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Alumni Section



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This shall to pass: A short note to the people who are graduating in 2020

We are witnessing the toughest time of Century and most of the people, alive today, have never witnessed anything like Corona Pandemic.

This is first time when no one is thinking about future and everyone is just concerned for a single day at a time.

I hate getting pessimist in my writing but this Corona Pandemic is too serious and too grave to ignore.

Everyone, including me, is concerned about the fact why I am talking about a Pandemic in a technical newsletter. So, let's break the chain of discussion and move to next point.

Best part with any challenge, tough time, pandemic, war or even with good times too is, time always keep running and "This shall too pass".

So, how should one prepare oneself for the future opportunities and how one can prepare to contribute better to national growth and to humanity (in broader sense).

Corona has broken the world economy and huge lay off is expected in coming months. This slowdown is going to be even greater than 2000 and 2008 combined. So, it is a tough task to get some easy entry to market. Companies will not go for bulk hiring.

But there is silver-lining for fresh graduates. They can bite a huge chunk if they prepare themselves a bit better. Market will be slowed but will not be freeze and many new businesses will also boom in the coming months/years/decades. Companies will search for the people who can do multiple tasks and can perform an allrounder.

Companies will look for cheap resources and that will be a chance for young engineers. So how should one computer science graduate prepare himself for a post Corona market.

- 1. Full stack development:** Full stack development is a must and Javascript is all you need to prepare for that. I did more than 10 different bootcamps and I found FreeCodeCamp (an open sourced free learning platform) the best. Colt Steele's Udemy course on Web Development and Database are also good if you are looking for Video Content. You should utilize this Lockdown period for your improvement and should learn fullstack development.
- 2. Join some community project:** Many people are helping Government by creating small communities. All communities need software developers, social media community managers and other backoffice people. You should join them and this experience of next six months will help you a lot. And above all, everyone should earn some Good Karma.
- 3. Project based learning:** Utilize your time by picking some good utility project and build that by using your skills. Real projects help a lot in learning and also make a good impression over the recruiter.
- 4. DevOps and Automation Testing:** Every single computer engineer should know about Jenkins, CI/CD pipelines and Automation testing. Don't worry about heavy terms. This all stuff is just a matter of few days. Apply all these concepts in your next project and try to build that project with your college friends. DevOps and automation testing, alone, can put you miles ahead of your competition.

to be continued..

How the future looks!

Current time is not the best time to discuss it but it's also true that hard times always make people progress more. In coming years, every nation is going to increase healthcare budget and maximum budget will be utilized in R&D to prepare nations for the next Pandemic.

Few new domains for a computer scientist are listed below:

- 1. Big Data and Machine Learning:** Healthcare is already using Big Data and ML but the next decade will be path breaking in both these fields.
- 2. Predictive Modelling:** Govt. is very concerned about non-communicative diseases and predictive modelling about diseases like Cancer will be in high demand.
- 3. Modeling and Simulation:** This is my personal favorite after this Pandemic. Modeling and Simulation is mainly used in video games but this technology has a great future in drug discovery and drug's effect on simulated population. If you love mathematics and programming then a great future is waiting you.
- 4. Data security and cryptography:** Medical data is of high importance and any leakage or unauthorized usage can lead to serious legal consequences. So, security is a big concern. One should learn cryptography, blockchain and data architecture to make a career. Web security, Security testing, and Security consultancy is also a promising career in coming time.

Conclusion: I have a lot to talk to you and I want to share everything that I know. But this article needs to have some end.

So, let's start from here and utilize this time when you are at home. Let's prepare yourself for a better future and ensure your contribution to Nation and to Humanity. Feel free to reach me over social media and we can discuss it more there.

Stay Safe, Wash your hands. Take care of your family!
Love you all!!!



Government postpones mega Artificial Intelligence Summit to October

The RAISE 2020 Summit is expected to feature some of the most exciting global startups working in Artificial Intelligence related fields and is expected to have multiple events such as the AI Startup pitchfest AI startup theater and the AI startup award.

NEW DELHI: The Government has postponed its mega summit on Artificial Intelligence called RAISE 2020 - 'Responsible AI for Social Empowerment 2020,' from April due to the COVID-19 outbreak. The Summit which will be inaugurated by the prime minister Narendra Modi in New Delhi is expected to be attended by representatives of global AI industry

The Summit is expected to brainstorming sessions and charter a course to use AI for social transformation, inclusion and empowerment in key areas like Healthcare, Agriculture, Education and smart Mobility amongst other sectors.

Abhishek Singh, President and CEO, National e-Governance Division (NeGD), MeitY said, “The registrations are open for all participants and the process will remain the same as before. All AI startups are welcome to participate through the same procedure for the Startup Pitchfest. The step to postpone the Summit is a public health measure for containment and mitigation of the current COVID-19 outbreak.”



world's fastest super computer(summit) identifies chemicals
with potential to halt COVID-19

The novel coronavirus presents an unprecedented challenge for scientists: The speed at which the virus spreads means they must accelerate their research.

But this is what the world's fastest supercomputer was built for.

IBM's supercomputer summit made a major breakthrough in finding an effective drug against COVID-19.

SUMMIT analyzed a database of over 8000 compounds that are known from existing drugs, chemicals, herbal medicines and natural products.

Its job was to find out compounds that appear to be capable of binding to the SARS-COV-2 protein spikes.

(SARS-COV-2 is the name of virus responsible for COVID-19 previously known “2019 novel coronavirus”)

SUMMIT ran thousands of simulations to analyze which drug compounds might effectively stop the virus from infecting cells, it is an excellent example that proving how AI is a boon for mankind.

The supercomputer segregated 77 salts out of thousands of samples that could help researchers to found an effective drug against COVID-19.

It is a ray of hope in creating a vaccine against COVID-19.



Scientists Use AI to Create Music through Proteins

It's an exciting day (18th- March- 2020) in the worlds of physics and music. Researchers have discovered that proteins have their own unique musical vibrations, and have created their very own musical scores by using AI and proteins. Proteins are the building blocks of the human body, found in our hair, our tendons, our muscles, and everywhere else. They're a part of us, and it turns out they can make music too.

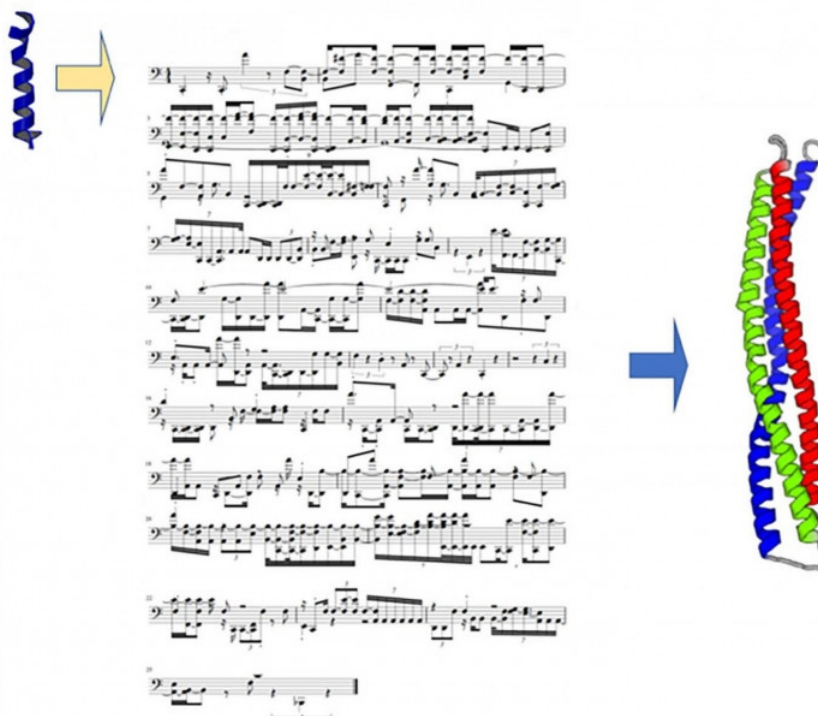
When nature and science work together, they can create music
Proteins are naturally found in anything from silk to human cells, however, scientists have no way to automatically figure out their design, and need them to create new proteins.

This is where engineers, Markus Buehler from MIT, and Chi Hua Yu from the National Cheng Kung University in Taiwan, come in. The researchers discovered that each of the twenty amino acids that make up a protein has its very own sound.

Moreover, the team put two and two together and noticed that, like music, proteins have a hierarchical structure. For instance, the basic structuring of a protein is due to the varied ordering of its amino acids, which is very similar to how music scores are structured.

So Buehler and Yu decided to take their experiment further by assigning each protein trait a musical analogue. For example, a specific amino acid was assigned the musical note "C", and so on and so forth. The result? A musical stave of protein notes.

Buehler then created a whole raft of musical protein pieces that he's shared on Sound Cloud.



Driving digital transformation with remote equipment monitoring

Industrial organisations pursuing digital transformation are intensively connecting assets to capture data that can help improve activities such as customer support, new product design, and environmental performance. Implementing predictive maintenance policies is one aspect of this transformation. Remotely monitoring the condition of equipment in the field – such as turbines, refrigerators, machine tools, and HVAC equipment – helps improve the customer experience by avoiding inconvenient and expensive downtime. From the supplier's point of view, scheduling essential repairs during planned maintenance is less costly than emergency response.

Whether delivered within a straightforward customer-support package or as part of a complex digital twin setup that models customers' equipment continuously in real-time, remote condition monitoring supplies the basic data that can let suppliers know how the equipment they delivered is performing in the field. The long-term trend data can also highlight any design weaknesses that need to be fixed.

With the increasing infusion of AI-based applications in the cloud, services are becoming available that can analyse machine-health data, such as vibration, temperature, or audible indicators. Using techniques such as pattern analysis and threshold monitoring, these applications can recognise the signs of impending failures in components such as motor bearings or mechanical structures, and use the knowledge to generate alerts and even predict the time of failure.

This can help to minimise down time by allowing repairs to be scheduled for a convenient time that has the least impact on the business' output – at night for example, or in between shifts, to minimise impact. Proper analysis of the data can allow the exact nature of the problem to be identified, the parts needed for repair to be identified and ordered in time, and the staff with the necessary technical skills booked in advance. All of this can help to reduce the time needed to effect the repair and return the equipment to service, avoiding unexpected delays.

Sensing and Connectivity Challenges

In the field, suitable sensors are needed on the equipment. Various combinations of sensing modalities, such as inertial, acoustic, magnetic, pressure, and temperature sensing may be required. Bringing all these elements together to create a sensor that can be deployed in the intended context and can withstand the harshness of an industrial environment requires significant engineering effort.

Creating a solution calls not only for sensor design competencies but also skills in edge computing, wireless communication and networking.

An alternative is to find a suitable platform that is ready to deploy and contains the required sensing capabilities, embedded processing, network connectivity already built-in and fully functioning.

One example is the Shiratechi COMOX intelligent condition monitoring box: an open embedded sensor-to-cloud platform built around an Arm-based application processor that integrates five high-quality sensors. These include two low-noise, low-power 3-axis accelerometers for vibration sensing, a 16-bit temperature sensor, a magnetic field sensor, and a MEMS microphone specially selected for its high dynamic range, low distortion, and flat frequency response that make an ideal choice for diagnostics applications. The box also integrates an IEEE 802.15.4e communication SoC that leverages SmartMesh IP that enables robust and scalable communications over extended distances in tough industrial environments. iCOMOX is connected to cloud services using a SmartMesh IP gateway, which is available from Shiratech, and can also operate as a standalone sensor if required. More than 4000 units of Icomox have been shipped to date.

Ineos races to build new UK hand sanitiser plant in just 10 days

UK chemicals giant Ineos is building a factory in the North of England dedicated to making hand sanitiser, with the aim of having the facility ready within 10 days. A second hand sanitiser factory is planned for similarly rapid construction in Germany.

Ineos aims to produce one million bottles of hand sanitiser per month, assisting the all-consuming effort to mitigate the devastation of the coronavirus pandemic. The familiar routines of life and work have largely ground to a halt in the UK, with all but essential work being paused or performed remotely and citizens ordered to remain indoors to minimise the transmission of the virus.

Many companies involved in non-essential manufacturing (including aerospace engineering companies, fashion brands and automakers) have offered to transform their unused factory space into production lines for desperately-needed medical supplies like ventilators, personal cleaning products and masks.

Ineos is in a unique position to contribute to this national effort: it already manufactures healthcare products such as saline drops, ventilators and syringes and is Europe's largest producer of the two main raw materials that make hospital-grade hand sanitiser (isopropyl alcohol and ethanol). The company plans to produce one million standard (250ml) and pocket (50ml) hand sanitisers every month, which it will distribute to hospitals, schools, essential workplaces, supermarkets and pharmacies.

Ineos also confirmed that hospitals will be issued with hand sanitisers for free.

“Ineos is a company with enormous resources and manufacturing skills,” said Sir Jim Ratcliffe, the billionaire founder and chair of Ineos. “If we can find other ways to help in the coronavirus battle, we are absolutely committed to playing our part.”

The millions of bottles of hand sanitiser will be produced at a dedicated plant at Newton Aycliffe, near Middlesbrough, which Ineos hopes to complete within 10 days. The company has been planning the factory for approximately a week and has already received fast-tracked regulatory approval. It has stepped up alcohol production in preparation for the facility's opening.

A similar factory will be built in Germany to help plug hand sanitiser supply shortages on the continent. Ineos said that it is already in discussion with other retail outlets across Europe.

Luxury fashion conglomerate LVMH and brewer Brewdog are among the other companies which have responded to the pandemic by focusing production on hand sanitisers, rather than their typical output.



Cooling technique uses just salt and water

A device capable of generating a cooling effect without using electricity could help to lower energy usage in hot climates, and provide a greener alternative to refrigeration.

The system exploits the evaporation of liquid, as most cooling techniques already do. However, the research group, which is based at the Politecnico di Torino in Italy, have been using simple water and salt instead of chemicals which could be environmentally destructive.

The environmental impact of the new device is also reduced because it is based on passive phenomena such as evaporation, instead of pumps and compressors which require energy and maintenance.

“Pure water is in contact with an impermeable membrane that keeps separated from a highly concentrated salty solution,” said Matteo Alberghini. “The membrane can be imagined as a porous sieve with pore size in the order of one millionth of a meter. Owing to its water-repellent properties, our membrane liquid water does not pass through the membrane, whereas its vapour does.”

“In this way, the fresh and salt water do not mix, while a constant water vapour flux occurs from one end of the membrane to the other. As a result, pure water gets cooled, with this effect being further amplified thanks to the presence of different evaporation stages.”

He added that the salty water concentration decreases over time, reducing the cooling effect, although this difference in salinity can be continuously restored using solar energy.

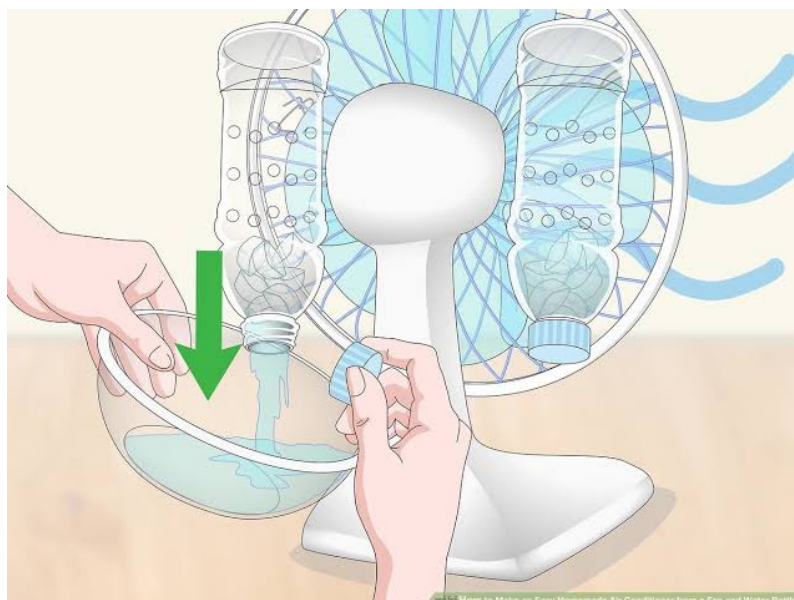
The device has a modular design consisting of cooling units, each several centimetres thick, which can be stacked in series to increase the cooling effect. It is possible to finely tune the cooling according to individual needs, with the team hoping they can reach the cooling capacity needed for domestic use.

Water and salt do not need pumps or other auxiliaries to be transported within the device as it “moves” spontaneously, thanks to capillary effects of some components which are capable of absorbing and transporting water against gravity.

“Our passive prototype, based instead on evaporative cooling between two aqueous solutions with different salinities, could [create] a useful effect independent of external humidity,” the researchers said.

“Moreover, we could obtain an even higher cooling capacity in the future by increasing the concentration of the saline solution or by resorting to a more sophisticated modular design of the device.”

They said the device would be cheap to make, and ideal for use in areas where access to electricity may be limited.



Wave energy converter prototype boost for subsea technologies

Work has begun on a 30-tonne wave energy converter prototype, which will power subsea technologies in Orkney.

Wave energy converters turn the kinetic and potential energy of waves into electrical energy. Orkney, which hosts the European Marine Energy Centre, is a hub of research and development for these technologies. The centre has a collection of test sites and other facilities scattered across the islands, where various types of wave energy converter are trialled and developed.

The latest device, the 'Blue Star' converter, is designed by Edinburgh-based clean energy start-up Mocean Energy and manufactured by AJS Production.

Mocean Energy is planning a pilot project to study the potential use of its Blue Star prototype to power a subsea battery and remote underwater vehicle at the Orkney site. The device is compact enough to fit in a 12m shipping container and uses a magnetic-gear power take-off to charge onboard batteries and provide uninterrupted power and communications.

Work has begun on a 20m-long, half-scale prototype. It will be used for sea trials before it begins generating power later this year.

“The UK oil and gas sector is exploring ways to decarbonise their operations and this technology has a range of uses in powering subsea technology,” said Cameron McNatt, managing director of Mocean. “Our Blue Star design has undergone rigorous numerical modelling and tank testing at the world-leading wave tank at Nantes and it is very exciting to see it taking shape in steel in advance of sea trials.”

Raymond Imrie, managing director of AJS, commented: “This is a great project to be involved in and is yet another milestone in Scotland, being at the forefront in leading the UK to become carbon neutral. The project is well under way and although we have been involved in similar contracts, we are still learning lessons when it comes to working on prototypes of this scale.”

“We have had the backing of a good lead team, along with a professional design team, who have certainly made the project run smoothly. We're looking forward to seeing the device launched successfully and sea trials beginning in the autumn.”



Samsung introduced SMART ALMIRAH that can clean,
iron clothes

Samsung has launched an innovative 'almirah' that can clean and iron clothes. This smart almirah is known as AirDresser that uses air and steam to clean clothes hung inside it.

"This latest home laundry solution AirDresser uses powerful air and steam to remove dust and germs, refreshing and sanitizing clothes to provide easy and convenient garment care," the electronic giant said.

Jet Air and Air Hangers release powerful air that help in removing dust from clothes hung inside the AirDresser. Unlike a usual washing machine, the appliance makes minimal noise and vibration when operated under quiet mode.

JetSteam sanitises garments to get rid of bacteria, viruses. AirDresser uses 'Deodorizing Filter' function to freshen clothes. The AirDresser removes 99.9 percent of harmful bacteria, viruses, odours and wrinkles of any cloth.

Meanwhile, its 'Self Clean' technology dehumidifies, sanitises, and deodorises the interior of the AirDresser without any use of detergents. It is only the combination of heat, air and steam that helps in cleaning the clothes. Moreover, the AirDresser features portable water containers for steam at the bottom, so it doesn't require a water supply or drainage system.



Astronauts quarantined to stop Covid-19 reaching space

Nasa has stepped up its Covid-19 mitigation procedures, including making all astronauts spend at least two weeks in isolation before they travel into space.

The next International Space Station (ISS) launch date is set for April 9. Two Russian and one American astronaut are currently spending time away from the outside world prior to the big day.

Traditionally, Russian astronauts were already expected to spend time isolating before going to space, but they were still allowed to attend ceremonies and farewell meals before the launch. This period is known as the “health stabilisation” process and ensures astronauts are not sick or incubating an illness when they arrive at the space station, Nasa spokesperson Stephanie Schierholz explained.

Taking off from the Baikonur launch pad in southern Kazakhstan, the crew of Expedition 63 will depart Earth without much of the usual fanfare.

“We are ready to go, we are healthy, we've been tested very well with the medical teams,” US astronaut Chris Cassidy said Monday in a video from quarantine. “We'll be watching from space and we're very curious to come home in October and see what the world looks like at that time.”

“As you well know, over this last month, the situation keeps changing on a daily basis for the worse,” he added. “Our hearts go out to all the people over the world that are dealing with this crisis.”

Some 375,000 people worldwide have caught the novel coronavirus and more than 16,000 have died. The ISS has continuously been staffed astronauts for nearly 20 years, serving as a test bed for scientific research including studies to better understand the human immune system and the effect of microgravity on the body. Nasa recently admitted that plans to send astronauts to the Moon by 2024 could be delayed due to the coronavirus pandemic.

