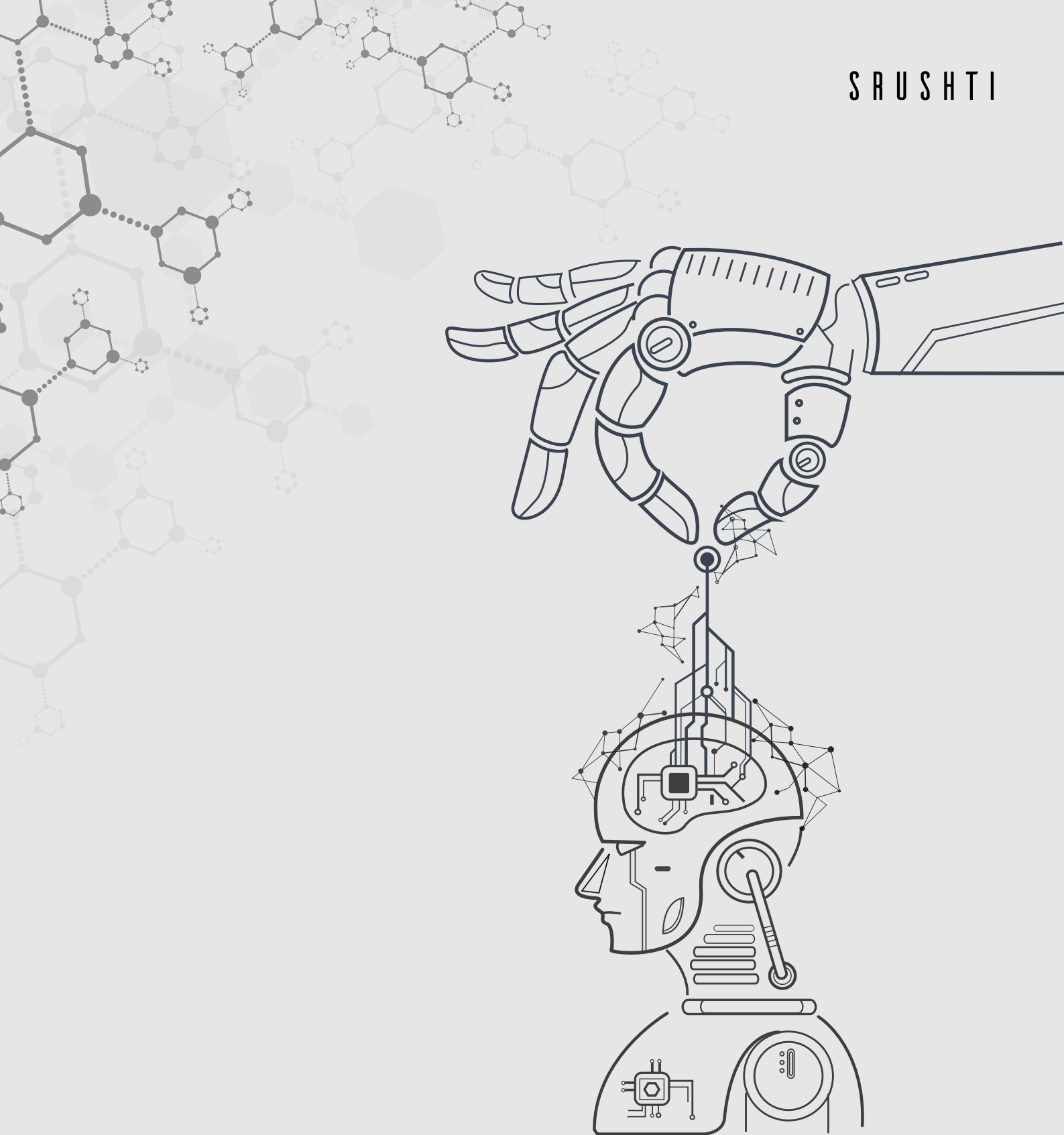
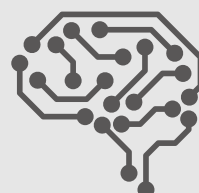


SRUSHTI



HOW ARTIFICIAL INTELLIGENCE IS TRANSFORMING HUMAN BEINGS -

# THE IMPACT AND SCOPE OF A.I



# Change Alone Never Changes

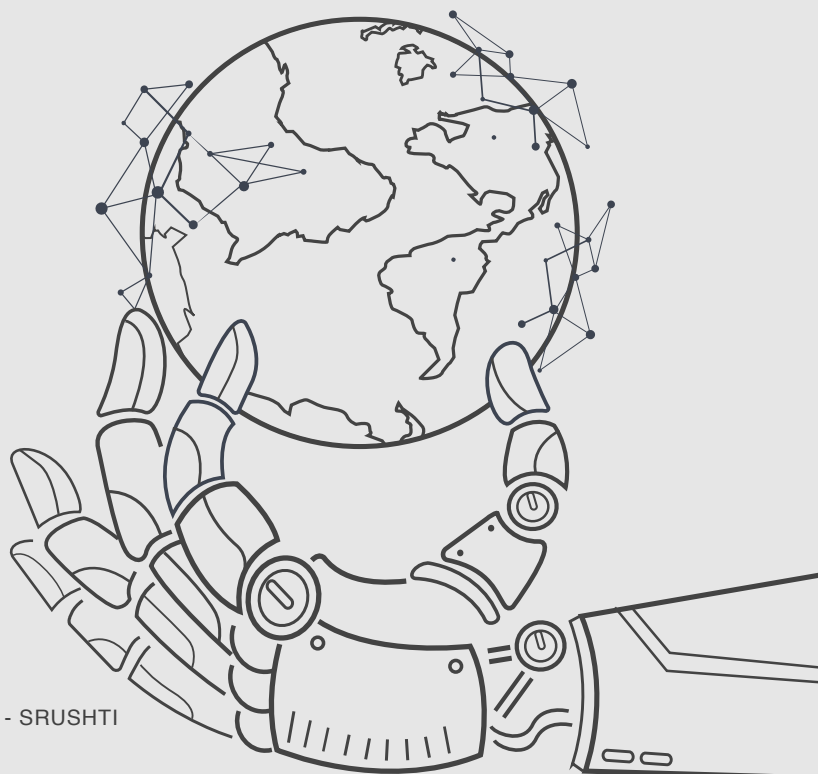
## Introduction

In the words of renowned physicist Stephen Hawking “Intelligence is the ability to adapt to change”. Evolution is an ever continuing phenomena and the only thing consistent about mankind is change. As daily life got more and more automated and machine centric, creative brains began to widen the scope of such machines. A generation back, people used to say that you can hire anyone or anything to perform any tasks for you but not to think for you. But we, the citizens of twenty first century, know today that it is indeed a possibility. A simple example is how we schedule our day based on alerts from intelligent personal assistants such as ‘Siri’ and ‘Alexa’. So, as machines and automated devices enhanced their potential, artificial intelligence started to have prominent influence in our day to day life. As Hawking pointed out, the world has slowly started to adapt to that stupendous change.

## A Little History

The seeds of artificial intelligence can actually be traced way back to the antiquity period before the middle ages. Talos, Galatea and Pandora from the Greek myths of Hephaestus and Pygmalion were some of the very first ideas of artificial beings and intelligent robots. Somewhere between 1023 and 957 BC, Yan Shi, a craftsman, gifted life sized automated mechanical men, a wondrous engineering invention to Mu. Yen Shi, the fifth King of Chinese Zhou Dynasty.

The rapid strides and up and down movement of their heads made them look almost like human. Interestingly, they were even able to sing. Heron of Alexandria, a Greek mathematician and engineer was an avid explorer of automated machines. Heron invented a completely mechanical play lasting ten minutes for the Greek theater which was run using a binary like system of ropes, knots and other machines which was operated by a rotating cylindrical cogwheel.



Some of his other major inventions include the first vending machine, first wind powering machine, force pump and a programmable cart powered by a falling weight. It is widely believed that his works formed the base for what later came to be known as cybernetics. Towards the year 1275, Ramon Llull, a Spanish theologian, introduced 'Ars Magna', a tool that could help connect concepts mechanically. The concept was based on 'Zairja', a device that medieval Arab astrologers used. The idea behind the invention was to use logical means to generate knowledge. In 1642, when he was just 19, the famous mathematician Blaise [Pascal](#) invented mechanical calculator.

He designed the machine to directly add or subtract two numbers and to divide and multiply using repeated addition or subtraction. In 1672, German mathematician Gottfried Wilhelm Leibniz, introduced digital mechanical calculator, known as '[Stepped Reckoner](#)', that could perform multiplication and division. Leibniz's operating system was carried forward to many calculating machines for over 200 years. He also envisioned the concept of universal calculus of reasoning where arguments can be settled down mechanically. He also worked on assigning a specific number to each and every object of the world which could serve as an algebraic solution to all problems in the world. In the 19th century, Charles Babbage and Ada Lovelace designed '[Difference Engine](#)', an automatic mechanical calculator to organize polynomial functions. Most mathematical expressions used by engineers, scientists and navigators can be approximated by polynomials and hence the device helped to calculate many important table of numbers.

One of the major discoveries in artificial intelligence came in the twentieth century, when Alan Turing's 'theory of computation' indicated that a machine, by rearranging simple symbols as '0' and '1', can actually simulate any type of mathematical conclusion. This led the world to seriously consider the possibility of developing an electronic brain. The first work that is generally considered as artificial intelligence is Warren Sturgis McCulloch and Walter Pitts official design for Turing-complete artificial neurons in 1943. During a conference at the Dartmouth College in 1956, the first true artificial intelligent program 'Logic Theorist', developed by Allen Newell, Herbert A. Simon and Cliff Shaw was introduced. This program, that could mimic the problem solving skills of human beings became a massive success and from then, there began widespread research in the AI domain. With the commercial success of 'expert systems' that could imitate the knowledge and analytical skills of human beings, AI stepped into the next zone of progress. Towards late 1990s and 21st century, AI became a prominent element in logistics, data mining, medical diagnosis and many other areas. From then, advanced computing power, statistical techniques and access to large amount of data significantly changed the overall state of artificial intelligence.

## Current Trends

Do you know that today we create 2.5 quintillion bytes of data everyday. Strikingly, almost 90% of the data we see today were created in the last two years alone! From sensors that calculate climate information to GPS signals, transaction records, digital photos, videos and social media posts the data comes from everywhere. Every little digital thing we do is generating data like never before and this is exactly what machines need. Using this bulk amount of data, machines can create patterns which will eventually help them to learn more about human psychology and behaviour. They have already made progress in this regard and let us see some of their present day applications.

# Transport

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## Driving Assistance

You might already be familiar with cars that have automatic transmission. But lately, enterprises have introduced several other pathbreaking technologies to smoothen the process of transportation. An important player in advanced driver assistance and autonomous driving is Quanergy systems. With features such as parking assist, blind spot detection, lane keeping, autonomous emergency braking, traffic jam assist and adaptive cruise control they help drivers in preventing collisions and accidents. The system provides situational data for the vehicle to drive on itself as well. Using their sensing and perception system, commercial vehicles can also provide significant security related insight into the functioning of the vehicle.

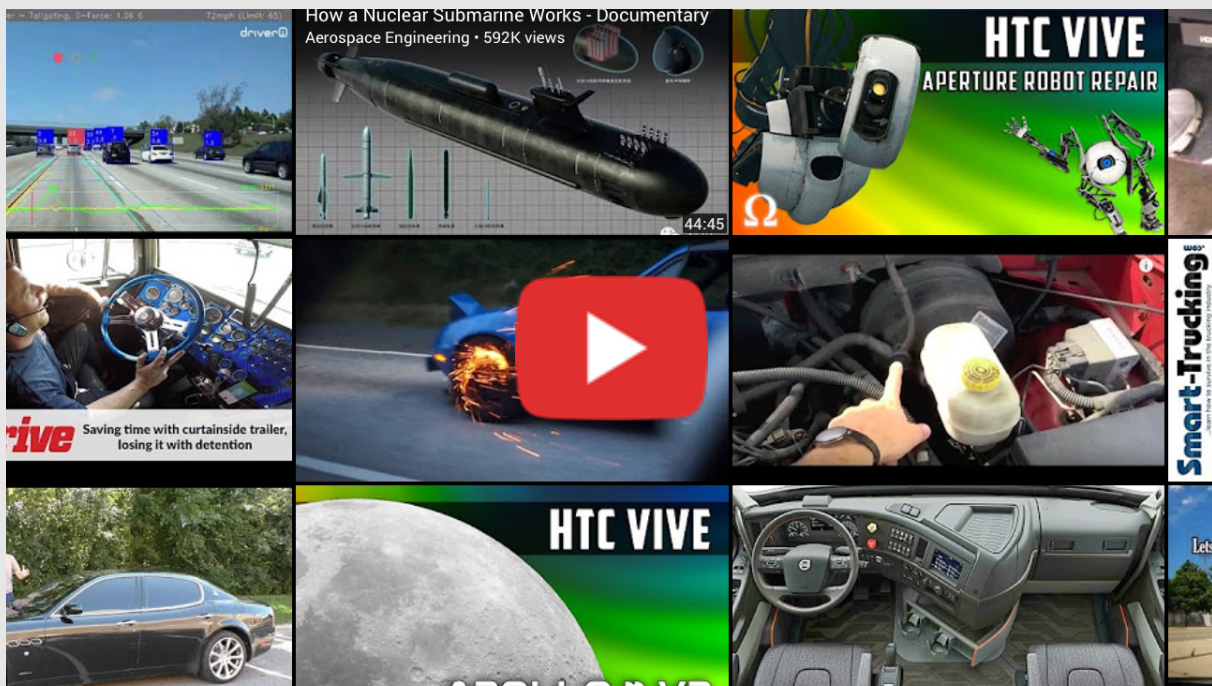


SOURCE : AURO - SELF DRIVING SHUTTLE

Auro Robotics based in U.S has developed a driverless shuttle for in-campus travel. These zero emission shuttles are exclusively designed to navigate across busy campus pathways and it is suitable for travelling across university campuses, corporate parks and residential communities.

## Regulation And Control

'Netradyne', who has their office in San Diego California and Bangalore India, launched 'Driveri' platform to capture every moment of the commercial driving experience. A gadget armed with cameras is set in the rear view mirror of cars and this records the driving pattern and surroundings. The system can also recognize everything on the road from vehicles, pedestrians,



SOURCE : HARD BRAKE EVENT FROM NEWLY LAUNCHED NETRADYNE VIDEO-MONITORING PROVIDER

## Research And Safety

Artificial Intelligence not only helps in smooth day to day transportation but also helps to broaden research and security. Suppose you are an individual or a firm that has to research on seemingly unreachable areas like mines or deep areas of an ocean or sea. How could you go there and collect all the relevant data? This is where, startups like [Clearpath Robotics](#) can be of help. They provide robotic hardware, software and services to facilitate robot development, deployment and operation

red lights and even animals. They can detect unsafe drivings like tailgating and harsh braking and also recognize traffic violations. The system also foresees emergency events and can instantly alert the fleet supervisors. Netradyne is the first commercial vehicle technology provider to merge artificial intelligence with video to detect and determine the causality of events.

Nauto is another such platform that uses deep learning artificial intelligence technology to track driver alertness, near misses and unsafe driving habits. Their air powered dual camera can learn from both the road and the driver and provide guidance, insight and even real time feedback. This will significantly benefit fleet companies, city transport controls and even the insurance companies which will correspondingly make any city a safe driving place.



SOURCE : GM'S ONSTAR GO PUTS IBM WATSON IN CARS. ONSTAR GO IS FIRST COGNITIVE MOBILITY PLATFORM FOR CARS

for research and industrial environments. Recently they were involved in a project with Singapore government to monitor and survey the Singapore coast. The information supplied is used to generate new tools to improve the accessibility of harbor and to monitor harmful algae bloom, land reclamation and so on. Railpod is a system that combines numerous inspection technologies into one platform to reduce railway inspection budgets and supervisor's physical presence.



This portable system has a wide range of inspection capabilities that can be used by any inspector with minimum amount of training. Wider data sets of rail condition measured frequently would result in a more efficient and safer rail road network. Moreover, supervisors don't have to expose themselves to dangerous environments and they can easily monitor multiple networks at the same time. They can even analyse how compatible a rail system is to the geography and rail habits of a territory. Any minor flaw in the system will be instantaneously alerted upon and corresponding action can be taken immediately. Imagine the number of accidents it could save! They can also predict future maintenance needs by determining the future geographical and climate changes.

## Research And Safety

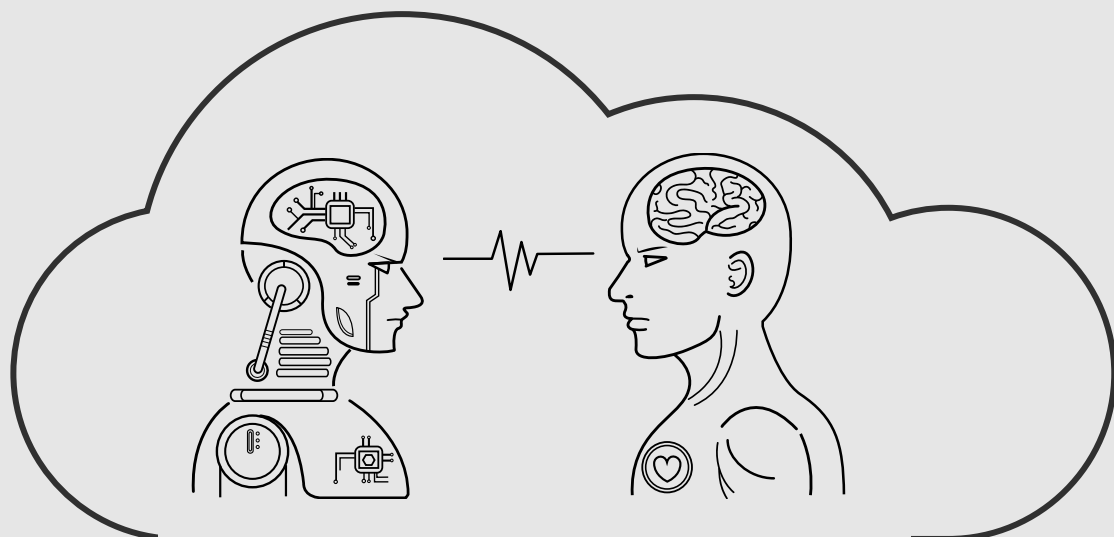
Shared computer processing resources help to fasten the processing speed, enables huge data access and analytics and also provides centralized connectivity. This makes cloud computing an ideal platform to deploy artificial intelligence in the field of transport. Recently, General Motors partnered with IBM to launch a connected car platform 'OnStarGo' which was the first cognitive mobility platform for the car industry. This platform uses IBM's supercomputer 'Watson' which defeated world chess champion Garry Kasparov back in the late 1990s. General Motors already has an OnStar system that provides security and navigation assistance to users. OnStarGo aims to broaden its capabilities by adding user data and enabling mobile commerce. The system can study the daily habits of its drivers and recommend suggestions using the ai technology. For example, they can study your restaurant habits and suggest nearby hotels as you are driving through a new city or town. When you are in a new place and if you are confused what might be the healthy food, 'Watson' can come to your rescue. The system can access the temperature outside together with your eating and drinking habits and recommend the best seasonal drink or food from the shop nearby. How many times have you partner blamed you for not buying things you are not supposed to. Watson can save you here too.



Depending upon your purchase cycle and habit, they can instantly remind you to buy things that matter as soon as you are about to pass through a shop. They can even automatically order food or shopping items based on your buying history as soon as you get near the shop, saving you ample time. Additionally they can locate gas stations and also enable the driver to pay for the transaction from inside the vehicle.

## Cloud

Shared computer processing resources help to fasten the processing speed, enables huge data access and analytics and also provides centralized connectivity. This makes cloud computing an ideal platform to deploy artificial intelligence in the field of transport. Recently, General Motors partnered with IBM to launch a connected car platform 'OnStarGo' which was the first cognitive mobility platform for the car industry. This platform uses IBM's supercomputer 'Watson' which defeated world chess champion Garry Kasparov back in the late 1990s. General Motors already has an OnStar system that provides security and navigation assistance to users. OnStarGo aims to broaden its capabilities by adding user data and enabling mobile commerce. The system can study the daily habits of its drivers and recommend suggestions using the ai technology. For example, they can study your restaurant habits and suggest nearby hotels as you are driving through a new city or town. When you are in a new place and if you are confused what might be the healthy food, 'Watson' can come to your rescue. The system can access the temperature outside together with your eating and drinking habits and recommend the best seasonal drink or food from the shop nearby. How many times have you partner blamed you for not buying things you are not supposed to. Watson can save you here too. Depending upon your purchase cycle and habit, they can instantly remind you to buy things that matter as soon as you are about to pass through a shop. They can even automatically order food or shopping items based on your buying history as soon as you get near the shop, saving you ample time. Additionally they can locate gas stations and also enable the driver to pay for the transaction from inside the vehicle.



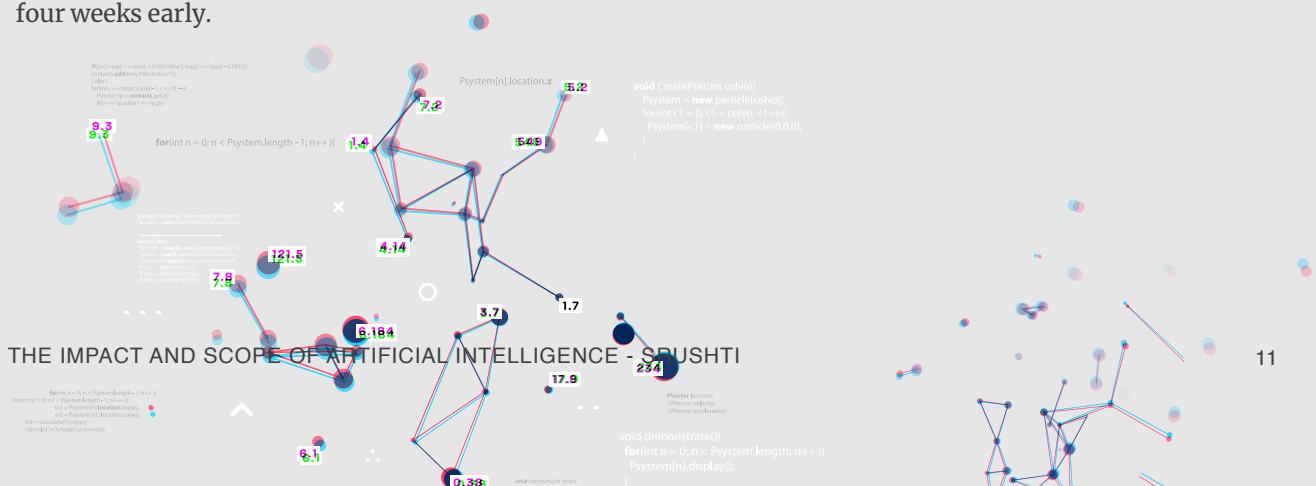
# Education

Education by itself is a powerful tool that can change the world. With technology coming to its aid, the future education will be powered by flawless intelligent and smart systems. We are already familiar with massive open online courses, virtual classrooms and visualized learning. Let us see some of the present level ai implications in education.

## Knewton - For Personalized Learning

No two students are the same. The strength, weakness and understanding level of every student is different. But do the study materials consider this as a factor? Whether you are a slow learner or a quick one, traditional textbooks can only teach you content one way. What if there is a change to this. What if you can personalize your education just like how you customize your social media and applications to receive only information that you need.

This is what 'Knewton', an adaptive learning company based in New York has went on to achieve. Knewton, regularly evaluates how each student learns a concept and thus automatically determines whether to provide a text explanation, video clip or even a game! Students can also select the level of practical questions that they wish to attend. So, just like you play a video game you can opt for easy, medium or hard level of questions. When students log in to Knewton, they can see their recent achievements, latest assignments, overall progress and also fellow study partners who are online. Students can also easily interact with learners whose learning methods are the same and help each other to improve their learning process. When teachers use Knewton, they can easily figure out the learning style and progress of each of their students and compare them to their region or even to all students in Knewton. They can determine which teaching style would suit best and what topics would need additional attention. Even parents can use the system to know where kids need their help. Parents can receive regular alerts on what concepts did their children study, what did they miss and how quickly they master a certain topic. Arizona State University reported that by using Knewton, their pass rate increased by 17%, course withdrawals dropped 56% and 45% of students finished courses four weeks early.





SOURCE : [KNEWTON ADAPTIVE LEARNING PLATFORM - TUTORIAL VIDEO](#)

## Infantium - For Cognitive Analytics And Brain Science.

Infantium is an application programming interface that helps content creators to personalize any digital content. Using behavioral data analysis and high end computing, infantium helps any publisher to generate products by learning and understanding how each child learns.

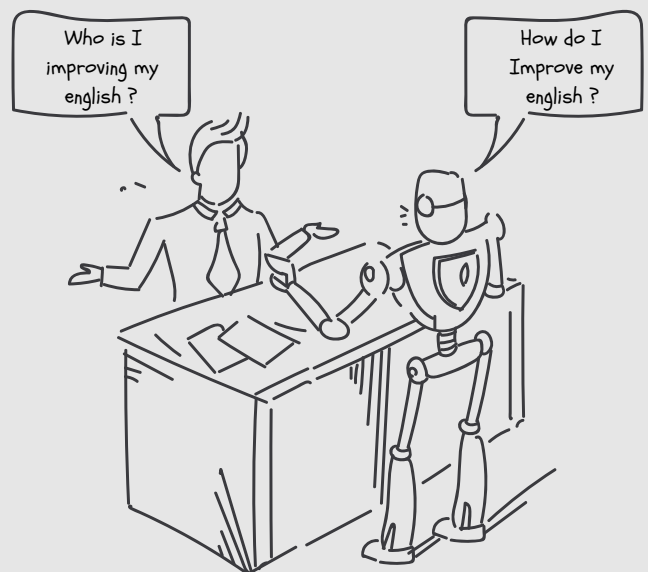


SOURCE : [INFANTIUM: ADAPTIVE LEARNING PLATFORM TO REVOLUTIONISE EARLY EDUCATION](#)

There are several applications and games that aids education. Infantium provides real time performance and usage reports to such developers and also analyses what sort of skills kids develop while using those apps. They could also let developers know the age group among which their app would best fit in. This way, developers can create more efficient and useful content that could tune the future generation.

## Speakingpal - To Improve English

SpeakingPal is a mobile education company that helps you improve your spoken English skills. It enables the user to speak with a video character and you would actually feel like talking to a live person. For every word and sentence you say, they provide instant feedback. Their multi answers option allows you to take control of the conversation and it listens, understands and responds accordingly. Additionally, they have plenty of video lessons, quizzes and games to develop your English. So, if you are struggling with English at school or if you find English as a hindrance to fly abroad or if you just want to improve your language skills, this can be a useful interface.



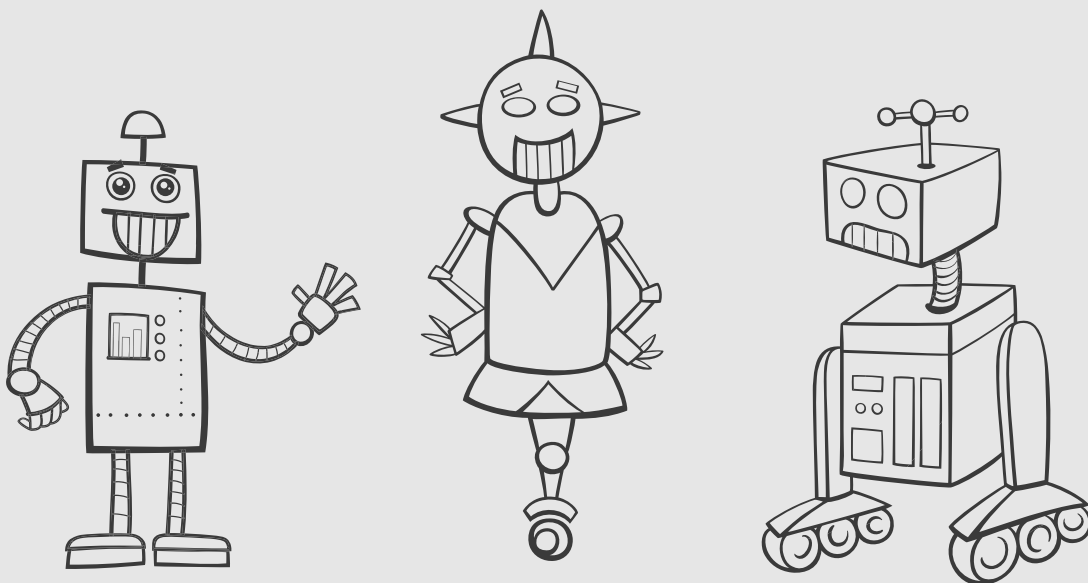
SOURCE : [SPEAKING PAL APP TEACHES YOU TO SPEAK ENGLISH, FOR REALZ](#)

## Kinderlab Robotic - To Learn Technology

What if children can themselves build robots to do what they want without the need of any smartphone, tablet or computer? This is what the KIBO program in KinderLab Robotics offer. The program is based on the core idea that children learn by doing. And by allowing children to make and program robots, it gives them a chance to make their ideas come alive. This way children can learn skills such as engineering and programming, problem solving and storytelling in a playful manner.



SOURCE : MEET KIBO!





# Healthcare

There is no doubt that technology has played an important role in improving the health and life span of human beings. Viruses and other harmful infections , that were once undetectable are now easily diagnosed and cured. With artificial intelligence on the upsurge, healthcare is only going to improve. Let us see some of the exciting present day uses.

## Enlitic - For Quicker And Accurate Results

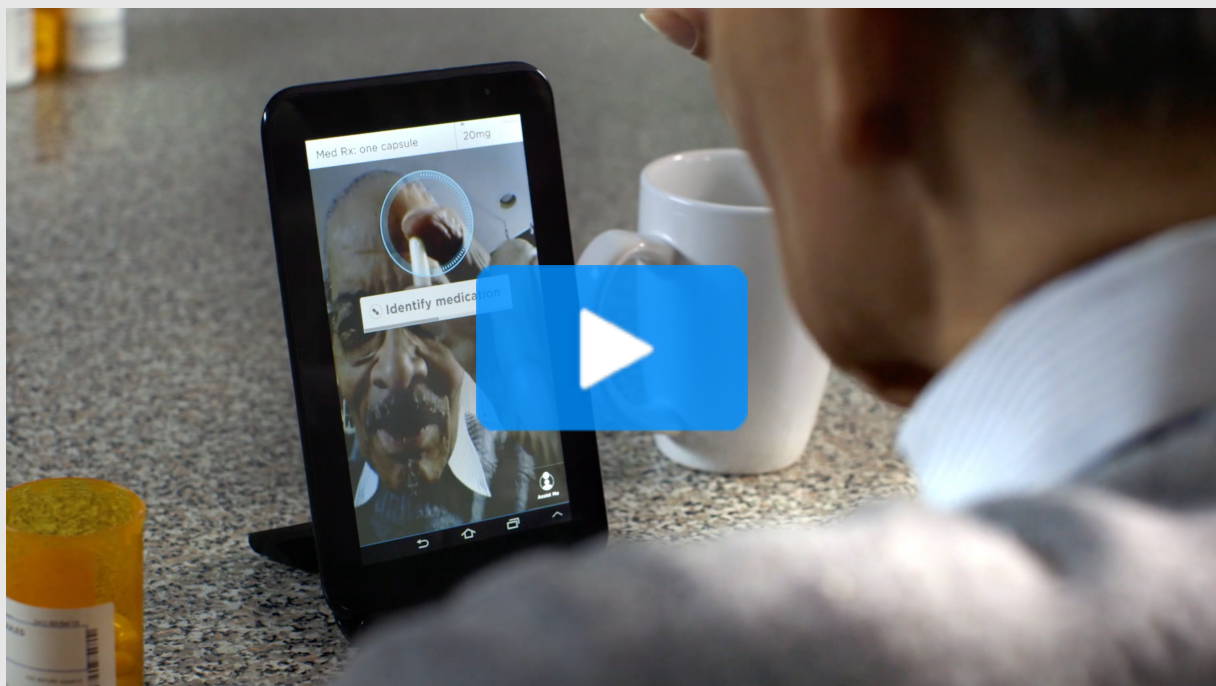
So you go to see your physician with all the medical images and X- rays. He takes a deep look at it, arrives at a conclusion and prescribes you further medication. But how many times have you opted for a second opinion just to make sure that your earlier physician was right? Now, what if there is a system that can interpret every medical image and improve the accuracy of physicians by 50-70% and at a speed 50000 times faster. This is the scope of 'Enlitic', a San Francisco based startup. Their 'deep learning' technology can incorporate wide variety of medical data including radiology and pathology images, blood tests, patient histories, genomics, EKGs and EHRs. This vastness provides better accuracy and in depth insights for every patient. In other words, this is like a super intelligent assistant to your doctor!



SOURCE : [CAPITOL HEALTH - ENLITIC](#)

## Aicure - For Improved Medical Adherence

It is reported that 30% of clinical trials fail and millions of high risk patients are hospitalized each year because of improper medical adherence. And in almost 90% of cases, the patient behavior stays unknown to the doctor or healthcare specialist. Aicure, a New York based startup is committed in changing that scenario altogether. They use artificial intelligence on smartphone to develop a visual recognition system that will recognize the patient's face and the medication they are taking. Once the ingestion is confirmed, the data is transferred to your healthcare specialist. Real time intervention will be triggered if there is any improper use of medication or suspicious activity. The system can also be customized according to disease type, demographics and risk factors. Biopharmaceutical companies can significantly benefit from the improved data regarding patient habits and this will allow them to focus on patients with lower compliance or higher risk factors. The system can be downloaded as an app to any mobile.



SOURCE : AICURE SPOT



## Icarbonx - A 'Digital Me' Guide

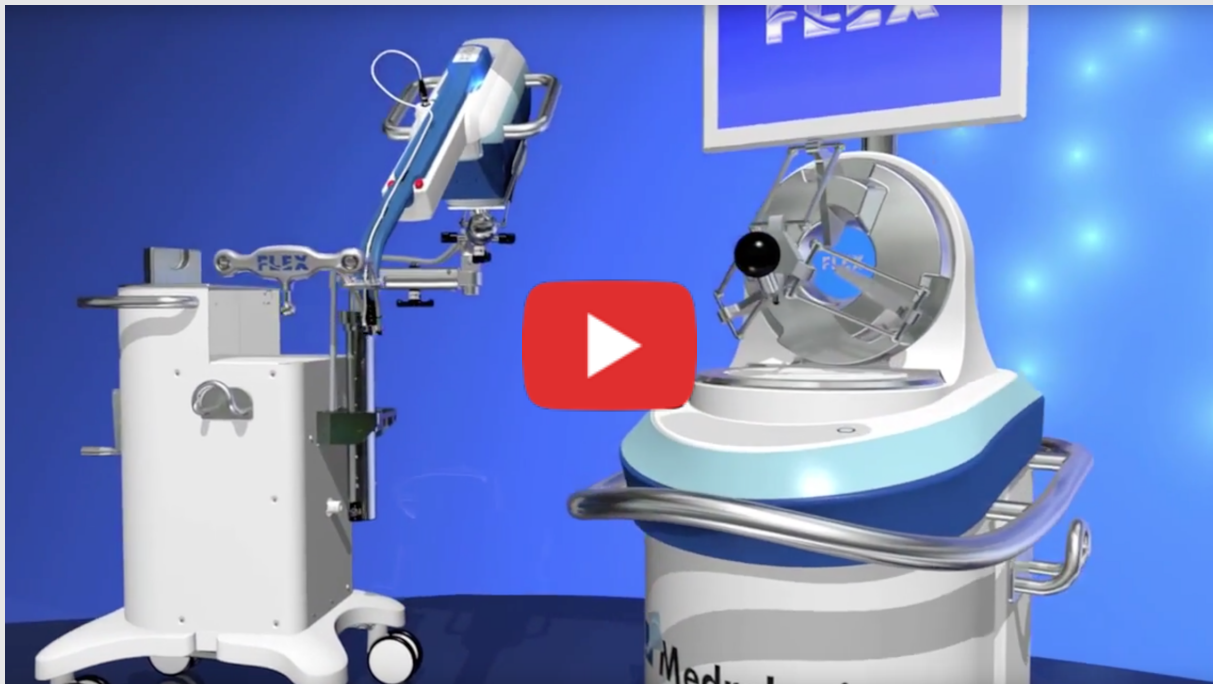
What if there is a system to observe, study, guide and take care of one's health right from the beginning of life. This is what 'iCarbonX', the Chinese startup is pursuing to achieve. They have formed alliance with seven international technological companies to gather various kinds of health data. Using algorithms to analyse genomic, physiological and behavioural data, the system would provide personalized health and medical advice to customers through an application. In addition to exploring genomes, the system will also scrub into biological molecules from various tissues and thereby maintain an accurate and actionable picture of an individual's health. One of their alliances Somalogic has a chip that measures 4200 proteins simultaneously. HealthTell, another alliance has a chip that uses 330,000 protein fragments to obtain antibodies from a sample of blood and they can provide information regarding disease progress, allergies and vaccine effectiveness. So, you can store your genomic data, medical data and daily health data to know your health condition whenever and wherever.



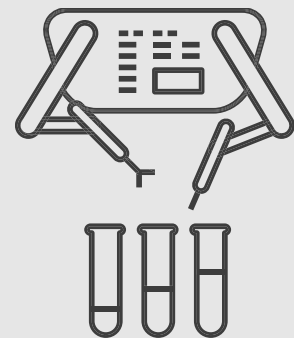
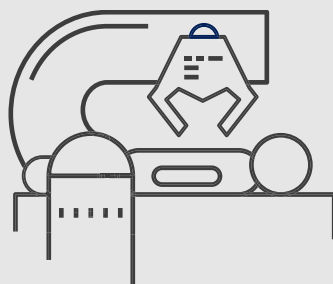
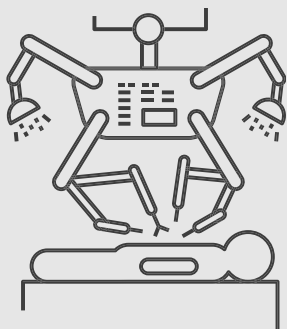
SOURCE : ALPHA UNICORN ICARBONX EYES 800M WECHAT USERS TO BUILD GLOBAL PRECISION HEALTH GIANT

## Medrobotics - Reducing Invasive Surgery

Medrobotics, a U.S startup designed a Flex Robotic System that helps surgeons reach areas of human body that were once impossible. This is supposed to be the first robot assisted platform cleared by the Food and Drug Administration for the use in transoral procedures. Through a single site, this minimally invasive system provides surgical access and visualization in difficult to reach locations. When the system is expanded through the body, it even remembers where the curves are and acts accordingly. They also have an HD camera, endpoint instruments and a small footprint for accessibility in hospitals. Using the highly flexible 'Flex Retractor', surgeons can also expand their reach in difficult parts of mouth and throat.



SOURCE : 2015 PBN INNOVATION WINNER - MEDROBOTICS



# Future Possibilities

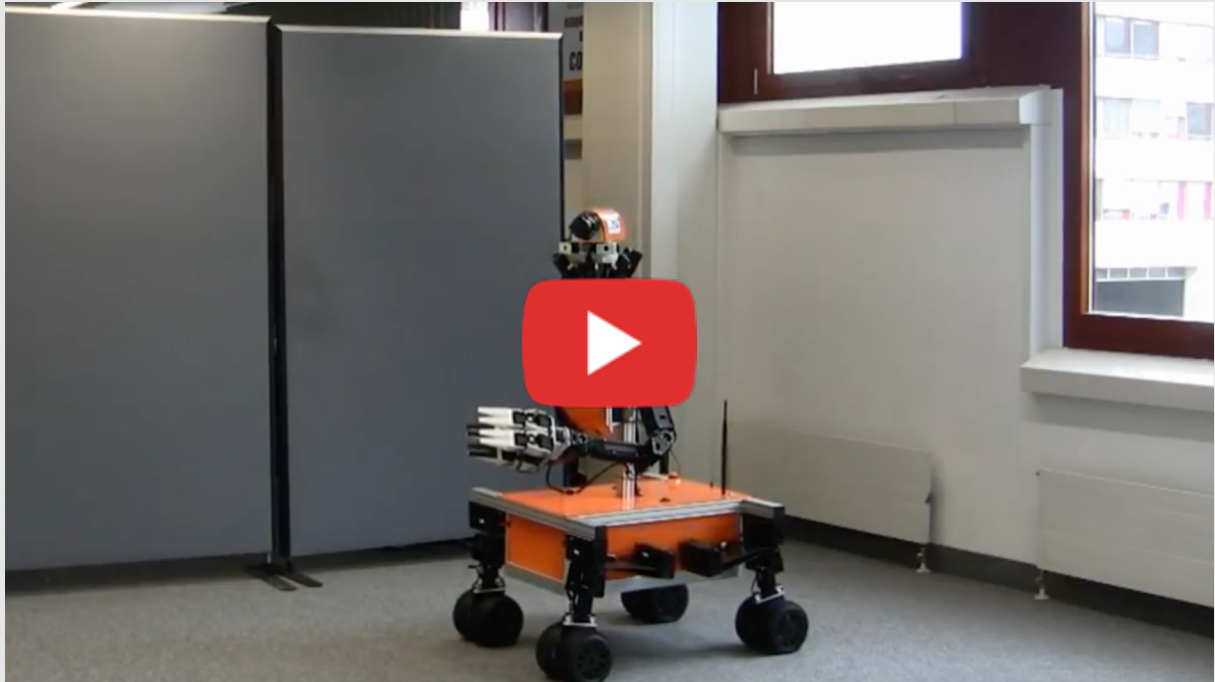
Human race have always been excited about the future. They have always looked into their prospects with hope and optimism. So many fictions and artforms too have tried to depict our probable future lifestyle. But as the saying goes, truth can be mightier than fiction because fiction is obliged to stick to possibilities. Truth isn't. With Artificial Intelligence gaining prominence, it would really take a bold man to accurately foresee the exact influence they could have in our future. However, let us have a look at some of the probable changes AI could bring to our life.

## Disaster Management and Protection

Remember the Rajinikanth Robo in 'Enthiran' movie saving occupants of a residence as it caught fire? We might very well see automated machines or robots taking up such jobs in the near future. The advantages are aplenty. Intelligent automated machines will have no limitations that human beings possess and they can move around swiftly and flexibly. So, in an event of emergency they will be able to save more human lives and in double quick time. Human safety personnel cannot reach everywhere and they cannot be of help during extremely complicated disasters. But, automated machines can be trained or programmed to save us from any kind of catastrophe. Be it an earthquake, volcano eruption, a tsunami or even an asteroid attack! Unlike human body, the components that form their body won't get damaged easily and

they can also be programmed to spin or fly around like superheroes. So, yeah, you can expect a spidey or superman to come save you in the future when you are in trouble! Every state and nation will not have to invest huge amount of time and money unlike they do today to train human personnel and they absolutely don't have to worry about employee turnovers. Machines are not going to resign. This way, along with saving common public life they can also reduce the number of human beings that are exposed to risk. In other words, no more human being will have to die to save another.





SOURCE : NIMBRO RESCUE DARPA ROBOTICS CHALLENGE QUALIFICATION MATERIAL

Already unmanned vehicles known as 'bomb disposal robots' are in use that can detonate everything from bombs, landmines and unexploded munitions. But there are some robots too that have been developed to guard human life against natural disasters. **CHIMP** is one such four limbed human size robot designed by Tartan rescue team of Carnegie Mellon University's National Robotics Engineering Center. The robot is 5 feet 2 inches tall when standing and has a weight of 400 pounds. When it has to operate power tools, turn the valves or use its arms, it can stand and roll on its leg treads. Momaro is another robot designed by Nimbro rescue team of University of Bonn in Germany and it has four legs that end in pairs of directly driven steerable wheels.

Some of the other major robots designed to meet disaster are 'Walkman' by Italian Institute of Technology and University of Pisa, 'Helios' by Massachusetts Institute of Technology, 'Thormang 2' by Robotics Limited in Seoul..



SOURCE : IIT ROBOT WALKMAN READY FOR THE DARPA ROBOTICS CHALLENGE 2015

## Solve World's Most Hardest Problems

We all had goosebumps when Leo said 'Climate change is real and it is happening right now. Let us not take this planet for granted. I do not take tonight for granted' during his Oscar speech. Probably, as automated machines grow in strength we will be able to find stronger solutions to some of the hardest problems for mankind such as climate change, famine and environmental pollution. But like Stuart Russell, one of the pioneers of artificial intelligence says, machines have more access to data than a person ever could. Using such big data, artificial intelligence can one day come up with solutions that will make our planet a safer and better place to live in. During a recent talk in New York, Eric Schmidt, the Google Chairman said that ai can help scientists better understand the cause and effect of some of the major threats to mankind and come up with sensible solutions. Already, several studies and researches are being conducted all over the world to improve the quality of data being collected.

Though most scientists agree that it is human behaviour that causes climate change there is uncertainty over how oceans respond to the carbon emitted from every part of the world. This is obviously because ocean is so huge. It will be exceedingly expensive to deploy research vessels to study the mechanism responsible for greenhouse gas absorption and the impact of using oceans as humanity's garbage dump. In November 2011, Liquid Robotics, an American company dispatched 'Wave Gliders', the surf sized bots onto a 10000 mile trans Pacific crossing to Australia and Japan.

Throughout their journey, the robots collected terabytes of data on ocean conditions and Liquid Robotics organized an event called PacX challenge inviting scientists to make best use of that information. A University of Texas marine scientist Tracy Villareal was named the winner. Tracy studies about diatom phytoplankton, the microscopic plant species that help in removing carbon from the atmosphere. But at certain stage in their blooming they can turn into rocks that sink very fast and which will thereby allow carbon to get to the bottom of the ocean. To study about them, Tracy has to be present for the brief time when diatom blooms and Wave Gliders could help him get efficient and accurate data surrounding them. Another research team recently published data that was obtained from robotic mussels that have been collecting data for the last 18 years! These artificial sea lives can record the body temperature of real mussels around them which helps to track and predict global warming. They believe that mussels are highly dependent on air temperature and sunlight for warmth and hence they can be a reliable source to determine an ecosystem's health. Hundreds of such studies have been carried out in different parts of the world.

Now imagine what humanity can achieve with such extensive down to specifics data. As automated machines get more and more intelligent they will be able to create artificial components to counter attack threats like global warming and pollution. They can easily spot locations that are under serious threat of facing erosion, water acidification and so on. One major reason why climate change became a big concern was people's lack of awareness. Future automated machines can instantly let every human being know how their each and every activity is affecting the nature. As automated vehicles become popular there will be a significant drop down in carbon monoxide and automated machines will even be able to generate alternate to materials like coal that will emit far less smoke! Vertical farming is already being considered as a major solution to tackle food scarcity. In the future, machines will be able to provide us facilities that would double up the speed, quality and amount of food we produce and thereby be a massive help to reduce our food problems!

## Make Humans Better At Everything

Suppose you are in a foreign nation interacting with group of people you have never been with before. You absolutely don't know their language or customs. How often have you found yourself struggling to communicate while in such a group? Well, in the future you will not have to. You can just speak in your native language and the automatic machines will convert it to the regional language of the other person. Imagine the kind of boundaries you can cross in terms of communication and the number of friends you could make! Or let's say you want to learn a new skill. You want to learn how to dance to impress your crush at that party. No problem, your robot can teach you. Or why teach.

When human computer interfaces become popular, you can just embed a chip in yourself and dance like a superstar. You want to learn any musical instrument? Or to be a photographer? Filmmaker? Writer? You will not have to enroll yourself in costly universities to acquire any of those technical skills anymore! Got a pathbreaking idea for an invention that could transform the entire scientific world? You could consult with your robo partner and evaluate how feasible your idea is. If it is indeed possible, maybe they can even provide with all materials you will ever need. So, in other words, you can do anything that you want and be anyone that you want. Even if you meet with any unfortunate accidents that hurt your body parts, artificial intelligence can provide you with robotic organs that will allow you to live your life smoothly as always. The future will be disability free.

## Make The Entire World Safer And Healthier

We know that today we diagnose and treat plenty of diseases that were once totally undetectable. As machines grow in power, more and more specifics related to each kind of virus and infection will be clearly known and this helps in keeping the world a healthier place. Moreover, the data regarding health and physical statistics of the entire human race will be interconnected and every potential attack will be detected at the earliest stage. Throughout the history of mankind how many times have we panicked due to an outburst of a virus or infection? The Black Deaths in England during the 14th century, the Spanish Flu during 20th century, SARS and Ebola of 21st century are just some examples. When artificial intelligence takes over the world, they can detect such threats at a very early stage and prevent their outbreaks. In other words, artificial intelligence can save this planet.

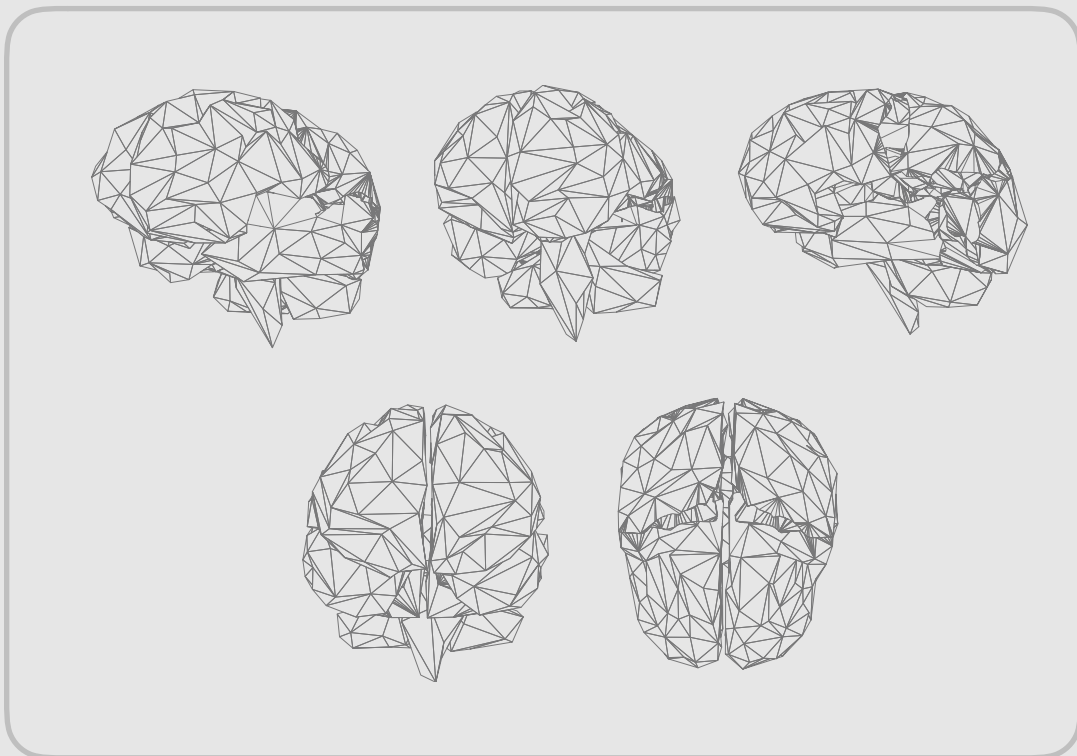
## Explore Unknown Worlds

As in the countless space mission movies we have seen, human journey to space and other planets involve huge degree of risk. Keeping aside the endless life threats they could face, there is also an emotional barrier that they won't be able to connect with their family. What if we could send robots instead? This will reduce the risk factors involved and will also enormously expand the reach of such studies. You cannot send human beings to many planets because we simply won't survive. But, there is no such case with robots. They are designed to survive any environment and thus can bring immense amount of data surrounding different planets. Space researchers can sit in their room and obtain accurate data of any planet in the universe.

As such studies grow in power, maybe we will start to colonize other planets. Today you might have a friend or relative in U.S or Japan and you might be occasionally visiting him. Think about a future where you pay a visit to your friend in Mars or any planet outside our galaxy!

## Brain Computer Interfaces

Till now we have seen computers and automated machines as something outside us. For now machines are machines and we are humans. They just don't fit into the category of "us". But that may not be the case in the future. Our brains could well merge with computers to keep track of the progress in artificial intelligence. Studies have already started in making this a reality and the most popular among them is 'Neuralink', launched by the renowned engineer Elon Musk. In the future, you could probably download your favorite memories and use them whenever you need. Just like how you watch a movie in a computer today! You can even upload and download skills of your choice. You can have a calculator, dictionary or even an encyclopedia downloaded in your brain. Access to any data, technology and skill will be right there in your brain. Who knows this might even give us sensory perceptions outside what we know of today. Yeah, every chance the future beings could be superheroes!





## Assistance To Elderly And Differently Abled

One of the major problems elder community face is that they struggle to find a proper companion during their old age. And hence majority of the people spend their old age feeling lonely and dejected from the world. Artificial Intelligence can provide a comforting companion for the elderly. They can interact and have fun and make the entire old age an

enjoyable experience. They can also help elders with their day to day activities, medicines and also help them in preparing the food they want. Similarly, for people with genetic disorders, artificial intelligence can help them improve their mental capabilities and skills. As the human brain gets connected with internet, ai can automatically detect problems within the internal structure of the brain and help a person mentally challenged live like any other person out there. People with hearing, seeing or speaking disabilities too will be able to overcome them as ai gets smarter and efficient. Physically challenged too will have several products and equipments that will allow them to move free and explore. Nobody will have to spend their life in a wheelchair anymore.

## Entertainment

Okay we have seen some cool application levels of artificial intelligence in various sectors. What about entertainment? Suppose you are a movie buff and even closely follow foreign movies. How will you like it if a foreign movie speaks your native language. Content can come in all available languages and when you are watching a movie or television show, you can select the language of your choice. People who have watched the German thriller film 'Run Lola Run' would know why it was such a unique piece of craftsmanship. The film portrayed events across several possible scenarios. What if the main character did this, what if she went there, what if she didn't do this. This literally made the film stand out. Now, this could well be how we watch movies in the future. You watch a film and you wonder what would have happened if she didn't give him a yes. What if he was not caught by police. What if the antagonist did not die there. Well... In the near future, you will be able to select such different story paths and see how the film would have fared had it taken a different route. Multiple alternatives for the same film. In other words, no two people will watch the same film! When you watch the performance of a singer like Beyonce, maybe you can go into it and dance with her. Or when you watch a series, you can go into the story world and give tips to the main characters! The possibilities are simply endless.

# Conclusion

As technology keeps on scaling monumental heights, we as a species keep evolving. Every generation up until now has made sure that life is better for the next. Here, in the twenty first century we are on the verge of not just changing the future generation, but the entire species as well. Automated machines play a big role in our daily lives today. It will only expand its potential in the future. However, there is a growing concern about the negative impact of such powerful machines as well. That too can also not be ignored. But, we as a race have found our way to move on eliminating every potential danger that came our way. Humanity has survived this far. And when wise and intelligent brains utilize technology the way it is supposed to, we will continue to excel and prosper.





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