headaches arise here, as the independent nodes all have different performance parameters. However, it also offers opportunities, as small tasks that can be easily completed can be run on low powered machines, instead of underutilising high- power hardware as would be the case in supercomputers.



HOW DO COMPUTERS COME INTO PLAY?

The world of technology has been instrumental in the mitigation and cure research for the pandemic. Robots and drones are being employed to deliver medicines and essentials as a part of contactless delivery in quarantined locations. In China, sensors are being developed to identify people with elevated temperatures and to identify them using face recognition. Computers are being used to generate models to study social dynamics, effects of temperature on the virus, and to study characteristics of the virus. As isolating and working with the actual virus strain is difficult and dangerous, simulation of the virus makes it safer and easier for researchers.



Fact files

In 2007, the FAH project won a Guinness World record for being the most powerful distributed computing system in the world.

To understand the working of the virus, the moving parts of the proteins that make up the virus have to be understood. This is where computer simulations come in, as these observations are inaccessible in any other way. Vaccines involve finding chemical components that attach themselves to these moving parts and hence stop the viruses from being able to interact with human bodies. An entity, by the name of 'Folding @ Home', is taking a unique approach toward doing this.

Folding@home (FAH or F@h) is a distributed computing project aiming to simulate the behaviour of proteins' interaction with other chemicals. Its initial focus was on protein folding but has shifted to more biomedical problems, such as the Alzheimer's disease, cancer, COVID-19, and Ebola. The project uses the idle processing resources of personal computers owned by volunteers who have installed the software on their systems. This has been going on for a really long time, having started in the year 2000. They contribute to the research community in a big way, opensourcing all the datasets they use and the results they get. As of now, 223 papers have been published in approved journals using the results obtained from the FAH project. It was started in a lab of the Stanford University and is now being led by Dr. Greg Bowman of Washington University.

Fun tweet

With our collective power, we are now at ~2.4 exaFLOPS (faster than the top 500 supercomputers combined)! We complement supercomputers like IBM Summit, which runs short calculations using 1000s of GPUs at once, by spreading longer calculations around the world in smaller chunks!

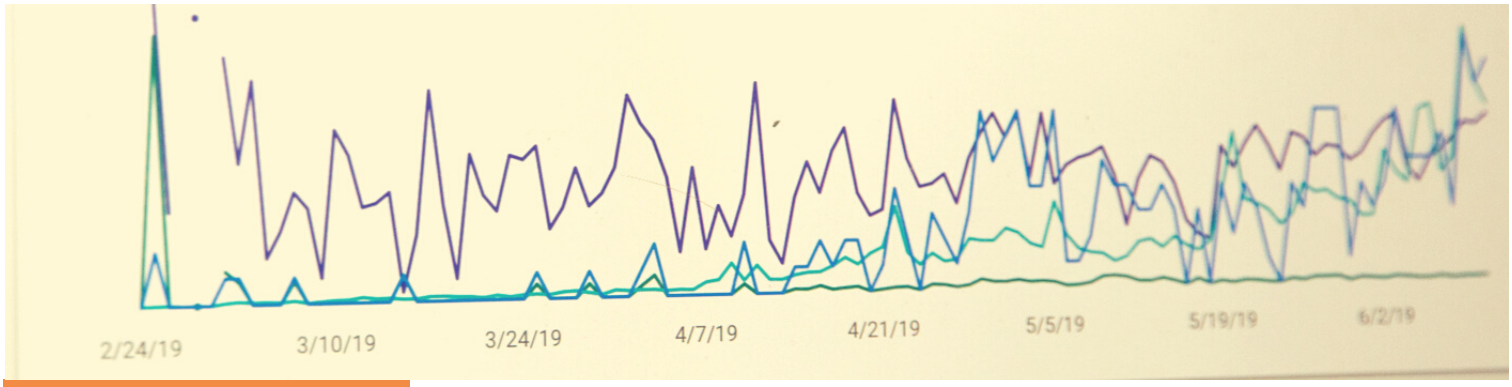
- folding@home

SO HOW CAN I HELP?

Any interested user with a computer can install the Folding @ Home software on their device. The server will send pieces of a simulation for the device to work on, collect pieces from all the connected devices and then compile it into a complete result. This approach has led to the project being listed as one of the world's fastest computing systems. In fact, with heightened interest during the pandemic, FAH has become the first exaFLOP (billion billion calculations per second) computing system in the world.

There's no guarantee that these protein-folding simulations will lead to an effective treatment or medication, but contributing your spare computing cycles is one of the only practical ways to help with the coronavirus outbreak for the average person. They offer ways and means for medical researchers to analyse the virus and understand its interaction with the world.

To know more, visit:
https://foldingathome.org/covid19/.



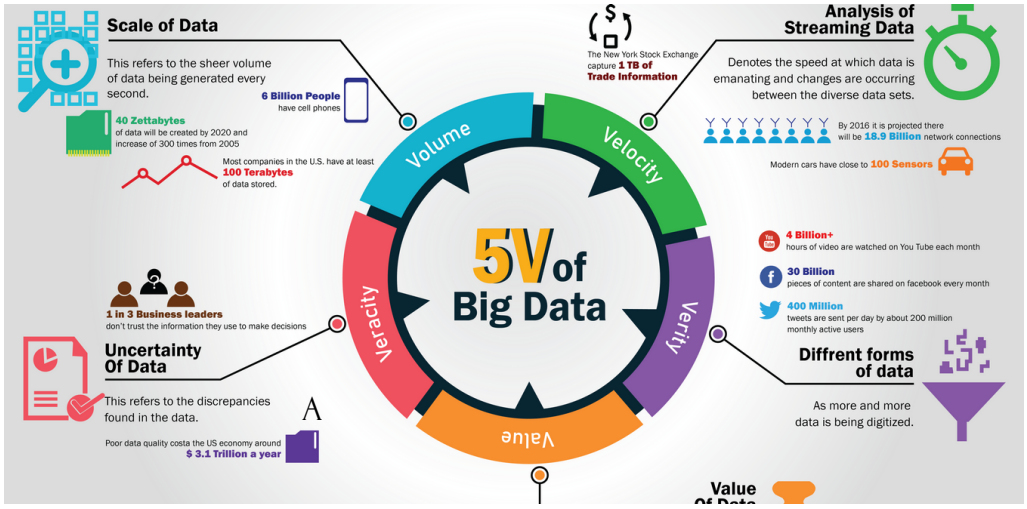
Ocean Of Data

BY SAIPADMESH

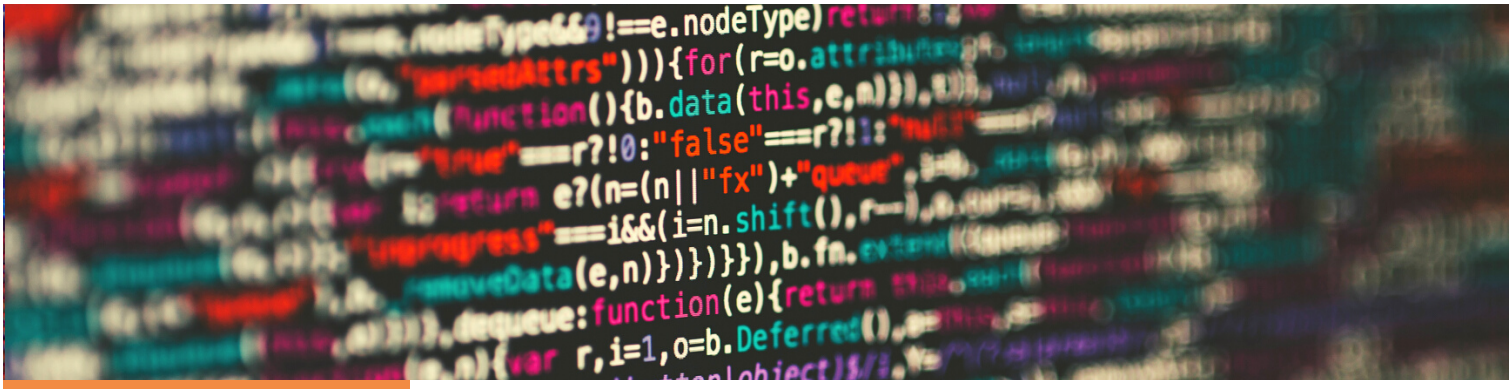
Computers are a magnificent feat of technology. They have grown from simple calculators to machines with many functions and abilities. With the progression of time, computers have become smaller in size with drastic increases in computing capacity. They have become so common that almost every home most definitely has one or more. The word 'computer' is now not just limited to desktops and laptops. Smartphones, smart watches, and other automated home devices are mini computers on their own.

Big Data

Big data refers to the large, diverse sets of information that grow at ever-increasing rates. It encompasses the volume of information, the speed at which it is created and collected, and the variety or scope of the data points being covered.



The rise of new computer systems and the increase in the total number of users all over the world poses a huge problem, the problem of data transmission. The volume of data generated by all the various sources like business transactions, social media, and IoT devices is humongous and needs to be processed by companies using non-traditional methods in order to get any valuable information. Also, data comes in many different formats - structured, numeric data in traditional databases to unstructured text documents, emails, videos, audios, stock ticker data and financial transactions. All this data is collectively known as "Big Data". Big data processing necessitates advanced machinery like supercomputers or entirely new paradigms like distributive computing.



Fact files

Every second, we create new data. For example, we perform

40,000

search queries every second!!

BIG DATA IN WUHAN

With China being the most populated country in the world and with Wuhan being home to a significant chunk of this population, coronavirus should have brought the city to its knees, being more virulent than known viruses. However, the city was able to escape the wrath of this virus. This, with Wuhan being China's ninth most populous country, is something to wonder. So how was the government able to control the spread of corona virus? The feeling of solidarity instilled in people and the strict Government rules did help a lot, but the importance of technology and big data in curbing the virus cannot be ignored.

China is well advanced in terms of technology. Security cameras cover every road and every alley. As the threat of corona virus became imminent, thermal scanners placed in front of every grocery store and every metro station helped in identifying people with higher than normal temperature. If a high temperature is sensed, that person is detained by health officials to undergo coronavirus testing. If the test results are positive, authorities alert every other passenger who may have been exposed to the virus to self-quarantine.

"The world is one big data problem."

ANDREW MCAFEE

The government has multiple ways to detect people who has a high probability of being infected by the virus. The Chinese Government owned version of WhatsApp - WeChat, is not just a means of communication but is also a wallet that features online money transfer, among other things. In Yunnan province, authorities require all residents to scan a QR code through WeChat, that automatically uploads their names and contact information, when they enter and leave any public place. Combine that with the high image processing capability of the security cameras, and the government has enough data sets to figure out the travel history of a person for 14 days.

The government also rolled out a platform called Close Contact Detector. This platform is simple: You register with your phone number and put in your name and ID number. It then runs an algorithm with the big data sets mentioned above to see if you have worked, lived, or traveled with a person confirmed or suspected to have the virus within the last two weeks. Big data analytics has thus played a major role in reducing the spread of the virus through contact.

Fact files

Today it would take a person approximately

181 Million

years to download all the data from the internet.

HOW ETHICAL IS IT?

Big data has proved advantageous in these tough times, but for all its advantages, it is something of a double-edged sword. As the amount of data grows, personal privacy shrinks. This simple relationship is actually the basis for a very complex discussion.

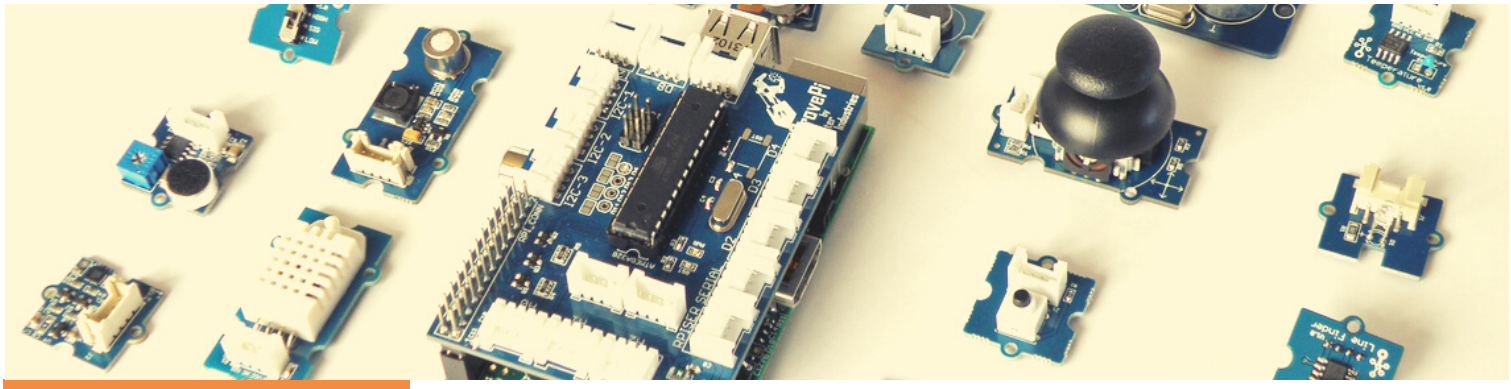
For the past several years, the amount of personal information available on the internet has exploded. Browser history, chat records, GPS location, traces of bank transactions etc are all threats to personal privacy. Add to that the private information that people willingly share on sites like Instagram and Facebook, and many believe that personal privacy is a joke.

In China, the platforms introduced by the government are beneficial now, but consider this. Every single person in China is being constantly monitored. Anyone who even tries to rebel against the government is duly arrested without question. Freedom of press is dead and replacement apps of Google, WhatsApp etc. ensure that the outside world doesn't know what exactly is going on. As Captain America said, "This isn't freedom. This is fear."

It all boils down to one moral question. Is personal privacy a necessary sacrifice to ensure safety and to enforce law and order in a country? That is for you to decide.

References:

1. https://www.sas.com/en_us/insights/big-data/what-is-big-data.html
2. https://www.abacusnews.com/tech/how-big-data-helps-china-track-coronavirus-and-its-people/article/3050507



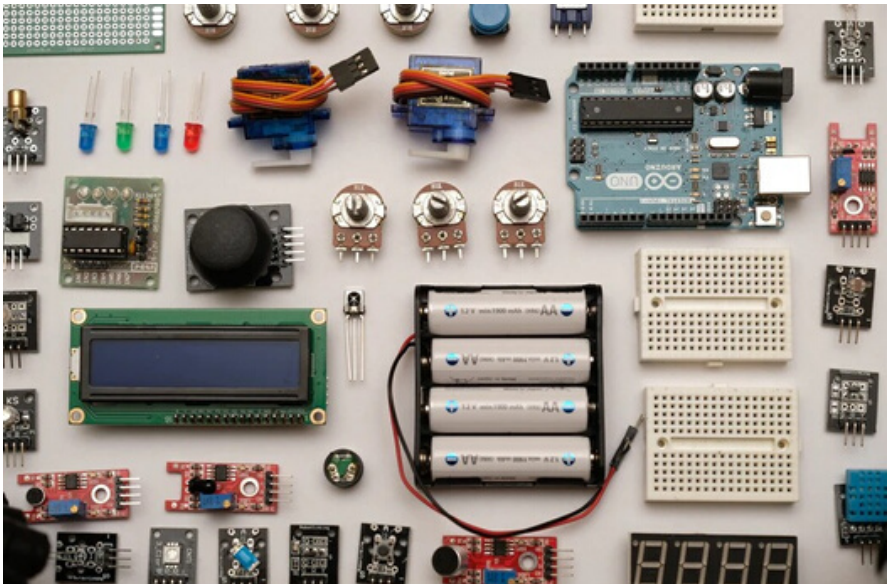
Drones and Sensors- The Cool Stuff

BY SRESHTA AND SUDEEPTHI

Sensor

A sensor is a device, module, machine, or subsystem whose purpose is to detect events or changes in its environment and send the information to other electronics, frequently a computer processor.

While clinical tests are being used in hospitals to confirm coronavirus cases, sensors are playing a key role in monitoring the general public at key locations and in locations where there are large clusters of people. These sensors revolve around remote temperature detection, using infrared waves to measure the temperature of the person or of a group of people.



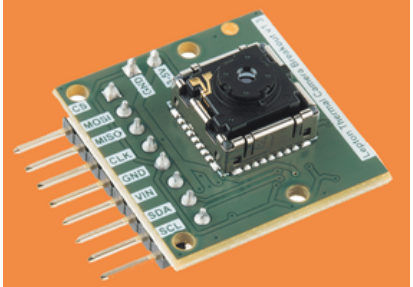
INFRARED WAVE SENSORS

Infrared wave sensors are employed in Non-Contact Infrared Thermometers. These sensors are non-invasive, relatively inexpensive and can be used from a distance. They work by detecting the infrared waves which are given off by the human body. The higher a person's temperature is, the higher the number of infrared waves they will emit. Internal calibrations from the detector can then convert the concentration of infrared waves into electricity via a thermo-pile, giving a readout of temperature in the process. The forehead is typically chosen as the location for checking temperature.

INFRARED SPOT SENSORS

The Infrared spot sensors operate on a one-to-one basis. Rather than scanning an entire crowd, this setup scans one person at a time. It is to be pointed at the forehead of the person to be screened. It performs skin temperature scanning with an accuracy of ±0.5°C with additional compensation based on ambient temperature to improve the sensor's accuracy and to reduce drifting.The Infrared spot sensors work by capturing the emitted infrared radiation within its field of view of 10°. At a distance of 10cm / 4in it will return the average temperature of a surface accurately.

THERMAL SENSOR ALONG WITH RASPBERRY PI



Researchers at UMass, Amherst have created FluSense, a piece of equipment comprising of a cheap microphone array, a thermal sensor, an Intel Movidius 2 neural computing engine, and a Raspberry Pi. FluSense monitors crowd sounds to forecast outbreaks of the COVID-19 pandemic. The device can distinguish coughing from other sounds. When cough data is combined with information about the size of the crowd in a location, it can provide an index predicting how many people are likely to be experiencing virus symptoms.

It has been successfully tested in four health clinic waiting rooms to date and the creators are working on strengthening the device's capabilities. These devices are designed to measure the temperature of the person without having to be in direct contact with the person being scanned.

DRONES

The Indian government has been utilizing this technology to a great extent. The Karimnagar Commissioner of Police, Telangana has used drones to ensure effective implementation of lockdown in the town."Marut drones" were invented with the aim to kill mosquitoes by spraying insecticides at places. Now, the Governments of several Indian states, like Gujarat, Telangana and Delhi, are using these Marut drones for disinfectant spraying, monitoring places and people, for supplying medicines and other purposes. The Chinese government has also used these drones to spray disinfectants as coronavirus is communicable it is transmitted via respiratory droplets and can also spread by touching contaminated areas. So this disinfectant spray helps reduce transmission.

Drones and sensors are a fairly recent addition to our tech arsenal. They're still in development and new applications are being found everyday. With data analytics and artificial intelligence growing at the rate they're growing now, in the future, we might stand to witness bots that receive input from the environment and act immediately on it. It's a very large market too, with not a lot of major players in it. More than 100000+ jobs are expected to open up in the UAV sector. With drones and sensors finding application in times of pandemics, maybe it's time to get your own kit and start playing with a few sensors.

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1. https://economictimes.indiatimes.com/small-biz/startups/features/covid-19-in-the-times-of-touch-me-not-environment-drones-are-the-new-best-friends/articleshow/74924233.cms

2.https://economictimes.indiatimes.com/small-biz/startups/features/the-sharing-economy-faces-the-abyss-in-a-pandemic/articleshow/74857984.cms

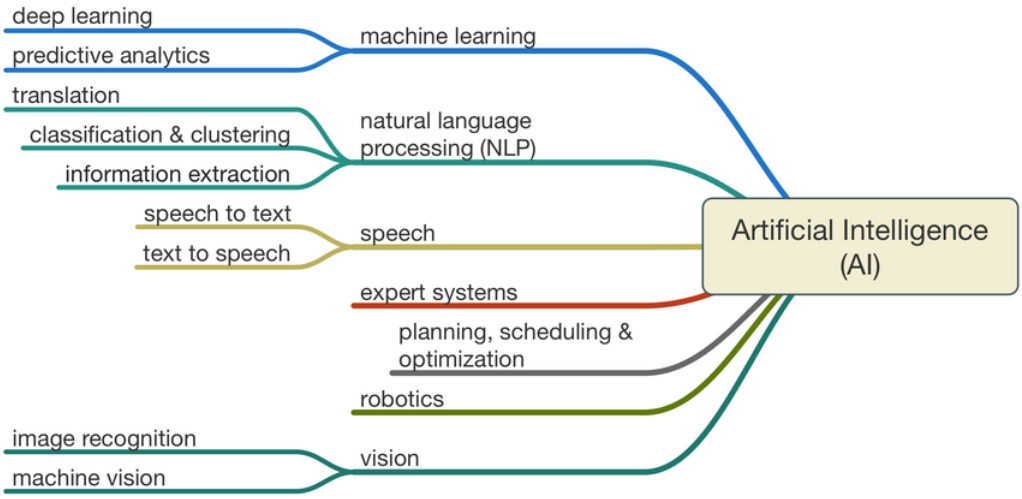
AI and COVID-19

BY JAAGRUTHI A, NIRMAL K

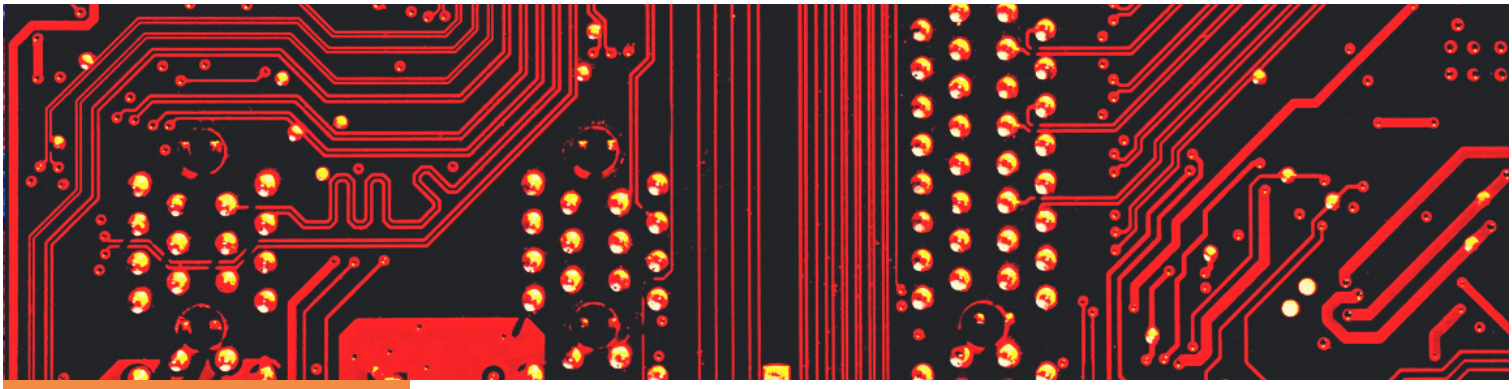
The field of Artificial Intelligence is said to have begun in the year 1955 when the word was first coined by a John McCarthy of Dartmouth College. But ever since the dawn of computers, people have wondered if computers can be made to show intelligence – to think in the way that humans think. Several brilliant scientists spent their whole careers trying to answer thorny questions posed by the incredible task set before them – to teach someone to think like they did. It's only after the dawn of the 21st century that AI has taken off as a computer science discipline, with specialised languages and tools being designed for the same.

Artificial Intelligence

Artificial intelligence (AI), also known as machine intelligence, is a branch of computer science that aims to imbue software with the ability to analyze its environment using either predetermined rules and search algorithms, or pattern recognizing machine learning models, and then make decisions based on those analyses.



With a plethora of data available about anything and everything today, computer models can be used to predict events and to even react to stimuli in real time. AI is seeing applications in all sorts of fields nowadays, ranging from earthquake prediction to social companionship. Inevitably, AI has also seen a lot of application in disaster management and medicine, and this pandemic has revealed the true capability of AI in these fields. In this article, I'd like to take a look at the different ways in which AI is having a positive impact on the pandemic situation.



Fact files

Google's Artificial Intelligence Bot says the purpose of living is

'to live forever'.

A key area of application of AI, as mentioned earlier, is in the prediction of events. It has been used to predict a wide variety of things, the outcomes of elections, winners of different sports events and the outcomes of Brexit. Wherever there's data, predictions can be made. This is true for epidemics too. BlueDot, an AI tool based out of Canada, is good at spotting infectious disease outbreaks. The model apparently predicted the emergence of a new epidemic in the end of 2019, and issued a warning to its users regarding the same on the 31st of December, 2019. World Health Organization, the de facto watchdog of medical trends and diseases, published the same warning on the 9th of January, a full 10 days after it was predicted by BlueDot. Researchers handling the activities of BlueDot also compiled a list of 20 cities of the world where the infection was imminent using the travel data of people going out from Wuhan. It accurately predicted the cities that were most vulnerable.

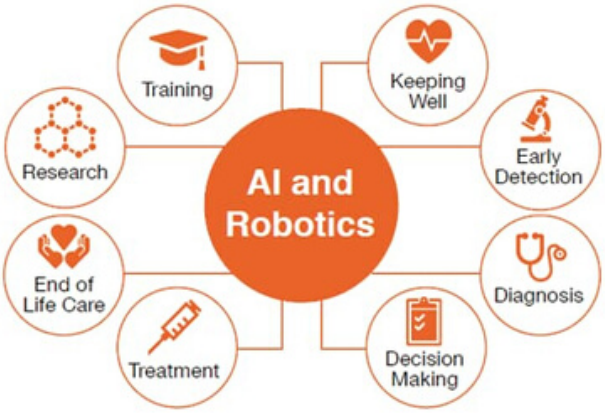
With enough data, AI can also be used to predict the rate and effectiveness of the spread of COVID-19. This has been done before. In 2015, when the Zika virus came into existence, it's spread was predicted by a dynamic neural network. The same model, with some retraining, can be used to predict new epidemics as well. With enough data now available about the coronavirus, this is possible now, with Carnegie Mellon University already leading the way. Their algorithms that usually predict seasonal flu are already being retrained to predict the spread of COVID-19.

“Some people worry that artificial intelligence will make us feel inferior, but then, anybody in his right mind should have an inferiority complex every time he looks at a flower.”

ALAN KAY

However, this is not perfect. With no historical data to rely on and with existing data sources being close-sourced and prone to modification by political bodies, there is no unbiased data to train the model with. With incorrect data, the predictions can often go wildly wrong and can harm rather than help human beings in understanding the mysterious pandemic. Data harvested from the Internet, especially from social networks, are causing a big headache for researchers, with a lot of this information being incorrect. Hence, AI models are not yet very accurate at predicting COVID-19. However, given enough time and verified data, prediction can become accurate.

Another application of AI is in the field of medicine. Medicines that were actually developed for other diseases are being tested using AI to assess whether they can be repurposed into fighting the coronavirus. A case in point is Hydroxychloroquine (HCQ) that’s generally used to treat Malaria. With opinions in the medical world wildly varying as to whether the drug is a potential candidate for treating COVID-19 patients, AI simulations can help determine the effects of HCQ and other such drugs on the virus.



With some more training, AI can also replace testing kits in diagnosing diseases in humans. While viral test kits are costly and in short supply, CAT and Xray machines are available in every lab and clinic. Images from these machines can one day be used to identify infections, albeit not now. Studies have shown that AI, given the rate of increase of its accuracy, can soon become more accurate than humans are at identifying infectious diseases and do it faster and cheaper.

Artificial Intelligence has crushed all human records in the puzzle game "2048," achieving a high score of

839,732

With data obtained from Infrared cameras and face recognition software placed at strategic locations in cities, patients can be identified, their movement can be tracked and people who might have come in contact with these people can be identified and warned to self-quarantine. The Chinese firm Baidu is currently manufacturing Infrared cameras that have the capacity to scan 200 persons per minute and identify those people with temperatures that are higher than normal. However, the reason due to which there's a rise in temperature cannot be identified with thermal imaging.

The one big problem in today's world is too much information. There's so much fake news and false information floating around us that identifying the right news has become near impossible. However, tech companies are trying to use AI to solve this issue as well. Facebook, Google and other major tech giants have began testing AI to identify fake news and to mark them as untrusted. With hundreds of deaths in Iran from misinformation claiming that methanol, a substance that's unfit for human consumption is a cure for coronavirus which went viral on social media, such unrefuted sources are being identified and actively being pulled down from all social media sites.

While AI is not the solution to all our problems today, with the right research and application, it might soon get there. As responsible citizens, it's up to us to stop contaminating datasets with misinformation. There are ways for us to help too! With insight into the working of AI and its cronies, anyone can help the research community by running tests with refuted datasets and also by trimming datasets and making them better.

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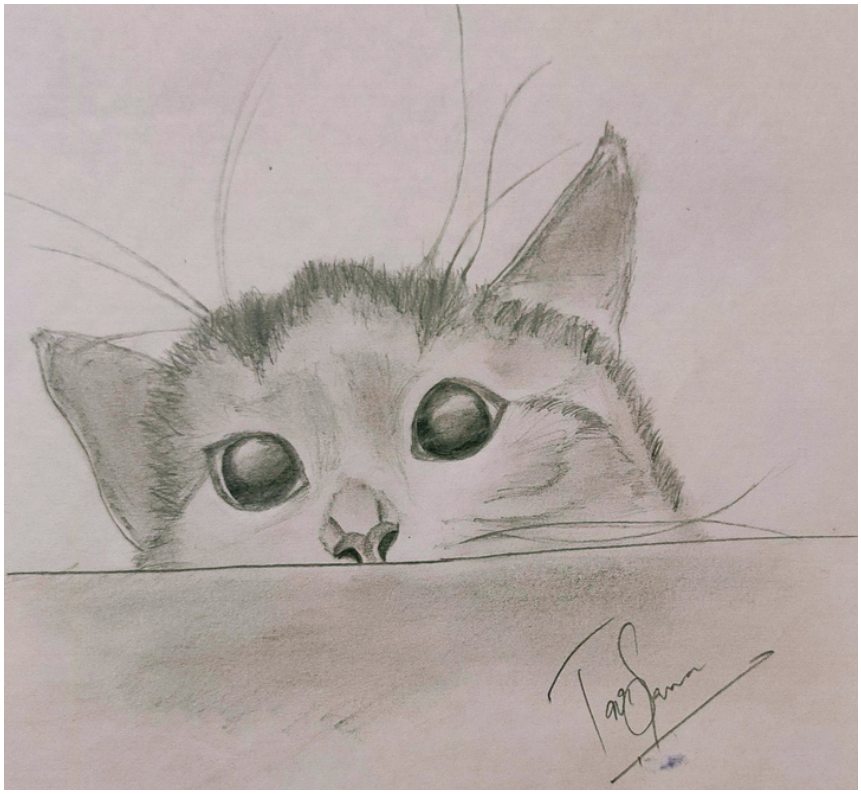
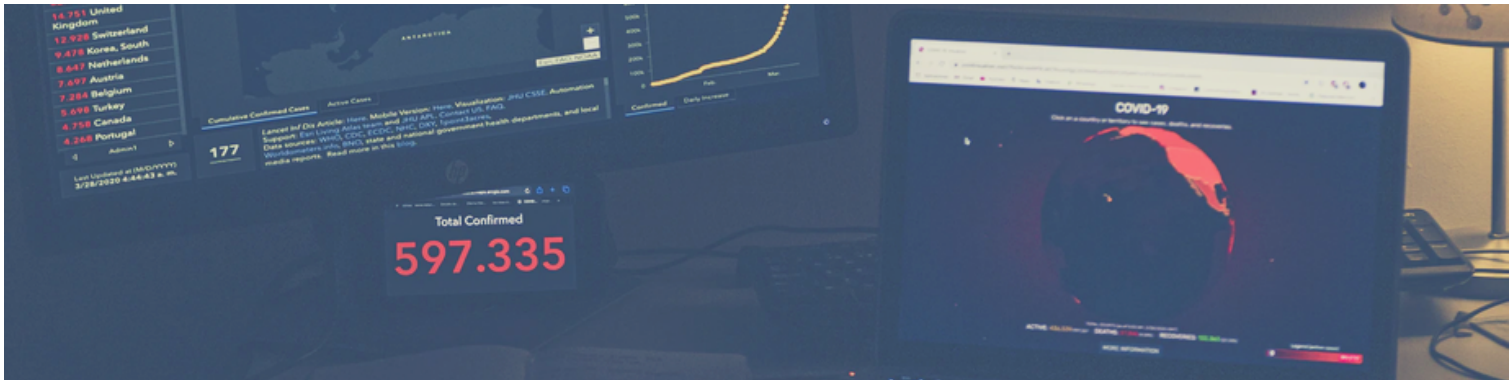
1. https://www.nytimes.com/2020/03/26/science/ai-versus-the-coronavirus.html

Student Contributions

Artist: Gomathi R



Artist: Tarsana B



A PROMISE OF BETTER TIMES

With the wind tousling my hair and the heat stinging my face, I walked towards the restricted ward.
The routine was ingrained in my brain, and so was everything I've seen here in the past two weeks.
The supplies were running low, I realized as I took out one of the last boxes of respirators.
Walking into the ward, I felt my gut twist. It's been days since I've had more than an hour's sleep, days since I've seen my mother's face.
Ever since hell broke loose in this small town, I've watched my patients slip out of my hands one by one. Deaths after deaths, every day a new corpse to send away. Everyday, I work myself to the point of losing my sanity, only to fail -only to watch them all die.
The worst part were the calls. Being a small town hospital, there weren't many nurses and doctors. We did receive volunteers but they weren't enough for the number of patients coming in.
I shook my head, clearing my thoughts and started with my usual rounds and check ups. I had 18 patients under my care, with 8 bed ridden. It was 21 yesterday, with 11 bed ridden patients. I watched two of them die, and the other died after my shift. Two of them gentlemen with family and children, well into their 30's. The third patient, the one that tore away a huge part of my resilience was a 15 year old girl with leukemia. The sound of her parents crying had carved itself onto my mind.

If I break, they break.

I gritted my teeth as I rubbed the sanitizer over my gloves, wincing as I felt the broken skin underneath. I needed to stop thinking, I needed to focus. I took a deep breath and began the check up.

The day was the same blur of triple digit temperatures, mask covered faces with their eyes half closed, exhausted.
I was called for help, in the middle of my check up on a patient who seemed to be recovering faster.
That was the call I dreaded.
I walked into Bethany's room. It's been a habit of mine to learn my patients' names. But ever since this pandemic started, I've forced myself to not learn their names, hoping that it would leave me less traumatized every time one of them died.
And there she was, in her deathbed. I swallowed hard, steeling myself to face the worst and began helping the other nurses there with bringing her respiration back to normal. I watched her fragile frame shake and tremble with the effort of every breath. She was hanging on by a thread.

If I break, she breaks.

Could be my own mother, I mused numbly as I adjusted the poor lady's gown.
At the worst of times, it seemed even the most faithless person would hope for a superior power.
I prayed to whatever that might exist beyond human power, to whatever gods that existed.

Please, not today, not again. Don't let this woman die.

As much as the masks chaffed and bruised my face, I was glad it was there to hide my face. I worked like a maniac with tears on my face.
It felt like hours. Hours and hours of walking around her bed trying to stabilize her. Hope was little, but I liked to believe her breath became easier with every passing minute. An hour passed, and then another. We worked numbly, without any expectations.

And finally, another couple hours later, she finally opened one drowsy eye and squinted at me.
I cried with joy.
She was conscious, she was stable enough. We might not have cured her, but she will live to see another day.
I walked out of the room, my shift had ended hours ago apparently. It took another half an hour to sanitize and dispose of my PPE. When I looked at the clock outside, I was surprised that I had been in the room for nearly 5 hours. It was past midnight.
But I found that I wasn't as distraught and exhausted as I was this morning. I felt myself smile, a smile that hurt my face.
It was the first day in the last two weeks that the hospital had seen no deaths.
The first time in the last two weeks I didn't feel like all my efforts were in vain when I walked out of the ward. The first time in the last two weeks that, when I looked around, it felt like hope was hidden in the street lights lighting up the unused roads.

Gomathi.R

FOSS files

Apple is known for its 1984 superbowl advert, which claimed IBM to be the 'Big Brother' from whom Apple was saving the masses.

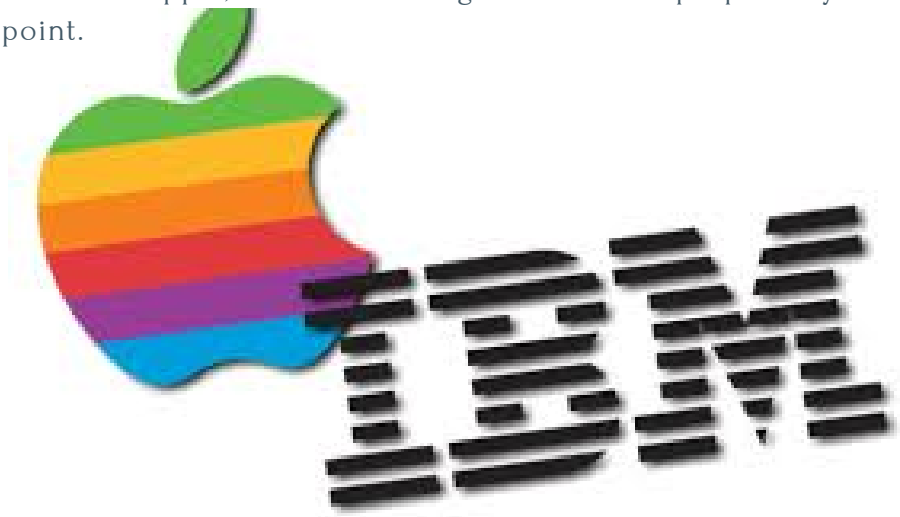
One of the lesser known ad campaigns against IBM happened when IBM launched it's PC to the world and Apple 'welcomed' IBM to the market.

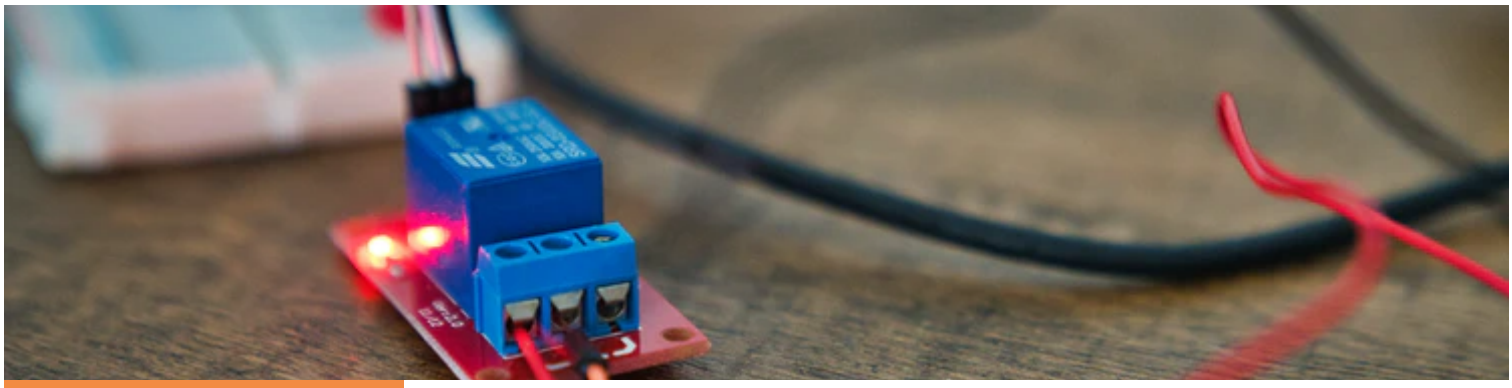
Opensource hardware

- NIRMAL K

For a really long time, ever since Bill Gates stopped distributing his C for the Altair 8800 for free and started charging people to use it, the computer industry has witnessed a war of proprietary vs open source. This is well documented on the software side, with many articles having been written about how the two different types of software distribution have their own merits and demerits. On the other hand, the hardware side of things has not been well documented as its software cousin is.

The Apple II was the first successful personal computer on the market, capturing almost all of the market and holding it for nearly a decade. However, Apple's corporate 'Big Brother', IBM released its own personal computer, the IBM PC. This was slower and boxy looking compared to its competition, the Apple II. However, there was one big difference. While the Apple executives believed in a strict in-sourced hardware and software policy, IBM executives thought otherwise. Soon, the market was flooded with cheaper and granted, poorer looking IBM PC clones. However, the price point and the sheer quantity of machines being produced soon gave IBM and its partners the upper hand. Businesses chose IBM PCs over Apple products as more business software was being written for these. With Microsoft partnering to provide DOS and eventually Windows, Apple lost whatever chance it had of regaining the market. x86 compatible machines with Windows running on them still dominate over Apple, who never budged from their proprietary standpoint.



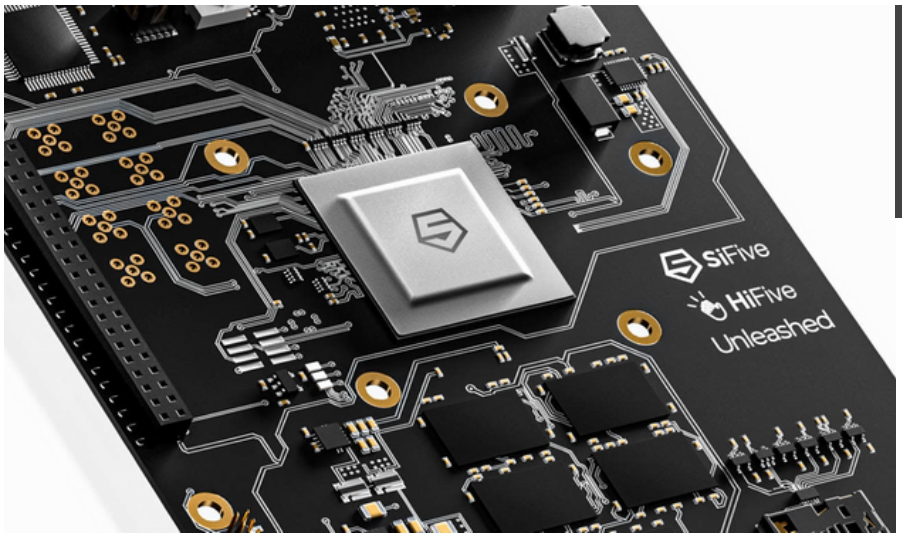


Fast forwarding to today, the world is seeing a sharp uprise in the use of open source hardware, in the form of IoT kits and devices. Arduino and Raspberry Pi projects, two of the popular prototyping kits available on the market are all open source. They use opensource microcontrollers and ARM based processors respectively, meaning the design can be copied, modified and upgraded by anyone that has the knowledge and requirement to do so. This has led to these kits being deployed in vastly modified forms in unimaginable situations, ranging from eye tracking to auto lacing shoes and intelligent flamethrowers. It is important to note that “open source” does not necessarily mean cost-free, and “proprietary” does not necessarily mean that it costs money to use. Nor is it true that open source is only for amateur projects while “professional” products are all proprietary. And now to the important question – I can’t replace my computers with arduinos and Raspberry Pi(s)! Yes, that would be a bit of a stretch. But fear not, there’s still a way to use an open source computer (atleast some time in the future). RISC-V, a processor architecture is completely open source. A company which goes by the name of SiFive is building processors with the RISC-V instruction set and are adapting existing code to run on it. It is possible! Sometime in the future, we can boast of having our own, open source computers running not only foss software but open source hardware too!

FOSS files

Alibaba, the Chinese e-tailer has claimed to have designed the fastest open source chipset and processor yet - the XT-910.

It features 16 12nm cores clocked at 2.5 GHz.



Fighting from home

For most of us, these quarantine days are to wind down, stay home and chill for sometime before getting back into a vigorous study/work schedule. Some people from among us take online courses and exercise, sharpening the tools of their trades. And yet others do that while being useful for the community at large - by doing things that help fight the pandemic. Sitting at home, that too! Thanks to the power of Internet, we are nowadays able to comfortably work from home, meet people online and even do compute heavy tasks on our own machines, bandwidth not being a problem. Three such people, from our own institution, have taken up a project to help fight the pandemic in their own way.

Pragya Ananth (2nd year data science):
Computer Science and Mathematics form the foundations for Data Science. Data Science, an emerging domain, finds a major role in the world owing to the voluminous quantities of data that's being produced each day, in each industry. It deals with the processing and structuring of a system of raw data to derive sensible information from it, which is further used to draw conclusions from detected patterns and make predictions for the future. Our goals are achieved through programming, problem solving, and by using statistical analysis tools. With the help of mathematics and tools of statistical analysis we, as data scientists, not only make algorithms efficient but also aim at providing insights for better predictions and decision making.

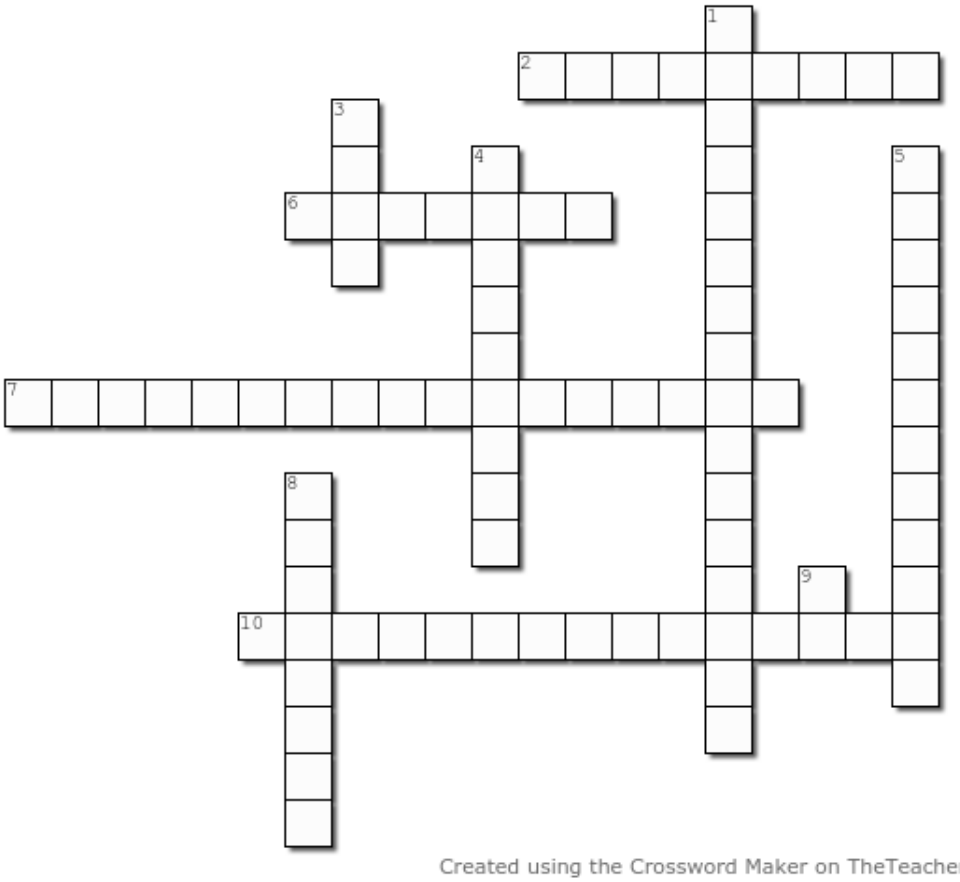
During these lockdown holidays, my team and I am working on the "COVID-19 Open Research Dataset Challenge (CORD-19) An AI challenge with AI2, CZI, MSR, Georgetown, NIH & The White House" — a challenge by Kaggle. My team constitutes of Aditya Dhinavahi and Pradeep Sandilya. The concepts of NLTK, machine learning, NLP and basic file handling are being used in our project. There is a huge amount of data that is being supplied to us on a regular basis and we aim to see our bot work for any kind of data that is fed to it.

Aditya Dhinavahi:
"Corona had a great effect on my schedule, it had my semester exams postponed and left many students like me in dilemma. Computers have been a great boon during these times. The current technology has helped many students continue learning and has kept them on the track in the form of online classes. Also, it helped me in starting my internship with Shopalyst.com from home, which was a major relief for me since I was worried that it might get postponed, just like how my exams did. Computers have also been a stress buster like always, and now we watch shows, movies online and connect with friends to have a break from work.
Finally, with the power of Computers I can confidently say that my goals can be achieved while sitting in home and I hope that the pandemic should end soon so that we can use the power of being with people and the power of Computers too."

FUN CORNER

Artist: Gomathi R

Complete the crossword puzzle below



Created using the Crossword Maker on TheTeachersCorner.net

Across

2. See it with Sherlock's eyes
6. Eidetic elegance
7. Survive the quarantine without me, I dare you to
10. Hoomans, I c as you see

Down

1. The code's the limit
3. alive and dead, chill bones
4. The limitations are what you set
5. Securing healthy long distance relationships
8. From clockwork to circuits
9. Pseudo world as real as can be

1.AI
2.Bandwidth
3.Telemedicine
4.Robotics
5.QBit
6.Computer Vision
7.Wireless fidelity
8.Hyper automation
9.Bigdata
10Analytic
a.

Credits: Rajalakshmi B

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