

ISSUE #1

AI CRE

AI CLUB RESEARCHERS

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AI VS FAKE
NEWS

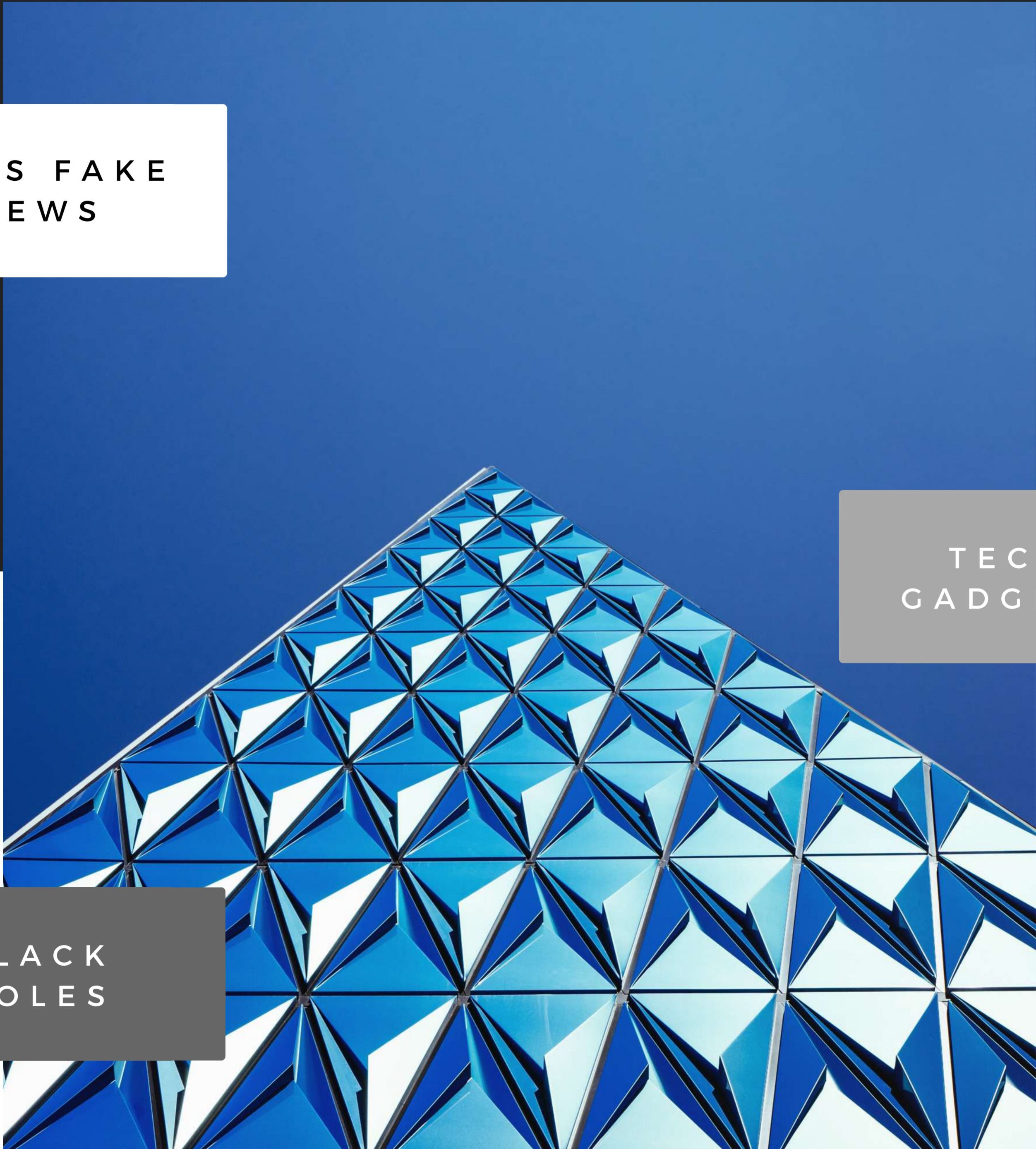
TECH
GADGETS

BLACK
HOLES

THE LEAD TO NEW
DISCOVERIES

DECEMBER 2018

PLUS:
AICRE
RECAP



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FROM OUR TEAM



Dear reader,
We are extremely proud to present our first AI magazine. With strong dedication and research, we believe that this magazine will fulfill your waiting. With heated topics such as fake news and new tech gadgets as well as an article on space (black holes), we have selected articles we believe will radiate our efforts. Created with a team of big and vast imaginations, we challenge ourselves to expose

ourselves to more information and share our learning with you. Albeit this is our first magazine, we hope to create and learn more, keeping in mind of our mission: to spread the possibilities of AI and engage young learners to how AI can shape the future. We have reached our first floor with the piece of progress and we will continue to expand our interests.

Seoyoon C, Sunny S, Youngwoo C, Ashita G

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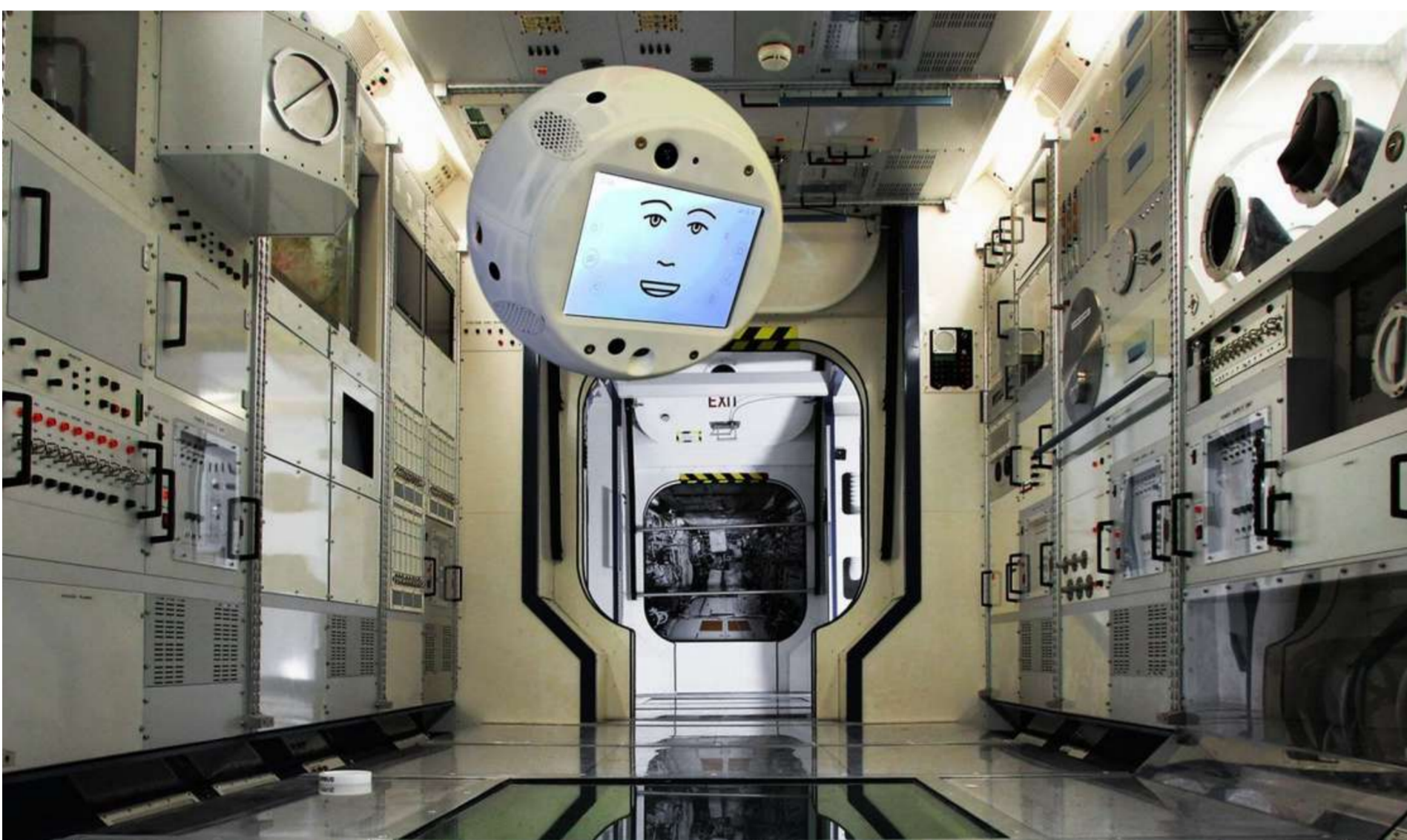


AI CLUB RESEARCHERS

MEET CIMON

MEET CIMON, THE FIRST AI ROBOT IN SPACE

By SUNNY SAITO



CIMON, short for Crew Interactive Mobile Companion, is a 5kg conversable head-shaped AI robot that is being used in the International Space Station. CIMON is an assistant and aid for the astronauts with their tasks on the ISS; it is also the first robot ever to fly in space. This miraculously unique robot was developed by a European aerospace corporation named Airbus and IBM (International Business Machines) in 2018 for the German National Space Agency, DLR.

CIMON is a technology designed to demonstrate and show how humans and AI can support each other and collaborate in the space environment.

In addition, CIMON is also an extremely talented device that is able to access a variety of relevant information, including photos and videos. It is also intelligent enough to answer and discuss various questions including those questions that are "beyond the procedure". During an interview (which was recorded in Space.com), a CIMON system engineer at Airbus, Philipp Schulien has said, "Alexander Gerst could say something like, 'CIMON, could you please help me perform a certain experiment? Could you please help me with the procedure?'. And then CIMON will fly towards Alexander Gerst, and they will already start the communication." This indicates how CIMON similar to regular crew members, is able to fluently communicate and work with astronauts.

It also illustrates how CIMON can make work easier for the astronauts when carrying out everyday tasks, deal with experimental and procedure problems, and even some security difficulties, as it may also serve as an early warning system for technical problems. Additionally, Airbus representatives in a mission description have also stated: "They will experiment with crystals, work together to solve the Rubik's cube and perform a complex medical experiment using CIMON as an 'intelligent' flying camera.". This clearly indicates how CIMON is multi-talented, and how it can help to increase efficiency and mission success in the ISS.

As CIMON is on its way to greater astronaut assistant training, we can look forward to how CIMON will develop in associating with crew members, dealing with technical, experimental, procedural difficulties, and creating ways to improve our tasks within the space environment.

""Hello, I Am CIMON!"" Airbus. Accessed October 15, 2018. <https://www.airbus.com/newsroom/press-releases/en/2018/02/hello--i-am-cimon-.html>.

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"Floating Robot Cimon Sent to International Space Station." BBC News. June 29, 2018. Accessed October 15, 2018. <https://www.bbc.com/news/technology-44655675>.

A close-up photograph of a person's hands holding and reading a newspaper. The newspaper is the central focus, with its pages slightly curved. The background is heavily blurred, showing indistinct shapes and colors, suggesting an indoor setting with other people or objects. The lighting is soft and natural, highlighting the texture of the paper and the skin of the hands.

Trending

Fake News

How AI can take action against fake news being spread on social media

BY SEOYOON CHANG

Trending



MARKETING STATS ON SOCIAL MEDIA

The Benefits of Social Media

While popular mainstream media companies can present bias based on their ideological slant, social media allows a platform for a range of ideas, opinions, and perceptions. Social media has helped individuals earn a voice in the mass exchange of ideas, democratizing discourse. Social media has helped students engage with education further by allowing communication between experts of various fields. In addition, social media has helped spread news instantaneously and bring awareness to suppressed minorities or those in need. An example of this is the MeToo Movement, which allowed a powerful voice to arise among women using social media, specifically Twitter. Another benefit of social media is the widespread alert of emergencies.

Social media allows news of an emergency to spread with speed, support communication between victims, and even encourage organizations to respond to the public's concerns. The benefits of social media do not end there. Social media takes upon a large role in business, such as Twitter, which opened up a direct communication line between businesses and customers. This, according to Twitter, is called EWOM, which stands for electronic word-of-mouth. This includes consumers sharing attitudes and opinions about a company's products or services; therefore enforcing credibility and reliability. Facebook's inbox function allows businesses to view information about customers who interact with their own business and make the interaction between businesses and users easier, creating a more personalized assistance.

- 48 percent of Americans have interacted with companies or institutions on at least one social media network.
- Ignite Visibility
- 85% of small and medium business users use Twitter to provide customer service.
- Twitter Business
- There are 25 million business profiles (and over 200 million users visiting at least one business profile every day)
- Hootsuite Blog



Trending

"When a thousand people believe some made-up story for one month, that's fake news." – Yuval Noah Harari

Misinformation in Social Media

Despite social media's greatest benefit of free communication, this can cause a troublesome conflict to arise within; misinformation and 'fake news'. Fake news, information which is uncorrelated with the truth and can be used to mislead readers, is a large problem mostly faced in social media. Fake news spreads rapidly between users, usually people like us and fake bots. Fake bots have the ability to share information and perform discourse with others; this can clearly demonstrate how fake bots can widen access to fake news. Fake bots can also create fake news, and this is a problematic issue because all users want to interact in an environment where they can trust the source of information they are receiving. The worst part of misinformation is that artificial intelligence can be correlated as well. AI systems (machine learning algorithms) have gathered efforts to analyzing content in a message and comparing them to real users, while other systems are used to identify accounts which spread fake news. On the other hand, fake bots are powered with AI, meaning they can advance their messages by accurately conforming to real users' texts. So what happens? Both fake accounts and AI systems advance together, and AI systems cannot overcome fake news.

More data, more efforts

Fake news seems to be an unstoppable disease, however, AI can still play a key part in detecting fake news and warning systems about them. Through machine learning, detecting fake news and accounts can become more accurate. Preslav Nakov, a senior scientist at the Qatar Computing Research Institute (QCRI), explains that accuracy can be improved when more training data is obtained. Another factor which can help improve the accuracy is if the system has more access to variables. According to the MIT Technology Review, researchers from MIT, QCRI, and Sofia University in Bulgaria are looking for variables which include "the structure of the website, whether it has contact information, and its patterns of publishing and deleting content." In addition to this, social media can take action themselves. With Twitter deleting more than one million accounts per day (into July) and Facebook preventing fake news publishers from using their advertising tools, more efforts can give better results.

TWITTER STATS



In a study released by the Knight Foundation analyzing the role of Twitter in spreading links to fake news stories during and after the 2016 US election, Graphika, a firm that maps social media interactions, looked at more than 10 million tweets from about 700,000 accounts linking to more than 600 outlets that publish misinformation. Even after the election, misinformation continued to prosper. In addition, a study published by Stanford University and New York University found that engagements such as retweets on fake news on Twitter have actually been rising since the 2016 US elections. The same study found that such retweets have gone from 4 million to 6 million in 2018.

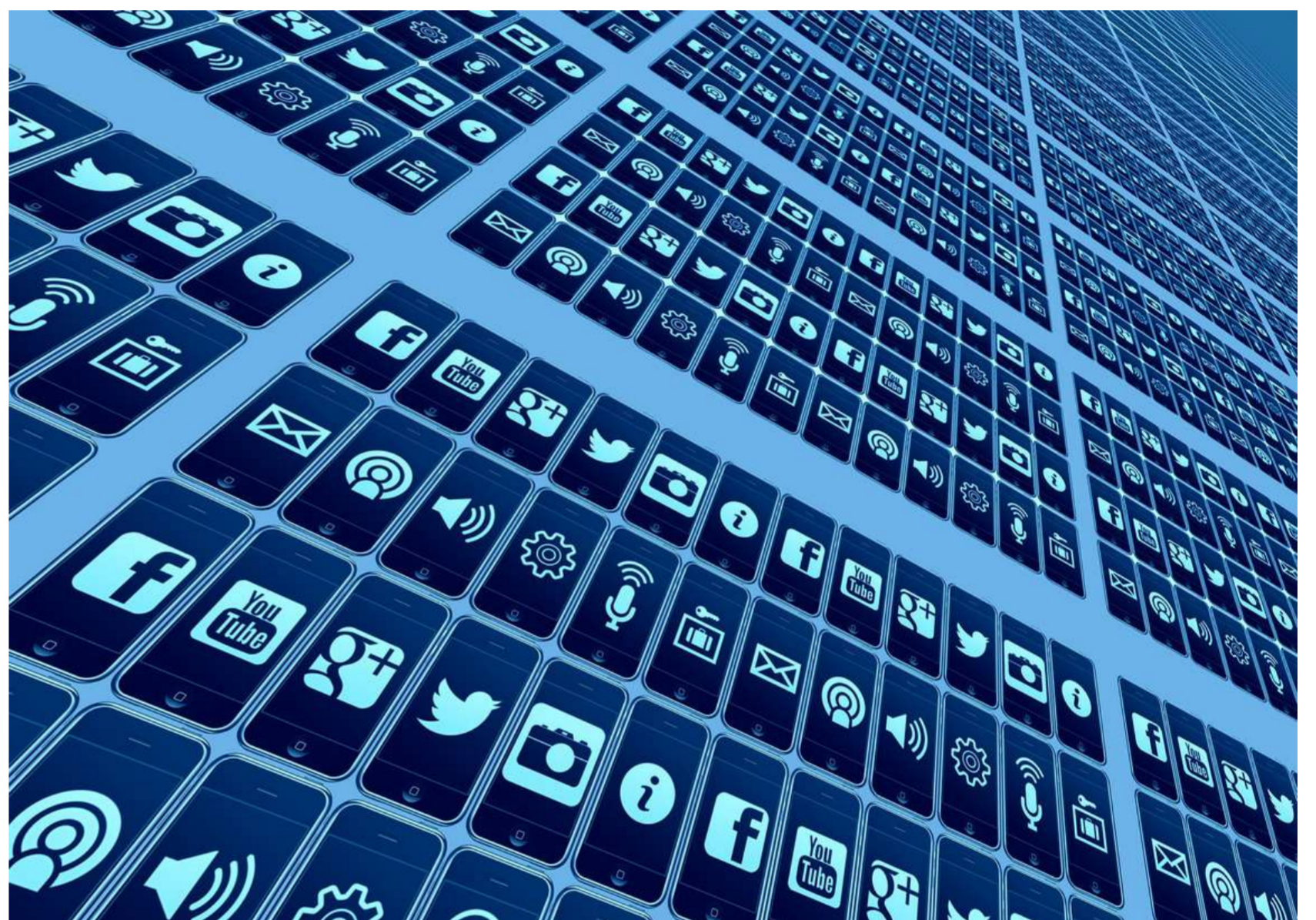


Trending



An accurate AI algorithm

Adverif.ai, founded by Or Levi, established a tool which can detect misleading information and inappropriate content, with an accuracy of 90 percent, uses Deep Learning to analyze text or a story. This is similar to Google's PageRank, which is an algorithm that calculates the importance of a webpage. With both algorithms being trained with more knowledge, more accuracy is guaranteed to come.



Other problems

Fake news is generated every day on various social media platforms. Since social media focuses on giving every individual a voice, other problems can occur, such as hate speech. Hate speech is reported to be growing at an alarming speed on Twitter, while other social media companies such as Facebook and Youtube have been able to reduce such violations. Severe problems which can damage economic, social, cultural, and political trust would lead to a fearful environment. With increased global connectivity and opportunities, we must act against the problems which arise from the benefits of social media.



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Ashita Gulati

10 Amazing Tech Gadgets



AI has advanced in its development and is improving its qualities to build an efficient source to help human beings in organizing, cleaning and more; read about these featured gadgets powered with AI which have risen in popularity.



Relay | Savioke

1. RELAY, THE FIRST DELIVERY ROBOT

'Relay' is the first delivery robot to have the capability of navigating locations based on pre-generated maps and deliver a range of objects efficiently. This robot is often used in hotels due to its helpful nature in supporting the staff members and is a convenient way to keep track of deliveries.



3E - A18 | Honda.co.jp

2. THE 4 'HONDA 3E ROBOTICS': 3E-D18, 3E-B18, 3E-A18, 3E-C18

Honda developed the concept of the 3E robotics in 2017 leading into 2018, which were unveiled in the annual event of technology innovation, CES 2018. All robots fall under the category of 3E, a symbol to demonstrate empathy, empowerment, and experience. These 3 characteristics are believed to be a productive and encouraging way of enhancing our daily lives. Each robot contains a special use for building a connection between machines and humans. For example, 3E-D18 is used for construction workers or firefighters for rescue missions or for physical labor.



CX - 1 | Evolving Science

3. FORWARDX ROBOTICS' CX-1, THE SELF-DRIVING TRAVEL LUGGAGE

The ForwardX CX-1 Luggage was displayed in CES 2018 for being an amazing innovation. The CX-1 is designed to travel on its own by navigating its location and identifying its user. It avoids crashes using artificial intelligence and to navigate around an object. In case, its battery runs low or when it loses its user, the CX-1 can message the user to get back on track. In addition to its efficiency, it is proven to help travellers loosen up before going on a flight and it is one less thing to worry about when rushing to get on the plane.

4. ORCAM MYEYE 2.0; TEXT READING



Orcam MyEye 2 | ORCAM

The OrCam MyEye 2.0 is a device to enhance the knowledge of a person with limited eyesight. It contains a camera, the size of a finger, and incorporates artificial intelligence to read the text displayed on the camera screen. This gadget would be able to enhance the capabilities of a blind to read books, signs, banners on their own and also obtains facial recognition/identification of objects.

5. TAPIA; THE AI ROBOT

Tapia is an AI-powered robot that obtains the skill to understand the emotions of a human being and react accordingly. It is a well-developed communication robot and is a great companion for daily lives. Tapia contains the features to analyze the human emotions by tone, pitch, and speed of a person's voice. Additionally, Tapia acts as a guardian and checks on its user while filling them with daily news and following up with questions or tasks.



Tapia | MJI Robotics

6. MY SPECIAL AFLAC DUCK™; A WONDERFUL COMPANION

My Special Aflac Duck has been debuted through the Aflac Foundation to enhance the lives of children with cancer. The Aflac Duck has a furry complexion and is friendly and compassionate to the children. The Aflac Duck contains features of dancing according to music, express emotions, and show affection to their users. Through this robot, happiness is spread to the patients and artificial intelligence is used to cure and help human beings.



My Special Aflac Duck | ABC News

7. VI, THE AI PERSONAL TRAINER

Vi launched in 2017 and was founded by the CEO of LifeBEAM, Omri Yoffe. Vi is a personal fitness trainer; designed to incorporate one's daily schedules on exercising, as well as the stats on its system to be an efficient source for those who aspire to improve their fitness. The pair of wireless earphones contains bio-sense and is able to communicate with the athlete, the way a coach would.



VI | Uncrate

8. CHRIS, THE DIGITAL ASSISTANT OF DRIVERS

Chris is known as a digital assistant as the device is able to communicate with the driver by reading their text messages or answering calls. As it is important to pay attention when driving, Chris is established to ensure there is no trouble and if an emergency occurs, the device provides the service to answer calls and keep track of the communication with others. In addition to providing services with communication, Chris is also able to navigate locations and play music to enhance the car trip to a safe and efficient level.



Chris | Kickstarter

9. NEST THERMOSTAT, AN EFFICIENT HOUSE KNOWLEDGE DEVICE

Nest Thermostat is an efficient device to help with setting up the temperature of the house and since it is aware of the house conditions, it is knowledgeable of the details including the speed of heating up the house. It also learns your schedule to ensure that there is no energy wastage, which is eco-friendly and also reduces heating bills. In addition to analyzing the heating and cooling system, the gadget can also notify you when something is overheating and if it could lead to dangerous possibilities.



Nest Thermostat | Nest Store

10. SUNFLOWER DRONE: A SECURITY SYSTEM

The Sunflower Drone is a security system to navigate and detect suspicious activity around the house. The Drone is known for having the sense to deter a suspicious visitor before they reach the house using three features: Sunflowers, Hive, Bee. The Sunflower lights up the scene to build a clearer vision and senses the presence of moving things. The Bee is able to fly around the house with sensors and a camera to record the scene. Lastly, the Hive is a base for the bee to return when finished its work with its protection services. It is estimated to start shipping in early 2019.



Sunflower Drone | Uncrate

BLACK HOLES

By Youngwoo Chang



A picture of a black hole.
- Pexels

Black holes, which many of us may view it upon as a devastating region of space which consumes all matter around its vicinity, might as well be called a 'cosmic vacuum cleaner'. With its tremendous gravity with an escape velocity of more than the speed of light, black holes are commonly debated upon, including their properties and bizarre physics that go along with it.

A black hole, an area of space where gravity is so intense that no matter can escape (not even light), is not a 'cosmic vacuum cleaner'. What makes black holes appear black are the light waves, which will use an infinite amount of energy trying to escape the black hole. Black holes are essentially the remains of the explosion of a massive star with a core of at least 2.8 solar mass, which means that not all stars end up as a black hole and that black holes are not so large initially. Clearly, because of its lack of size, black holes can only take in matter that is close enough.

Black holes are formed when a massive star, at least with a core of 2.8 times the sun's mass (a star of more than 20 times the sun's), explodes through a supernova. The star will start collapsing as it marks the end of its life. First, it will face the pressure of electrons resisting being close together (electron degeneracy pressure). However, the tremendous gravity overcomes this pressure and the star continues its collapse. As it continues its collapse, another pressure comes into play when the star is about 20 kilometers across - about neutron star-sized. Neutron degeneracy pressure comes into play where neutrons resist being placed in the same place, but the tremendous gravity overcomes the pressure and the core continues its collapse, forming a black hole.

BLACK HOLES

By Youngwoo Chang

Black holes have an impressive property- an escape velocity of more than a speed of light and an event horizon. The event horizon is the 'surface' or the 'edge' of the black hole where the escape velocity is the speed of light; it is thought the region where no matter escapes. In addition, black holes have tides, which occur because of the weakening of gravity with distance. Stellar-mass black holes, black holes between three to twelve times the sun's mass, will inflict strong tides when a small object such as a person or a moon falls in; the front side of the moon pulls much harder than the far side of the moon. The moon will rip apart and stretch immensely, becoming something similar to a long, thin noodle. Believe it or not, the name for this process is called spaghettification. Supermassive black holes, black holes that consumed more matter and became larger, will inflict less severe tides because the moon's size gets less significant compared to larger black holes.

Many scientists debate that if the event horizon exists because when quantum mechanics is applied to black holes, particles do get emitted. According to National Geographic, Steven Hawking stated that there are "apparent horizons" that allow black holes to trap matter and energy temporarily and get emitted back out after some time as radiation. This means that black holes will eventually evaporate after a long time through 'Hawking Radiation.'



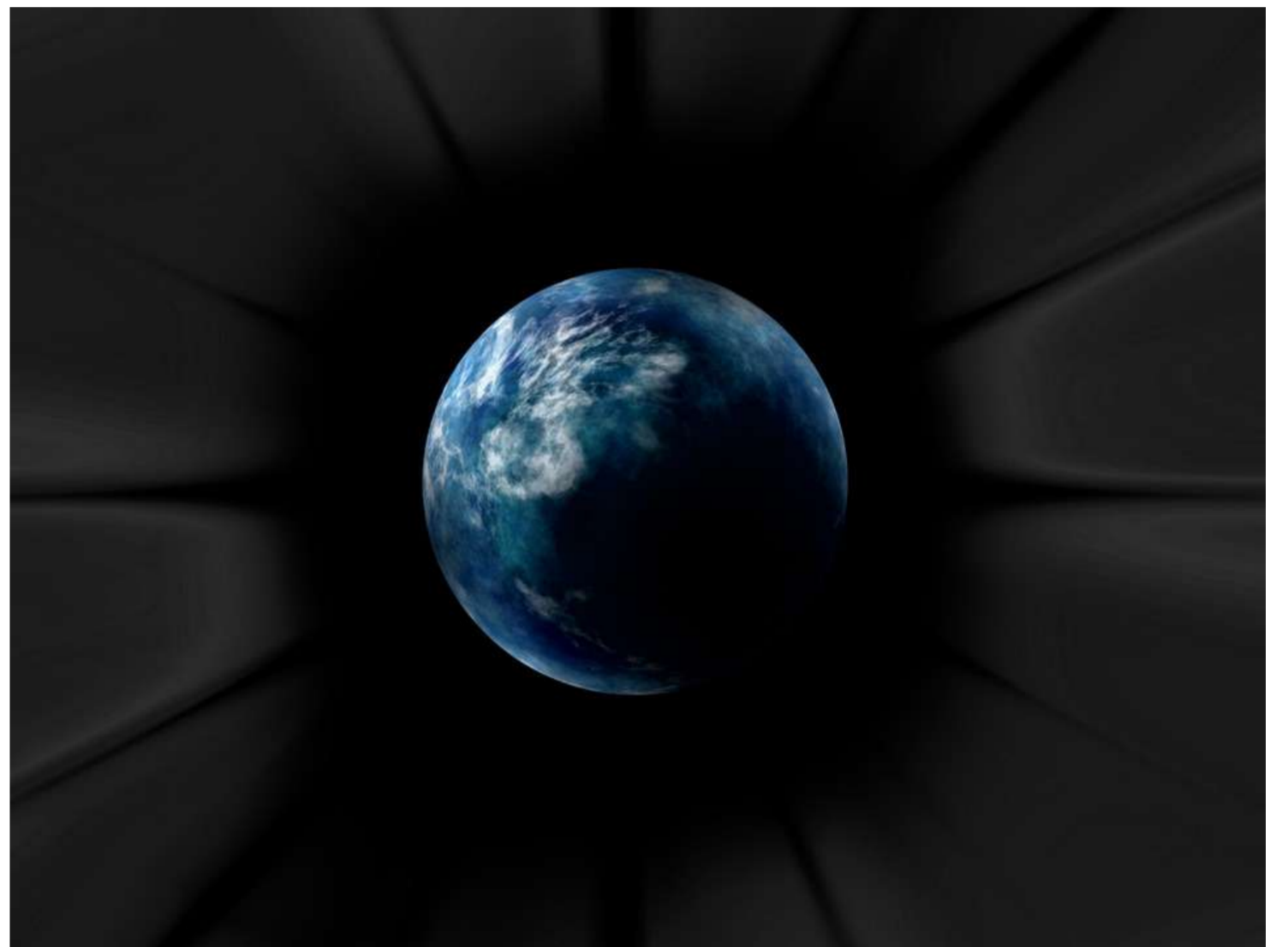
Einstein proposed a theory where time is slower in places where gravitational forces are stronger. He also stated that space and time are related and that space is a sheet or like a woven cloth. A massive object with strong gravitational force will distort the space a lot more than a lighter object. In black holes, the gravity is so intense that it distorts the space so much that time nearly stops. When an object falls in a black hole, an observer will see it take almost forever to go in while for the object's perspective, it will feel as if almost all the time passed.

BLACK HOLES

By Youngwoo Chang

Researchers from the International Centre for Radio Astronomy Research (ICRAR) has trained an AI program to identify supermassive black holes that emit radio jets in different galaxies using a program that allows a robot to identify different faces. Because of the theory that supermassive black holes exist at every center of the galaxy, the AI robot was trained to identify the location of the different galaxies. The reason why it is hard for humans to detect galaxies is that jets from the Supermassive black holes contain radiation which misleads the accurate location of the galaxy. Approximately 10% of the galaxies (about 7 million galaxies) are very difficult to locate and identify because of their expansive structure. The researchers gave quality data for the robot to use as reference and they are planning to obtain new, fresh data from the robot looking out into the far universe, which would trace its way back to the original point of the jet where the center of the galaxy should be. Dr. Wong from ICRAR explains that traditional programs would not be useful for identifying new galaxies; the objective is to classify many different galaxies and if possible, to find a new type of class of galaxies.

Black holes, a relatively new topic which a lot of their properties are debated upon, scientists are still digging further to obtain useful information. For now, the topic is unclear and our knowledge of black holes are superficial. However, AI can help us to further detect different black holes and allow scientists to study them as they are used to detect many different gamma-ray bursts in the vast space. With continuous research and study, we may be able to come up with a better equation to apply to black holes to learn more about it and possibly figure out the beginnings of our universe.



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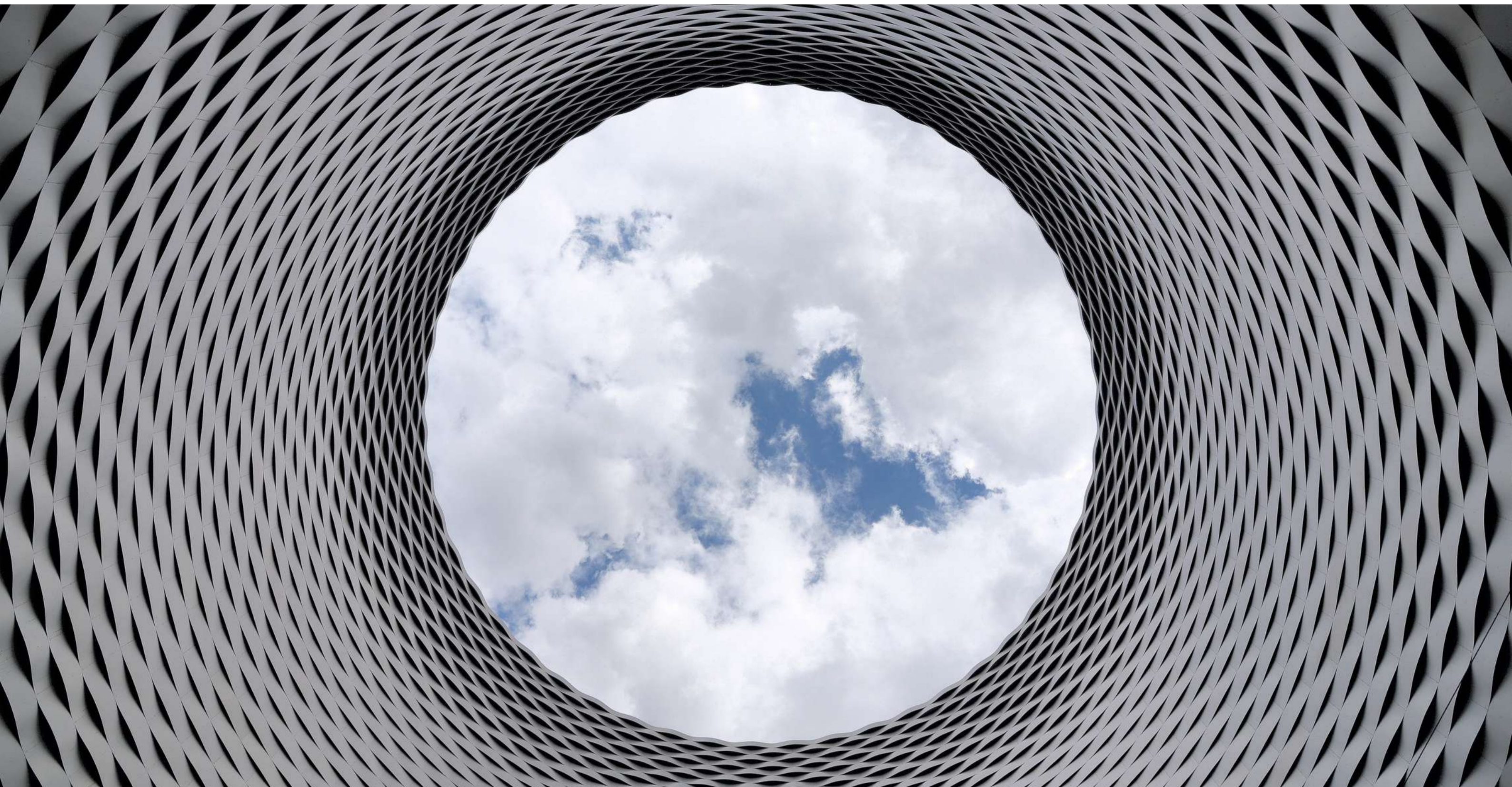
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OUR FUTURE

*Read how AICRE began and what we are planning to do NEXT.
- Story by AICRE members*



When we posted our first article four months ago, I never thought we would gain an audience with interests which we cover. I thought that this website of sharing content based on AI and ML would not last long. Not until I encountered an entire audience of similar interests on the internet, and I discovered organizations raising awareness for women in STEM. I decided that we need to engage young learners and a wider range of audience members into the capabilities of AI shaping our world. Because AI has been developing and changing our society so rapidly, it is important to share our knowledge with others to encourage interests in the area of AI and computing.

Now, with a team of strong determination and big goals, we hope that our website can benefit different learners.

Seoyoon
Chang

'AICRE' has now been running for 4 months, and has made several accomplishments including the publishing of our first magazine, as well as the writing of articles. I find it interesting to observe the significant changes in our world, and so far, the development of AI has captured everyone's attention. Through our efforts, we aspire to build connections among learners regarding the constant development of AI, and how it would shape our future. I am excited to be able to engage the audience through our platform site, and with many more events to come, such as the 'Hackathon', I hope to make new discoveries with the team, as well as the audience members. Thank you to all supporters who have come along with us on this journey and we are excited to provide you with more resources in the future.

Ashita
Gulati

To me, AICRE is more than a resource with information and projects on AI; it is a team. We want to give readers resources which are based on AI and provide information which have never been seen before. As students, we might face trouble while regulating time; however, our passion does not allow any of us to stop learning more. Learning is a fascinating quality for us to have, and I believe that AICRE is an opportunity for people like us to share their experiences and knowledge. I couldn't be happier to present you with our first magazine to showcase our individual efforts combined that form the connection of our team and we hope you enjoy it with the hope for more interesting works to come.

Sunny
Saito

Genuinely, I think that AICRE needs more knowledge and experience. We still have a long way to go and we just had our first step in learning about our progressing world. I hope AICRE can learn more about AI and make our own mini-project by making a small AI program and go forward into learning different, more complex programs so that we can build our knowledge and experience. I hope I can learn more about the vast universe, learn more about the tools used to help detect planets, star clusters, etc, and also learn more about the different techniques or ways used to identify them. Having experience with AI probably will help us in the future so if we can start looking more deeply in it earlier, it can get to know the way we can implement AI in programs and actually use some of the simple ones.

Youngwoo
Chang

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