
- DIVE INTO TECHVERSE -
KALEIDOSCOPE

FROM THE PRINCIPAL'S DESK

Dear readers,
With great joy in my heart I welcome you to this great initiative started by our students of IEEE-PCE, an all new tech-magazine. IEEE-PCE has always been one of the significant student chapters of our college. I firmly believe that student bodies like IEEE-PCE are shaping students to be better and more informed while preparing them for the world that lies beyond the curriculum and college premises. I wish everyone to indulge and learn a few new things about the latest technological advancements through this magazine. As we stand at the dawn of the modern era of sophisticated Artificial intelligence and enhanced electronic devices, it has become imperative that not just students but everyone must stay in the loop. With this I wish the team of IEEE-PCE great success with this magazine and their future endeavors.

Dr. Sandeep Joshi,
Principal, PCE

FROM THE TEACHER'S DESK

Dear IEEE Members and Friends,
It gives me great pleasure to welcome you to the Magazine launch of IEEE Student Branch, Pillai College of Engineering. IEEE is the largest technical professional organization in the world. It is constantly stimulating and building a global community through its highly cited publications, conferences, technological standards, and professional and educational activities. IEEE also offers students a wonderful opportunity to enhance their technical and professional abilities by participating in a plethora of conferences, seminars and contests.
As the Faculty Coordinator of IEEE-PCE, it is one of my missions to enhance our services under this good culture. We have and will host seminars, workshops, expert talks and various events from last 20 years to encourage the sharing of engineering knowledge and to enhance student comprehension of engineering subjects. All of this is impossible to achieve without your participation.
I wish the IEEE Student Branch at PCE achieve great success in all its endeavours. I wish all of the office bearers and working team the best of luck in putting their incredible devotion to IEEE's vision and propelling our student branch to new heights.

Prof. Padmaja Bangde,
Faculty coordinator, IEEE-PCE

FROM THE HOD'S DESK

Dear All,
I am delighted to announce the 1st edition of "Kaleidoscope", a magazine by the student branch of IEEE-PCE which always strives hard to meet the IEEE's core purpose of fostering technological innovation and excellence for the benefit of humanity. This magazine is one step towards achieving its purpose.
In today's rapidly evolving technological landscape, it is important to stay curious, adaptable, and committed to lifelong learning. I hope that the IEEE student magazine will serve as a source of inspiration, knowledge, and connection as the students navigate their way through their academic and professional pursuits. Our students will get an excellent opportunity to showcase their technical knowledge and innovative ideas through this magazine. I am confident that the articles presented here will not only be informative but also inspiring to other students. I would like to thank the editorial team for their efforts in bringing out this magazine and congratulate the students who have contributed their articles. I urge our readers to make the best use of the information presented and also encourage them to share their thoughts and valuable feedback.
Best wishes for a successful journey ahead.

Dr. Monika Bhagwat,
HOD, ECS

CHAIRPERSON

In a world where technology shapes every facet of our existence, staying informed is not a choice—it's a necessity. Technology moves with the same inevitability as time itself, reshaping industries, revolutionizing ideas, and transforming the way we live, work, and connect. It's no longer just about keeping pace, but about driving change and being at the forefront of innovation. At IEEE-PCE, we have always embraced this responsibility. Through seminars, workshops, and hands-on learning experiences, we strive to equip our students with the knowledge and skills to thrive in this fast-evolving landscape. Kaleidoscope is more than just a magazine; it's a labor of passion, vision, and teamwork. With every edition, we aim to bring you the latest in scientific breakthroughs, technological trends, and thought-provoking ideas that challenge the status quo. This magazine reflects the very spirit of IEEE-PCE: curiosity, innovation, and the drive to excel.I want to take this opportunity to express my deep appreciation for the remarkable effort put in by the Content and Graphics teams. Their dedication has been instrumental in turning this dream into a reality. Their creativity, hard work, and commitment have given life to Kaleidoscope, and for that, I am immensely grateful. As we unveil this first edition, I am filled with excitement and anticipation for the future. I believe Kaleidoscope will continue to grow, evolve, and inspire, serving as a beacon of knowledge and a testament to the incredible potential of our student community.

Regards,
Priyanka Chavan,
Chairperson IEEE

EDITOR

Dear Readers,
At this point of transition between the real and the virtual, we are standing on the cusp of a digital renaissance. The pages of 'Kaleidoscope' you are reading at the moment do not contain information alone; they are doors leading us into the infinite realm of the human mind and technical wonders. Let us not only think of it as an assembly of circuits and code in this edition while moving together; instead, let us look at it also as the contemporary alchemist's search for change. This magazine was conceived by our seniors, and publishing it is our way of honoring their vision and contributions. May each article spark your intellect, each feature kindle your curiosity, and each discovery inspire a deeper appreciation for the digital tapestry we are collectively weaving.
Welcome to this chapter of our technological narrative.

Sincerely,
Parth Mahendra Yadav
Editor [Joint Content Head]

VICE CHAIRPERSON

With unbounded delight and expectation, we bring to you the launch of our magazine series "Kaleidoscope," which is the first of its kind! Between the lines of the printed book, there is an orchestra of creation, a demonstration of the unlimited ability of our community. Take each page one at a time, make yourself a part of a journey captivated by the rainbow of our shared genius. "Kaleidoscope" will not only provide useful technical information, but also engaging stories that reveal the different talents and aspirations that make us human. Printed with ink, but germinated from our imagination, this magazine represents the spirit of adventure and exploration that energizes us as members of the IEEE PCE. It says a lot about our common dedication to continuous improvement, outperformance, and teamwork. As you plunge deeper into the fabric of articles and features perfectly picked just for you, we kindly ask you to enjoy the whole thing. Allow "Kaleidoscope" to be an inspiration point, a knowledge center, and a testimony of the resilience and invincibility of our society. Thank you for being a part of this great voyage.

Regards,
Aarushi Borkar,
Vice Chairperson IEEE

SECRETARY

In today's world, technology is at the heart of every advancement, influencing how we live, learn, and innovate. For students, staying updated with the latest trends is crucial to staying competitive in this dynamic landscape. With this in mind, we are excited to introduce Kaleidoscope, a magazine dedicated to showcasing cutting-edge technology, research, and ideas that will inspire and inform our academic community. Kaleidoscope aims to provide students with valuable insights into the ever-evolving world of technology, helping bridge the gap between classroom knowledge and real-world applications. It is a platform that encourages exploration, curiosity, and learning, ensuring that our readers are well-equipped to thrive in both their studies and future careers. I would like to express my sincere gratitude to our incredible content team, whose dedication and hard work have brought together a collection of articles that truly spark curiosity and innovation. A special thanks to the graphics team as well, whose creativity has made this magazine visually appealing and engaging. This magazine is the result of a collective effort, and I am confident it will serve as a source of knowledge and inspiration for all. We hope you enjoy reading Kaleidoscope as much as we enjoyed creating it.

Sincerely,
Sakshi Chalke
Secretary IEEE

CONTENT HEAD

Dear IEEE Members and Tech Enthusiasts,
As the Content Head of our IEEE Student Chapter, I'm thrilled to announce the first edition of our tech magazine, Kaleidoscope. This issue is a true testament to the incredible teamwork and creativity of our content and graphics teams. Each member poured their passion and expertise into every article and design, making this edition truly exceptional.
This magazine is the brainchild of our visionary seniors, and I hope that we have honored their legacy. Dive in and enjoy the fascinating world of technology that we've curated just for you!

Warm regards,
Purva Ravikant Tandel
Content Head

Priyanka Chavan
Chairperson

Parth Yadav
Editor

Arushi Borkar
Vice Chairperson

Sakshi Chalke
Secretary

Purva Tandel
Content Head

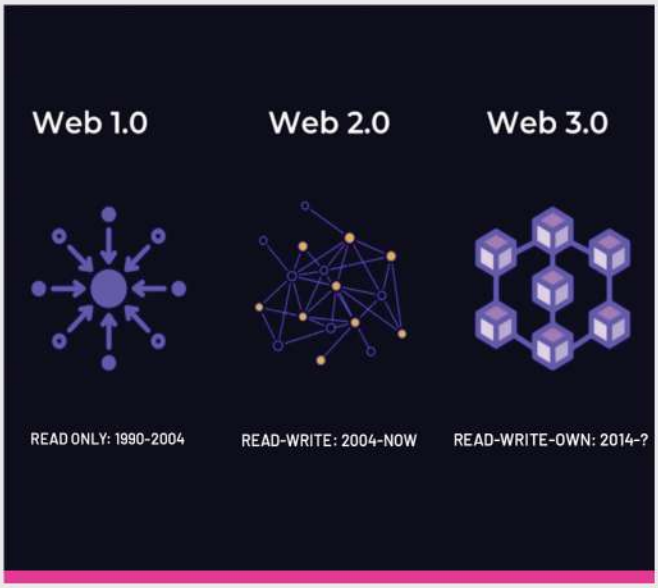
IEEE COUNCIL 2023-2024

IND

DEX

WEB3
The Idea of Digital Democracy

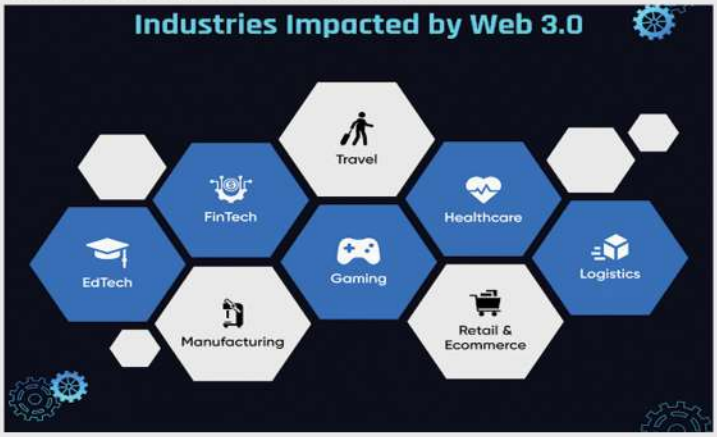
Once upon a time, a computer scientist named Tim Berners-Lee took birth to revolutionize the future of the world. Tim is a dreamer, a thinker, and above all, a visionary with a passion for connecting people and ideas. Tim spent his days working at CERN, the European Organization for Nuclear Research, where he tinkered away on computers, exploring the mysteries of the universe. But amidst the complex equations and scientific discoveries, Tim couldn't shake a simple yet profound idea that had been brewing in his mind. Tim began weaving the threads of his digital tapestry. He crafted a language called HTML, the building blocks of the web, and gave birth to the World Wide Web—a place where pages could link to one another, forming a vast interconnected network in the year 1989. In the early 2000s, the internet underwent a metamorphosis. The days of passive web browsing and static web pages were now far gone. In their place emerged a new paradigm — Web2, the era of the social web. Websites now served as dynamic hubs where users could engage, contribute, and connect with one another in real-time. Social networking platforms like Facebook, Twitter, and LinkedIn emerged in this new era, where friends, family, and strangers could share their thoughts, photos, and experiences with the click of a button. User-generated content became the currency of the web, as blogs, forums, and video-sharing sites empowered individuals to create and share their own stories, opinions, and creative endeavours. From viral memes to heartfelt testimonials, web2 has proved to be a powerful weapon. But with greater power, comes greater responsibility. As the web became increasingly intertwined with our daily routines, questions of privacy, security, and digital citizenship came to the forefront. Concerns about data breaches, online harassment, and misinformation challenged the ideals of Web2, prompting calls for greater transparency, accountability, and ethical standards in the digital realm. It was a time when the internet, once



fragmented and centralized, underwent a profound transformation, evolving into a decentralized, transparent, and empowering ecosystem. The idea of decentralization is that the power should not reside in the hands of a select few, but should be distributed among the many. That's how we welcomed the concept of Web3 into the market.

The coining of term "Web3" is often credited to Gavin Wood, one of the co-founders of Ethereum. As we talk about Ethereum, how can we forget Elon Musk, the Musketeer of the world of digital currency. "Has anyone seen web3? I can't find it", tweeted Elon. What makes web3 such a controversial topic for industry giants like Elon and Jack Dorsey stand against it? Is it a threat to their impressive Cryptocurrency portfolios? Or is Web3 really that impractical? Tim Berners Lee said people too often conflate Web3 with 'Web 3.0', his own proposal for reshaping the internet. As per many other speakers, Web3 takes away some power from giants like Facebook and Google.

Web3 represents the next phase of the internet, focused on decentralization, transparency, and user sovereignty. It is characterized by the adoption of blockchain technology, decentralized protocols, and peer-to-peer networks to create a more open, inclusive, and secure internet ecosystem. The transition from Web1 to Web3 represents a fundamental shift in the architecture, principles, and possibilities of the internet. However, Web3 still sounds like an idea far to come into practice making it a futuristic/dynamic/ethical/unethical/revolutionizing or a mere utopian topic of discussion? You decide!



Web3 facts:

-Using web3 is like collecting digital art or rare virtual items that you truly own and can trade without any intermediaries!

-Using Web3 is like being part of a digital democracy where everyone has a voice!

-Web3 means you can engage with friends and communities without worrying about your data being harvested or censored by centralised entities and create autonomous digital social spaces

-Using Web3 is like having a digital passport that you control completely!

-Using Web3 is like having a digital bazaar where anyone can be a seller or buyer, fostering a truly open and inclusive economy!

Web3 chuckles:

-Why did the blockchain go to therapy? Because it had too many blocks that needed to be resolved!

-Why was the cryptocurrency investor bad at poker? Because they always wanted to hold 'em, but never wanted to fold 'em.

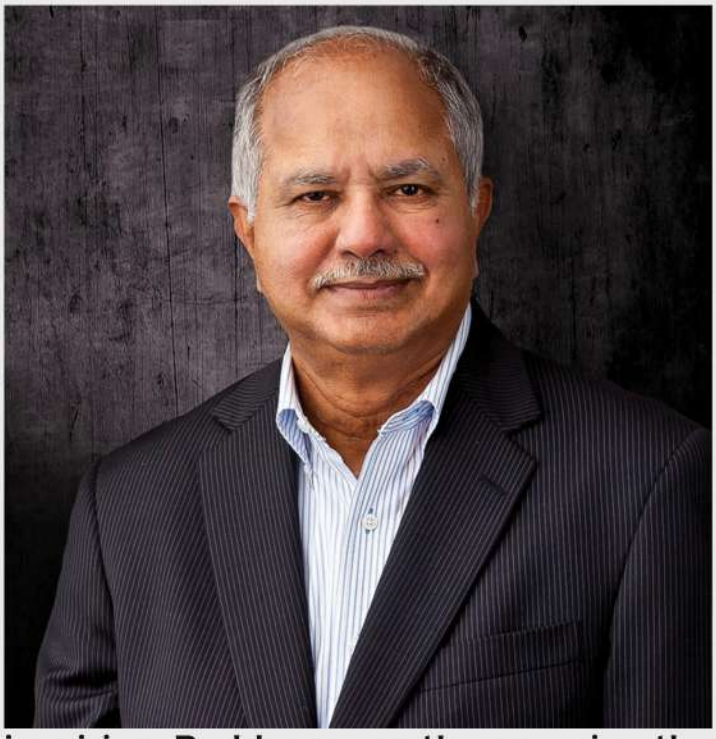
-Why did the NFT artist become a great dancer? Because they knew how to create unique moves that couldn't be copied or replicated!

-Why did the blockchain developer refuse to play hide and seek? Because they believed in full transparency, and hiding was too centralised!

Raj Reddy India's only Turing Award winner, AI pioneer

As the world is taken by a storm named artificial intelligence, let us look at someone who played a great role in it. Raj Reddy, a professor of computer science and robotics at Carnegie Mellon University, holds the distinction of being the first recipient of Asian origin to be bestowed with the Turing Award, often hailed as the Nobel Prize for computer science. Notably, he remains the sole Indian to have attained this honour. Originating from a farming family in Chittoor, Andhra Pradesh, Reddy emerged as a pioneer in the field of artificial intelligence (AI). Since the 1960s, when nothing was known about AI, he has been studying it. Reddy claims that in the last ten years, AI has changed the world in a way that seemed to require at least fifty years!

In 1958, he completed his bachelor's degree in civil engineering from the College of Engineering in Guindy. Subsequently, in 1960, he obtained a master's degree in engineering from the University of New South Wales in Australia. Finally, in 1966, he earned his Ph.D. in computer science from Stanford University. His diverse academic journey is indeed remarkable, spanning across multiple fields. It's undeniably



inspiring Reddy currently occupies the Moza Bint Nasser Chair and is a university professor of computer science and robotics at Carnegie Mellon University's School of Computer Science. He has spent more than 50 years teaching at Stanford and Carnegie Mellon. Notably, at Carnegie Mellon University, he served as the first director of the Robotics Institute. Moreover, he played a significant role in the development of the Rajiv Gandhi University of Knowledge Technologies, India, which caters to the educational requirements of talented yet

underprivileged rural youngsters.
Reddy embarked on his early research endeavours in Stanford's AI laboratory, initially as a graduate student and later as an assistant professor. Since 1969, he has continued his research at CMU. His research on artificial intelligence focused on perceptual and motor components, including voice, language, vision, and robotics. Undoubtedly, these areas brim with excitement and innovation. Over five decades, Reddy and his colleagues developed various historical examples of spoken language systems, such as speaker-independent speech recognition, extensive vocabulary-connected speech recognition, and unconstrained vocabulary dictation. The role of "technology in the service of society" has been one of Reddy's other primary research interests.
Given his remarkable brilliance, Reddy's influence extends across numerous organizations and universities. He holds fellowships at esteemed institutions such as the Computer History Museum, IEEE, Acoustical Society of America, AAAI, and ACM. Additionally, he has been conferred with honorary doctorates from prestigious universities worldwide and is a member of several national academies. For "pioneering the design and execution of large-scale artificial intelligence systems, demonstrating the practical importance and potential commercial effect of artificial intelligence technology," Reddy, alongside Edward Feigenbaum, was honoured with the Turing Award in 1994. Furthermore, in 2001, Reddy was bestowed with the Padma Bhushan by the President of India, further attesting to his exceptional contributions and influence.
Currently, Reddy serves as the chairperson of the International Institute of Information Technology, Hyderabad. He undeniably stands as an inspiring figure, one whom we, as Indians, should eternally remember and celebrate. His brilliance and talent are unparalleled, serving as a guiding light for the youth of India to emulate and celebrate at every opportunity

FACTS :

Beyond his work in AI and computer science, Raj Reddy has diverse interests. He is known for his passion for gardening and has even integrated technology into his gardening practices to monitor and manage his garden more efficiently.
He also has a strong interest in art and classical music and is a collector of Indian classical music recordings.

IS AI JUST ANOTHER SEXIST DIPLOMATIC RELATIVE OF YOUR FAMILY??

“In a serene town, Alex and Maya grew up exploring together, their imaginations soaring like the birds above. As they approached the end of high school, the question of their futures loomed.

For Alex, the answer was clear—he was drawn to the stars, dreaming of becoming an astronomer. With his trusty telescope and a heart full of wonder, he delved into books about galaxies and black holes.

Maya's path was different. Inspired by her mother's nurturing spirit as a nurse, she felt called to healthcare. With empathy as her guide, she dreamed of bringing comfort to those in need.

Navigating doubts, Alex and Maya embarked on their chosen paths with determination. Alex studied the cosmos, unlocking its mysteries, while Maya dedicated herself to nursing, touching countless lives with her compassion. Though their careers diverged, Alex and Maya remained steadfast friends, bonded by shared adventures and dreams.

As they gazed at the stars, they found solace in knowing that their paths, like the constellations above, would always guide them toward new horizons.”

When asked to tell a story about a boy and a girl choosing their careers, Chatgpt-3.5 (apparently the most advanced version I could access) gave me one more reason to believe firmly that AI is sexist.

Ai being the mirror of the current and past social environment has been adapting to humanity's traditions, cultures, humour, and sexual, racial, and gender-based biases alongside.

According to an article published by Josh Feast in Harvard Business Review, “natural language processing (NLP), an essential component of prevalent AI platforms such as Amazon’s Alexa and Apple’s Siri. Unfortunately, studies reveal gender biases within NLP algorithms.” The reason behind the AI carrying sexism is deeply rooted in word embeddings.

Let us understand what word embedding is - Word embedding is a technique that converts words into numerical vectors. These vectors represent the meanings and relationships between words. By using these vectors, algorithms can better understand the context and meaning of sentences. The vectors are created by analyzing large text datasets using neural networks. Word embedding is used in various natural language processing tasks to enhance the accuracy and effectiveness of algorithms. For instance, as seen in the story generated above with the help of Chatgpt we get to know that AI can associate occupations like astronomer with a person who identifies with the

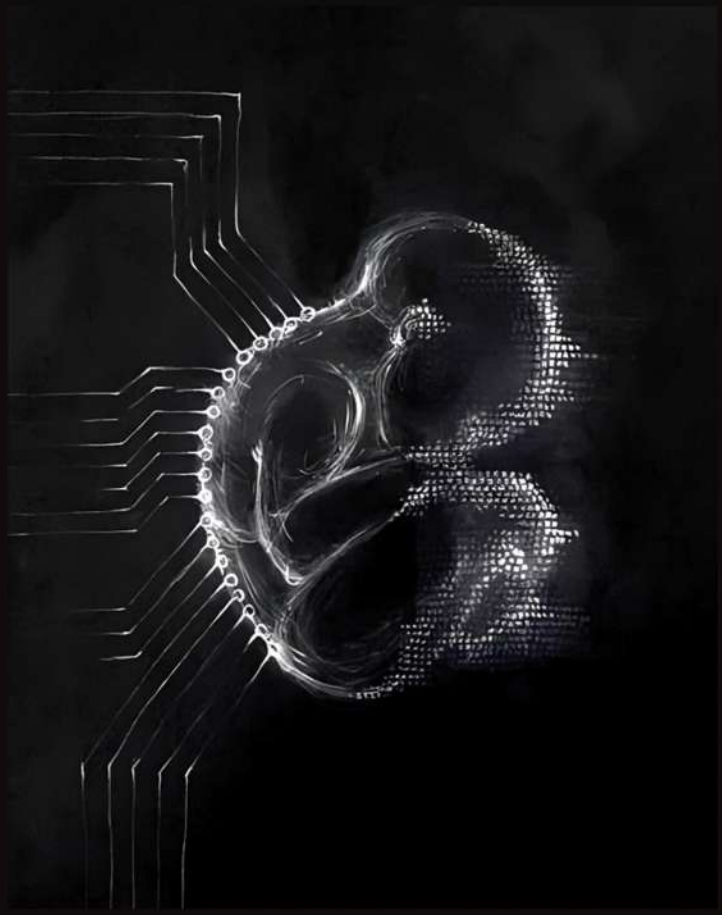
male gender, and occupations like a nurse with a person who identifies with the female gender. This just proves that the inherent gender bias in the remark reflects an outdated perception of women in our society that is not based on fact or equality "If there is sexism embedded within the data, they will pick up that pattern and exhibit the same sexist behavior in their output. And unfortunately, the workforce in AI is male-dominant." says Dr. Muneera Bano. The AI sector being male-dominant has been unintentionally developing system rules that inherit prejudice, biases, and stereotypes. AI is nothing but a human child born with no knowledge and will go on to acquire any knowledge that will be fed to it. What causes AI bias leads us to several possibilities, which include, When training data lacks certain demographic groups, machine learning models may struggle to adapt and perform efficiently when encountering new data that includes these missing groups. For example, if a model is trained on data where female speakers constitute only 20%, its predictions could be less accurate for female speakers, resulting in a higher error rate. Most AI systems rely on labeled data to train models. Humans often create these labels, and their biases, both hidden and apparent, can get passed on to the trained models. As the models are trained to predict these labels, any misclassification or unfairness towards a specific gender becomes ingrained in the model, resulting in biased outcomes. Bias can arise from the data used to train machine learning models or from the model design itself. For example, in speech technologies like text-to-speech and automatic speech recognition, early models tended to perform worse for female speakers than for males. This was because the speech analysis and modeling techniques were more accurate for taller speakers with lower voices, which are typically male characteristics. As a result, these technologies worked better for speakers with these characteristics and less well for those who didn't.

This is when the question arises, How do we teach AI not to be sexist then? Just as we teach our children to not be. Inclusivity is a huge part of the answer, to ensure that there is diversity & inclusivity in the data sets that are fed to the machine. To ensure that the team working on the AI model contains people who come from diverse backgrounds. Teams working on machine-learning algorithms should evaluate accuracy separately for various demographic groups. They should monitor for cases where a particular group experiences lower accuracy rates, indicating potential bias in the algorithm. To

address biases in machine learning models, gather more training data representing sensitive groups. Subsequently, employ advanced de-biasing techniques that not only minimize errors in predicting the target variable but also impose penalties for producing discriminatory outcomes.

Moving forward, it's crucial for future research to encompass a wider range of gender variants, including transgender and non-binary individuals. This expansion will enrich our understanding of effectively handling increasing diversity.

As creators of technology, we bear a responsibility to ensure that our innovations are both efficient and equitable for all. I firmly believe that the advantages of AI will surpass any potential drawbacks if we tackle them collaboratively. It falls upon every practitioner and leader in the field to unite, conduct research, and devise strategies that minimize bias in AI for the benefit of all.



Lady Ada Lovelace

What if I told you the world's "first computer programmer" was born over two hundred years ago? What if that programmer were a lady?

Lady Ada Lovelace was her name, and her genius was nearly lost to history. Ada Lovelace was born Augusta Ada Byron in London on December 10, 1815, to the romantic poet Lord Byron and the strictly religious Annabella Milbanke. When Ada was eight years old, her father died of an illness in Greece while fighting in the War of Independence. He was 36 years old. Even though Ada never got to meet her father, she was always fascinated by him and his poetry. Almost to the brink of fanaticism, Annabella saw to it that Ada received a rigorous education in mathematics and science.

When Ada was a teenager, the industrial revolution was in full force. Ada's inquisitiveness was perfectly timed to mature when technological advancement was at its peak. Because of her societal position, she also had access to intellectuals, inventors, and powerful people. All of this was the perfect storm, and meeting the famed inventor Charles Babbage was Ada's lightning bolt.

Ada, then 17 years old, was one of a select group of people invited to a coveted party in 1833 that was hosted by Babbage, whom many people today call the "father of the computer." A guest wrote at the time, "One of the three qualifications for those who sought to be invited were intellect, beauty, or rank." Ada fit in perfectly. Babbage unveiled a small

part of the Difference Engine, a massive mechanical calculator, at the gathering. The revolutionary design of Babbage's engine would, when it was fully constructed, do the work of an entire army of men crunching numbers. It was possible to program the engine to perform various mathematical operations. The engine was accurate to within thirty-one decimal places.

That evening, many guests perceived Babbage's invention as nothing more than a party favour made of metal. Ada, not so. Ada's intellect and enthusiasm for

the machine must have impressed Babbage. He remained her mentor and lifelong friend after that night. Babbage referred to her as the "Enchantress of Numbers." After Babbage showed her the plans for the Analytical Engine, she eagerly went on a tour of cotton mills in the north of England to see the most technologically advanced machine of the time, the Jacquard loom. Ada put all of her efforts into learning as much as she could about the Analytical Engine over the next ten years, in between getting married and having three children.

Luigi Menabrea, a military engineer who would later become Prime Minister of Italy, wrote an impressive article titled "Sketch of the Analytical Engine Invented by Charles Babbage" after attending one of Babbage's rare lectures. The paper was written in French and was extremely mathematical and detailed. Because Ada was so familiar with the engine, she decided to translate the paper and add her thoughts to it. "Like a devil possessed," she carried out the task, and when she was done, her notes were three times longer than the original paper. Ada submitted her finished article to Richard Taylor's 1843 English scientific journal, Scientific Memoirs. Section G of the paper, in which Ada described how the engine could be programmed with a code to calculate Bernoulli numbers—an algorithm to be carried out by a machine and thus the first computer program—gives weight to Ada's claim to being "the first computer programmer." In her paper, Ada also presented additional ideas, such as her thoughts on artificial intelligence. Her notes were significant as they accurately reflected Ada's vision for the analytical engine. Furthermore, in this regard, she surpasses her mentor in comprehending its full potential.

Ada took to her bed when she fell seriously ill in 1852. On November 27, 1852, she passed away from cancer at the age of 36, the same age as her father. Ada's contributions were buried for 100 years until they were discovered by a scientist, Alan Turing, in the 1940s, during the Second World War. His work ultimately led to the effort to build a machine with the code name "The Bombe" that deciphered encrypted messages sent by Hitler's armed forces. She, along with Babbage, essentially paved the way for Turing, who is considered today to be the father of theoretical computer science and artificial intelligence.

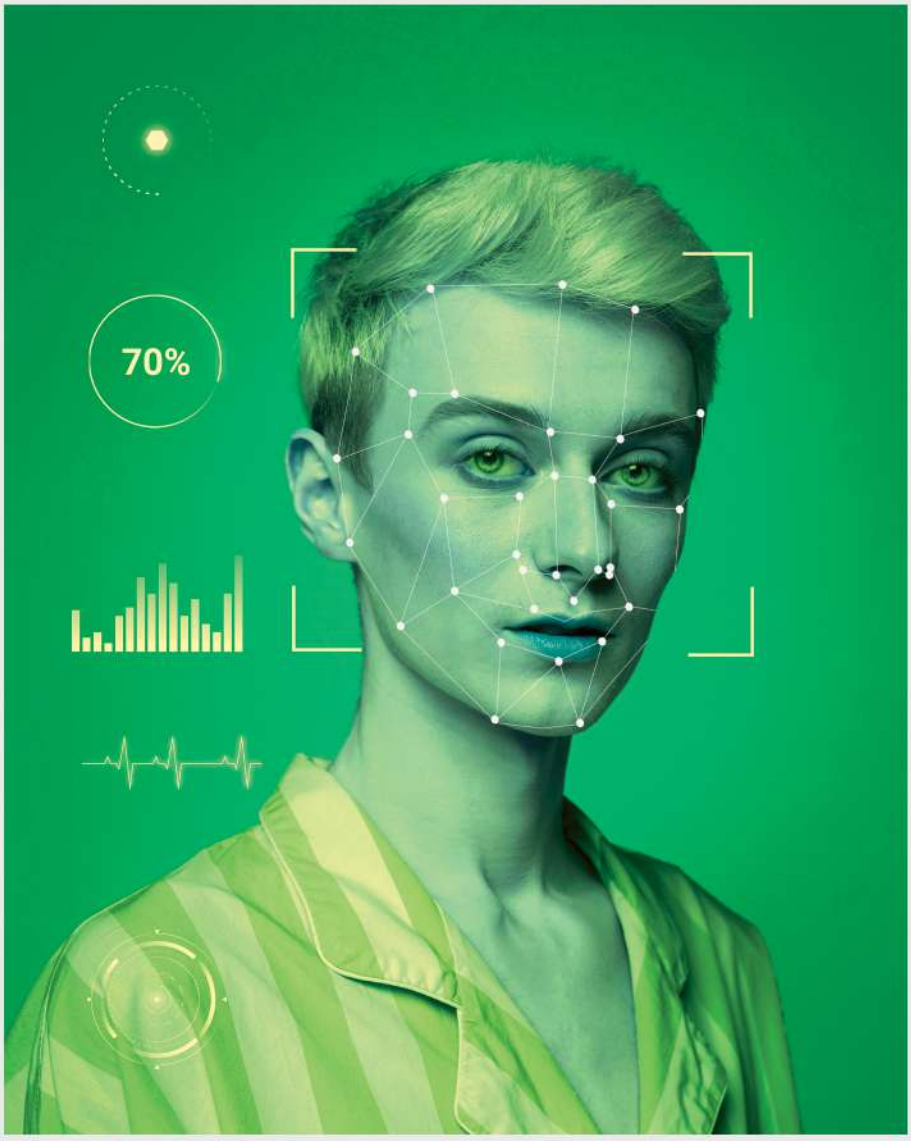
Today, Ada Lovelace is celebrated as a pioneer in the field of computer science and is remembered for her contributions to the development of modern computing. Despite the limited recognition she received during her lifetime, her work has had a lasting impact, and she is now considered a key figure in the history of technology.

FACTS

Charles Babbage referred to her as the "Enchantress of Numbers." This term was used in a letter from Babbage to Lovelace, showing his appreciation for her mathematical and analytical abilities.

In honour of her contributions to computing, the U.S. Department of Defence named a programming language "Ada" in the 1980s. The Ada programming language is used in various safety-critical applications, including aerospace and military systems.

WHY WE REALLY SHOULDN'T BE TRAINING AI TO DECIPHER FACIAL EXPRESSION?



**“What is AI facial expression detection?
AI facial expression detection is a technology which analysesfacial expressions of people from their photos and videos todetecttheir emotional state. There are numerous apps on the internetthat use AI to detect facial expressions, in addition to ITcompanies like Microsoft, IBM, and Amazon, among others.**

But emotions are inherently difficult to read. For another, there is a lot of difference between what people say they feel and what
they feel from inside. We sometimes have trouble reading eachother's emotions from our facial expressions. How therefore can AI accurately identify it?
Findings from the research, presented at the American Association for the Advancement of Science in Seattle, studied muscle movement in an individual’s face and compared it with their actual emotions.Researchers found that there is no linked up between person’s facial expressions and what they really thinking or what they feel.

“It’s important to realize that not everyone who smiles is happy. Not everyone who is happy smiles. And if you are happyforawhole day, you don’t go walking down the street withasmileonyour face. You’re just happy,”
Alex Martinez, one of the
researchers and a professor of electrical and computer
engineering at The Ohio State University, said in a statement. This demonstrates that there is no guarantee that an emotion detected by AI technology will always be accurate if a personisunable to perceive emotions appropriately. There is no good evidence that facial expressions reveal aperson’sfeelings. But Big Tech companies want you to theireyes are wide, their eyebrows are

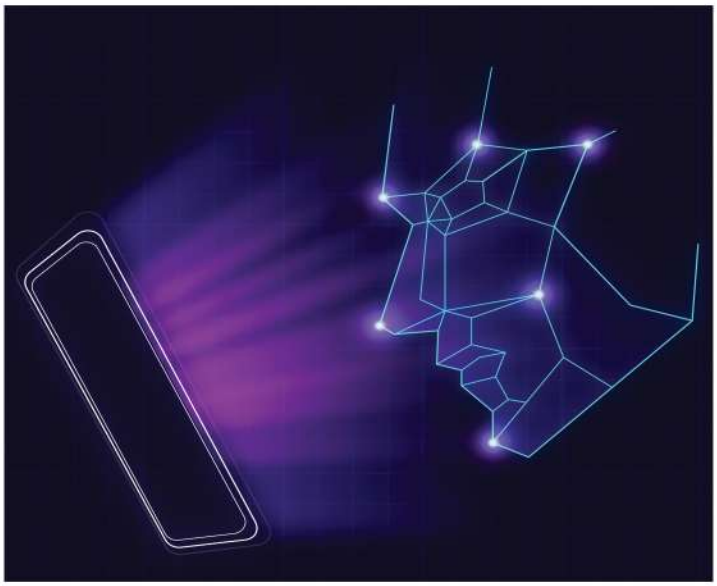
raised, and their mouth is stretched, it means they're afraid, and so on. But the belief that we can easily infer how people feel basedonhow they look is controversial, and a significant new review of the research suggests there's no firm scientific justification for it.

"Companies can say whatever they want, but the dataareclear,
"Lisa Feldman Barrett, a professor of psychology at NortheasternUniversity and one of the review's five authors, tells The Verge. "They can detect a scowl, but that's not the same thing as detectinganger."

There are serious ethical issues and hazards associatedwithteaching AI to read face emotions. First of all, it can violateprivacy by permitting governments or groups to monitor peoplewithout their permission, which could result in power abuseandmisuse. Furthermore, it's possible that a person's genuinefeelingsor intentions are not always conveyed through facial expressionanalysis, which can lead to misunderstandings and evenharmlikeprejudice or false charges. In addition, bias in the datasets usedtotrain these AI systems raises issues since it may reinforce social injustices, particularly for underprivileged groups.

"Companies can say whatever they want, but the dataareclear,
"LisaFeldman Barrett, a professor of psychology at NortheasternUniversity and one of the review's five authors, tells TheVerge. "Theycan detect a scowl, but that's not the same thing as detectinganger."

All things considered, the creation of AI that can readfacial expressions poses significant ethical and societal issues that needto be thoroughly examined before further. With these worries in mind, it's critical to proceed cautiouslywhile developing and implementing AI for facial expressionsrecognition, placing a heavy focus on moral principles andlegal requirements.



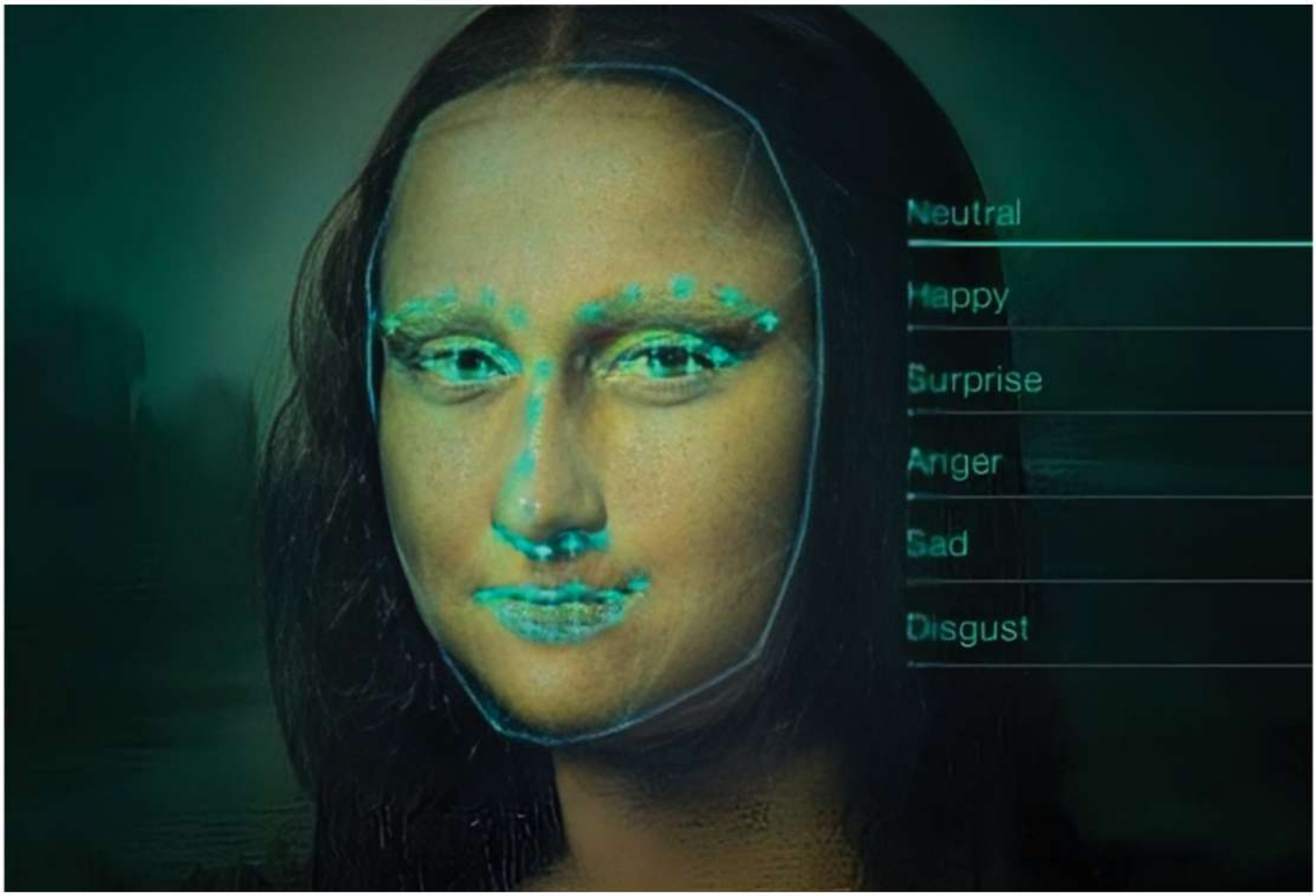
FUN FACTS:

1. A human can make over 10,000 different facial expressions. Did you know that? That's alot of data for AI to correctly interpret!

2. Due to its inability to comprehend sarcasm at this time, facial recognition AI has troublecorrectly identifying emotions!

3. A large variety of facial expressions are possible due to the approximately 43 musclesthat make up the human face.

4. Recognition by face A wink or a raised eyebrow are examples of unexpectedfacial expressions that can confuse AI.



Narinder Singh Kapany

Can you imagine a world without the internet? Without this man, the Internet may not have existed.

A physics genius, an entrepreneur, and the man who bent light, Narinder Singh Kapany, was born in Punjab, India, in 1926. He obtained a physics degree from Agra University before pursuing his PhD in optics at the Imperial College of Science and Technology in London. He is widely regarded as the "Father of Fibre Optics."

What is fibre optics? When you send an email from your computer to a friend, the information travels down cables. These cables are known as fibre-optic cables. These cables are made of thin glass wires or fibres, about as thin as a strand of human hair. The information is sent as light signals down these glass fibres.

When he was in school, Kapany used to disagree with his teachers, who claimed that light couldn't travel around corners. He tried lining up prisms to bend the light, but it did not work. As a PhD student, he directed a beam of light through a bundle of bent glass fibres instead of prisms, losing hardly any signal. These astounding results were published in 1954 in a series of pioneering papers. Subsequently, in 1966, Kapany secured a patent for his fibre-optic technology. A significant milestone was achieved in 1977 with the establishment of the first telephone connection utilizing optical fibres.

Due to Kapany's work, we have networks of these cables that have made the internet and instant high-speed communication possible.

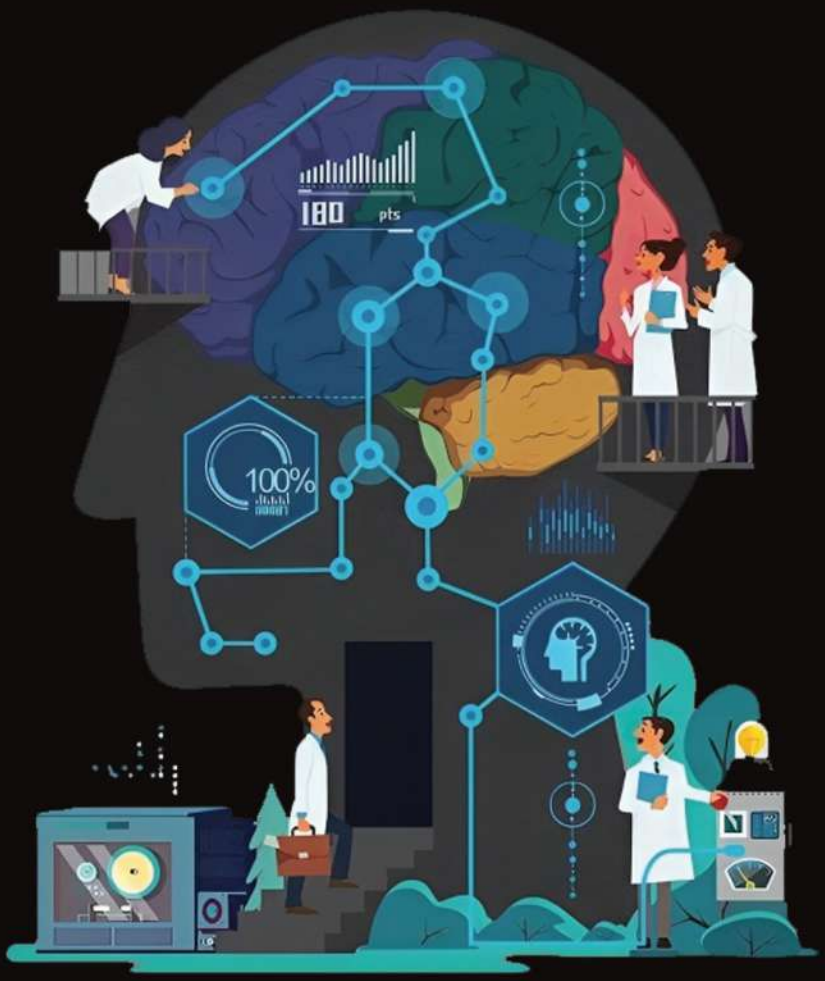
His work has also transformed medicine and engineering, as we now use medical imaging equipment that is fitted with optical fibres to explore the inside of the human body and sensors to measure temperature, pressure, and voltage. Despite all of Kapany's groundbreaking work in this field, the 2009 Nobel Prize in Physics was awarded to Charles Kuen Kao "for ground-breaking achievements concerning the transmission of light in fibres for optical communication." The

prize this time was given to the person who arrived at the goal first, instead of the scientist who opened the door.

Nevertheless, Narinder Singh Kapany's story is extremely inspirational. With over 120 patents and a hundred scientific papers, he has left an indelible mark on the world of science and technology. He's been an esteemed professor at several US universities and has founded two companies: Optics Technology Inc. and Kaptron Inc. Kapany was a philanthropist who backed education and the arts. He was the Sikh Foundation's founding chairman and a major promoter of its activities for over 50 years. Throughout his illustrious career, Kapany has received numerous awards and accolades for his contributions to science and technology. Fortune's "Businessmen of the Century" issue in November 1999 recognized him as one of the seven "unsung heroes" who significantly shaped the twentieth century. Additionally, Time Magazine's 1999 edition honoured him as one of the top ten scientists of the century. In a fitting tribute to his legacy, Kapany was posthumously awarded the Padma Vibhushan in 2021.

Kapany passed away in 2020 at the age of 94, leaving behind a legacy as one of the most important figures in the history of fibre optics. His innovative ideas and entrepreneurial spirit continue to inspire and influence scientists and entrepreneurs around the world. The time has come to shed some more light on this figure who has been made invisible by history.

INADEQUATE MENTAL HEALTHCARE HAS GIVEN RISE TO AI THERAPY - WHAT'S THE HARM?



One of the most prevalent applications of AI technologies is chatbots, which not only address personal problems but also defend their personal information, the overwhelming majority of AI users say this. Inevitably it's acceptable that a great deal of people feel comfortable offering their innermost thoughts with AI tools, but does this issue actually get resolved after carrying out the solutions provided by these AI tools?

In the end, human feelings are what matter, and they are limited to being satisfied by the love and affection of other humans. I agree that the news from Times of India, New Delhi says that India has only about 0.7 mental health professionals for every one lakh persons when the standard guidelines suggest that there should be at least three psychiatrists per one lakh population. However, does this imply that AI tools can take the place of psychiatrists skill? Because the human connection and empathy that are crucial for the treatment of mental illness may not be entirely replicated by AI therapy. AI lacks the innate human experiences, empathy, and intuitive comprehension necessary for intricate emotional relationships. Nevertheless, the question of whether AI therapy is actually helpful still stands.

Artificial intelligence (AI) has been a major part of therapy techniques in the field of mental healthcare in recent years. The apparent inadequacies and difficulties that traditional mental health services faced—such as their high costs, privacy concerns, and restricted accessibility—have given rise to this movement. Growing demand for mental health services is on the rise globally, and many people are finding it difficult to access timely and cost-effective care. AI-powered systems provide a scalable solution, reaching underprivileged populations in far-flung locations and offering round-the-clock support. AI therapy is being looked into as a result of inadequate mental healthcare.

Users fail to trust or engage with human therapists, and their mental health issues may even get worse. The privacy problem is a further concern. Yet, even AI therapy frequently uses sensitive and private user data, which is open to abuse and safety lapses. AI therapy is not capable of meeting specific medical needs. Although machine learning algorithms have the ability to examine large datasets and detect patterns they could not possess the complex

comprehension and empathy resulting from human-to-human interactions. Social interactions, cultural backgrounds and life experiences are all fundamental components of human nature and are the source of human emotions. While AI can help with chores and decision-making, it cannot take the place of human emotions, which are essential to our existence and relationships. AI therapy may not be able to fully replicate the human connection. While AI therapy can mimic certain aspects of human interaction, it lacks the ability to truly understand and respond to human emotions in the same way that a human therapist can. Due to their capacity to build strong emotional bonds with their patients, human therapists frequently surpass AI therapists. They are more skilled at navigating the complexities of interpersonal situations and human emotions. In order to make well-informed decisions and offer clients individualized treatment suggestions, human therapists rely on judgment, intuition, and professional expertise. In addition, human therapists respect limits and uphold moral principles, guaranteeing the validity of the therapeutic alliance. When taken as a whole, these characteristics show off the special advantages of human therapists in meeting the complex and all-encompassing needs of patients in mental health treatment environments. Overall, while AI therapy has the potential to address some of the challenges in mental health care, it is important to carefully consider the potential harm and ensure that these solutions are developed and implemented in an ethical and responsible manner.

In conclusion, while AI therapy holds promise in addressing the growing demand for mental health support, it also presents significant challenges and risks. As the field continues to evolve, it is crucial to prioritize ethical considerations, uphold patient privacy and autonomy, and strive for access to quality care. By harnessing the potential of AI responsibly and collaboratively, we can maximize its benefits while minimizing harm in the pursuit of improved mental health.

FUN FACT

Therapeutic Chatbots:
Some AI-powered chatbots for mental health support have quirky personalities and can even crack jokes, making therapy sessions feel less clinical and more enjoyable.

FUN ELEMENTS

1) Why did the AI never find love?
Because it could only plan meticulously scheduled encounters and missed every chance for a romantic comedy-style meet-cute!

2) Why did the AI's attempt at stand-up comedy fail?
Because its emotional range was so flat, even Siri asked, "Are you sure you're not a toaster trying to tell jokes?"

3) Why did the AI's attempt at poetry go viral for all the wrong reasons?
Because its emotional range was so flat, its love poems sounded more like software updates and its breakup poems were mistaken for error messages!

Tessy Thomas

Missile Woman of India

Tessy Thomas is an Indian scientist who has made significant contributions to the field of missile technology. She is the first woman ever to be in charge of a missile project in our country. Born in April 1963 in Alappuzha, Kerala, Tessy Thomas was named after Mother Teresa. Unfortunately, her father suffered a stroke when Tessy was just 13 years old, leaving his right side paralyzed. Despite facing extreme circumstances, her mother, a teacher, chose to remain at home and care for the family. Thomas claims that her passion for rockets and missiles began when she was a child and lived close to the Thumba Equatorial Rocket Launching Station. Even the wonder of an aircraft flying excited her. She has a brother and four sisters in total.

Tessy Thomas studied at St. Michael's Higher Secondary School and St. Joseph's Girls' Higher Secondary School in Alappuzha. She naturally excelled in physics and math. During her eleventh and twelfth grades, she received perfect scores in math. She also received more than 95% in science throughout those same years. She enrolled in the Government Engineering College, Thrissur, and obtained an education loan from the State Bank of India for 100 rupees per month. She was also given a tuition scholarship because she was admitted as one of the top ten students on the merit list. She had the confidence to live in a dorm while studying for her B.Tech., thanks to the loan. Later, she obtained an M.Tech. in guided missiles from the Institute of Armament Technology in

Pune (now known as the Defence Institute of Advanced Technology). Under the guidance of the Defence Research and Development Organization, she pursued an MBA in operations management and a PhD in missile guidance.

In 1988, Thomas began working at the Defence Research and Development Organization (DRDO), where she contributed to the creation of the Agni ballistic missile, a new generation of missiles. She was appointed to the Agni Project by A. P. J. Abdul Kalam, earning her the title of "Missile Woman of India," alongside Dr. A. P. J. Abdul Kalam, renowned as the "Missile Man of India." Additionally, Thomas served as the associate project director for the 3,000 km-range Agni-III missile program. She also spearheaded the Mission Agni IV project, which underwent a successful test in 2011. In 2009, Thomas was appointed as the project director for the 5,000 km-range Agni-V missile, which achieved successful testing on April 19, 2012. Recognizing her expertise and leadership, she was appointed as the Director-General of Aeronautical Systems at DRDO in 2018.

Tessy has received numerous accolades, including the Outstanding Woman Achiever Award by Women in Science and Engineering (WISE), the DRDO Scientist of the Year Award in 2008, the DRDO Performance Excellence Award in 2011 and 2012, the India Today Women of the Year Award in 2009, the Lal Bahadur Shastri National Award for Excellence in Public Administration in 2012, the CNN-IBN Indian of the Year Award in 2012, and the Sir Mokshagundam Visvesvaraya Award in 2016, among several other notable honours.

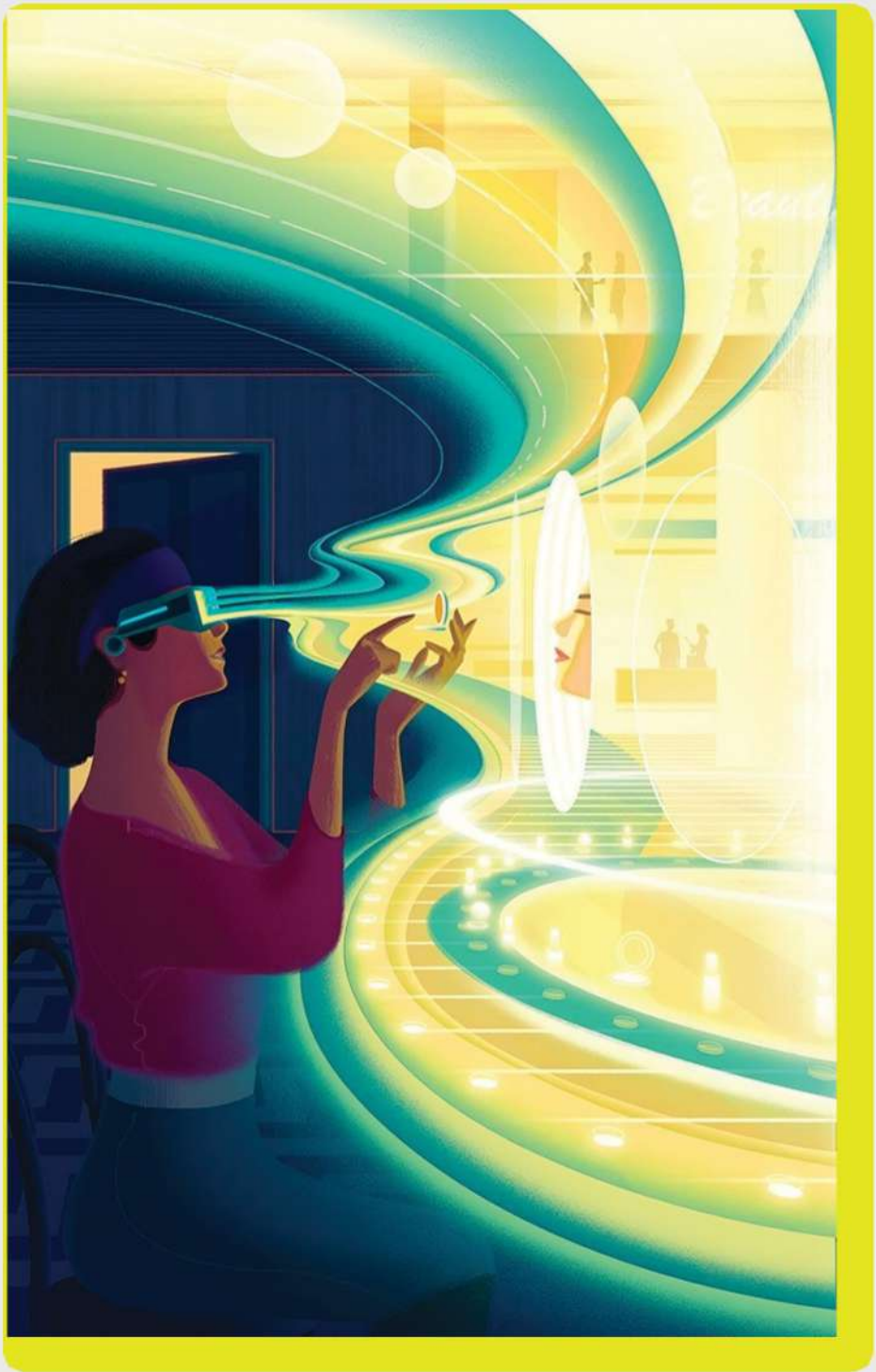
In addition to her scientific accomplishments, Thomas is recognized for her efforts to advocate for women's participation in science and technology. Presently, Tessy Thomas remains dedicated to advancing missile technology in India, serving as a living inspiration for women worldwide who aspire to pursue careers in science and technology.

FACTS

Tessy Thomas earned the nickname "Agniputri," which translates to "daughter of fire" or "missile woman." This name reflects her significant contributions to India's missile development program.

Tessy Thomas has a passion for music and enjoys playing the violin. Her interests extend beyond the realm of science and technology.

Spatial Computing : Seamlessly blending the digital and real worlds



What is spatial computing?

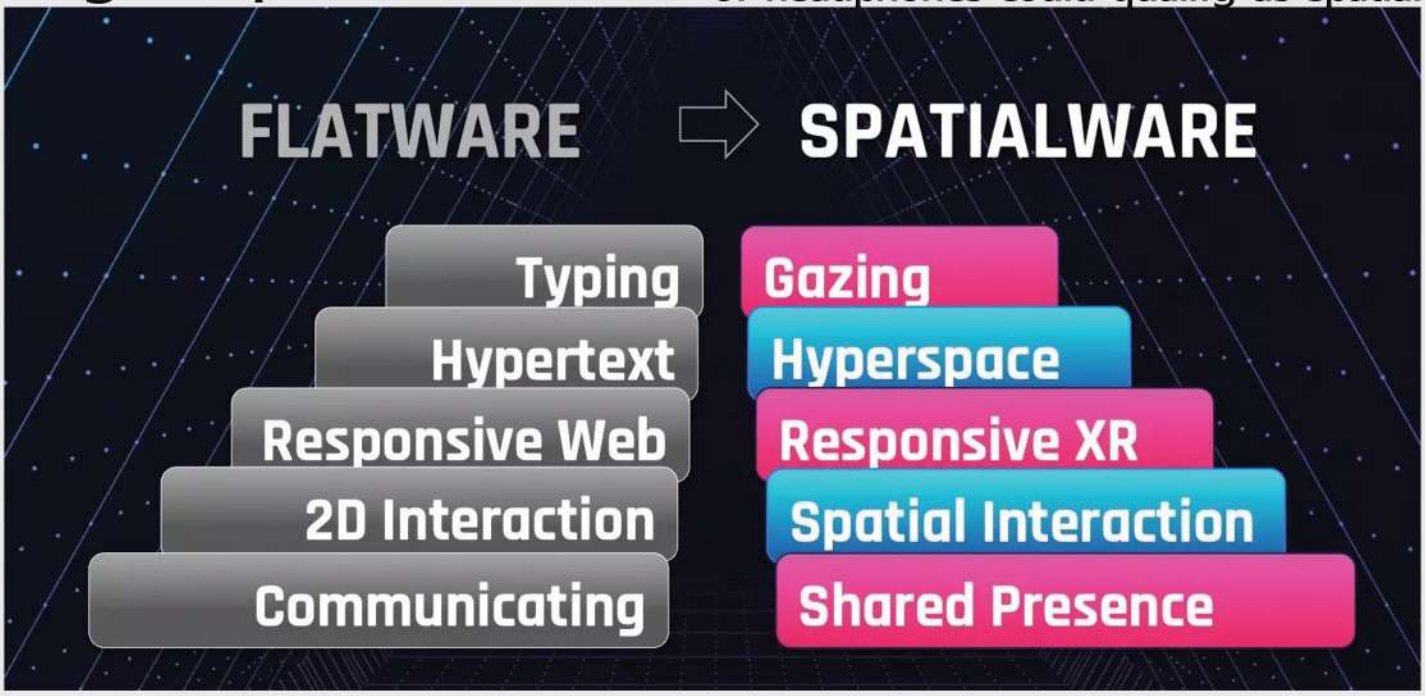
A lot of us must have been introduced to the term 'spatial computing' due to the recent launch of Apple Vision Pro, Apple's first spatial computer as they claim. It is a mixed reality headset that integrates the digital and virtual worlds for immersive human computer interactions.

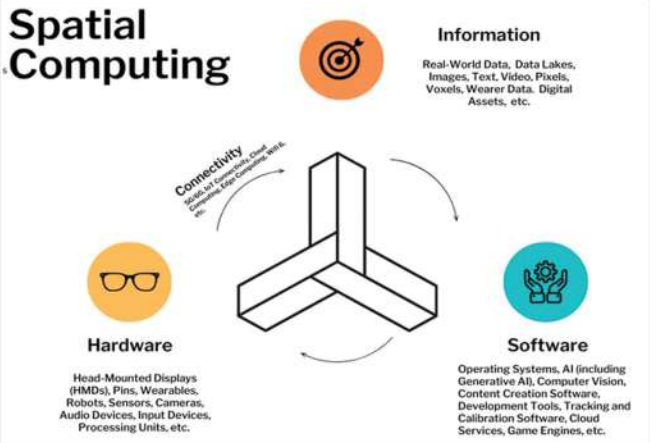
Other tech giants have come up with their own spatial computing gadgets such as the Microsoft HoloLens, Meta Quest series and Magic loop.

How well do these gadgets define the concept?

Although these devices are the first of their kind the concept of spatial computing itself is decades old. The specific term 'spatial computing' was referenced by Simon Greenwold in 2003 as "human interaction with a machine in which the machine retains and manipulates referents to real objects and spaces".

Today companies have developed their own definition of the technology but it more or less boils down to integrating the digital worlds and virtual experiences seamlessly together with the physical world. The concept enables computers to better understand and interact with humans in the natural world inverting the long-standing practice of humans interacting with computers in a digital environment. Spatial technology aims to take us away from the clunky interactions we have had with computers and mobile devices and directly places us inside the computing environment. It makes traditional desktops unhinged and mobile by integrating user interfaces into our physical environment. Technically spatial computing doesn't require visual output. An advanced pair of headphones could qualify as spatial





computing device if it made audio information available spatially to the user as if the sounds consistently existed in the surrounding using inertial measurement units and contextual cues.

By taking advantages of our natural spatial capabilities as human beings this technology aims to improve productivity, efficiency and the way we experience, share and use knowledge.

How does it work though?

Spatial computers include sensors such as RGB cameras, lidars, true depth sensors, 3D trackers, inertial measurement units and other tools to sense and track nearby human bodies and surrounding objects. Spatial computers work using various technologies that may vary depending on the device but mostly include computer vision, machine learning, IoT, haptic feedback systems, extended reality, ambient computing and digital twins.

Although the capabilities and types of spatial apps and tools vary, the ecosystem is upon three core pillars:

- Technology that allows us to perceive 3D content in real world. (AR/VR/MR headsets or smart glasses)
- Tools that allow us to interact naturally with the content we see and experience. (voice control systems, hand/body tracking, haptics and eye tracking)
- Solutions that enhance the spatial experience, such as lighting, photogrammetry, artificial intelligence, spatial sound and 3D UX design.

Applications and use cases of spatial computing

With a lot of potential under its belt this tech is set to revolutionize our future

and has in fact already begun it. We are already a part of the spatial computing revolution whenever we use filters or location tags on social media, interact with a GPS, or speak to an intelligent assistant.

Spatial tools can help guide humans and robots through complex processes, from repairing a machine to packaging goods for a consumer. Tools like Project DR allow users to display MRI and CT scans on a patient's body improving surgical accuracy and thus benefiting even the healthcare industry.

On top of individual benefits and experiences that spatial computing offers it will transform various businesses such as

• Communication and copresence

With each new advent in technology the way we communicate has evolved. Spatial computing in turn provides a way of communicating more immersively and experiencing copresence. Companies such as Meta through its codec avatars, Google through its project starlight and iphone's spatial videos and photos have already started manifesting it.

• Manufacturing

Several industries may use and some have already started using and have run trial runs of spatial devices to remotely assist workers, display virtual work instructions and capture soft knowledge before operators retire. Lockheed Martin achieved 93% reduction in costs on one part of the manufacturing process for Orion space vehicle when they implemented augmented reality aids Studies indicate that trainees with virtual reality environments to learn in are 20% faster and 230% more successful than their peers.

• Gaming

There are approximately 2.7 billion gamers globally meaning one out of every three people identifies as a gamer. Gaming industry is bigger than movie and music industry combined. Spatial computing is bound to lead to advent of spatial games which will in turn increase the gaming market. Pokemon Go an AR game which made people interact with their physical world still has million of players on a daily basis which ensures that introduction of spatial computing in this domain is sure to captivate a large amount of people

• Human resources

Spatial computing boosts office productivity and enhances workflow by providing a immersive virtual work setup that can be accessed form anywhere if the device allows it. Spatial computing provides enhanced training to the trainees and upskills them more effectively. It helps overcome language barriers and technical hurdles.

• Data visualisation

Spatial computing can enhance data visualisation by overlaying digital information onto the physical world, providing context and depth to data representation. For example, in augmented reality applications, users can visualise data points or graphs in 3D directly within their physical environment, making it easier to understand complex datasets. This immersive experience can aid in decision making, analysis, and communication of data insights.

• Media, sports and entertainment

With the advent of personal computers (PCs) we have been able to view and support content more efficiently than before. Then with the introduction of mobile computers we have been able to do the same but on compact and mobile devices with more capabilities. Now spatial computing will again change our content viewing habits making them more immersive and interactive. Imagine watching a movie on a personal cineplex size screen but at home!! This is very well possible with spatial computing and is in fact already offered by Apple Vision Pro.

Challenges and obstacles

Spatial computing has its fair share of challenges and obstacles. Since it is still a technology still at nascent stage more general and case specific research and investment for the same is required. It is also not sure if the technology will be affordable when it gets commercial initially. But the benefits of spatial computing far outweigh the hindrances in its development. Spatial computing ensures that it is technology that adapts to make sense for the person, not the person needing to make sense of the technology. It is the next step for how companies and humans interact.

Anna Mani : The Weather Woman of India

Anna Modayil Mani was an Indian scientist and meteorologist who made significant contributions to the field of atmospheric sciences from an early age. She was born in Travancore, Kerala, on August 23, 1918. Born in Travancore, Kerala, on August 23, 1918, she was the seventh of eight children in her family and a voracious reader. Influenced by Gandhi during the Vaikom Satyagraha, she began wearing only Khadi garments and was inspired by his nationalist movement. Immersed in books during her formative years, by the age of eight, she had read almost all the Malayalam-language books available at her public library. On her eighth birthday, she declined to accept her family's customary gift of a set of diamond earrings, asking instead for a set of the Encyclopedia Britannica. Yes, imagine that! Her life was influenced and fashioned by the world of books, introducing her to innovative ideas and instilling in her a strong sense of social justice.

Initially interested in pursuing medicine, Anna Mani later opted for physics and enrolled in the honours program at Presidency College in Madras. She graduated with a BSc with honours in physics and chemistry. In 1940, she obtained a scholarship to conduct research in physics at the Indian Institute of Science in Bangalore under the supervision of Nobel laureate Sir C.V.

Raman. In Dr. Raman's laboratory, Anna Mani worked on the spectroscopy of diamonds and rubies. The application of fluorescent spectroscopy proved to be a powerful tool for studying the physical and chemical behaviour of macromolecules. Anna Mani meticulously recorded and analyzed fluorescence absorption and Raman spectra, investigating temperature dependence and polarization effects across more than 30 different diamonds. Between 1942 and 1945, Anna Mani published five papers on the luminescence of diamonds and rubies. In August 1945, she submitted her Ph.D.

dissertation at Madras University. Even though her dissertation involved exhaustive research, she was denied a Ph.D. because she lacked a master's degree. Undeterred, Anna Mani then moved to Britain to study physics on a government scholarship for an internship at the Imperial College in London. Although her preference was to pursue physics research, she ended up specializing in meteorological instrumentation as it was the only scholarship available to her at the time. This decision marked the beginning of a lifelong passion and significantly enriched India's meteorological mission.

Upon her return to India in 1948, Anna Mani worked as a scientist for the Indian Meteorological Department (IMD) in Pune. There, she oversaw the construction of radiation instrumentation. At the IMD, she standardized the drawings of approximately 100 weather-related instruments for production and established monitoring stations across the country to track solar radiation, aiding India in harnessing solar energy. In 1960, Mani continued her pioneering work on measuring atmospheric ozone, predating global understanding of the ozone layer's functions. She designed the "Ozonesonde," an instrument for measuring atmospheric ozone. Additionally, Anna Mani established a meteorological observatory at ISRO's Thumba rocket launch facility in Kerala. Her extensive work on measuring wind speeds at over 700 locations nationwide laid the groundwork for India's aspirations in wind energy.

Anna Mani was a remarkable meteorologist and physicist who retired as the Deputy Director General of the Indian Meteorological Department in 1976. Following her retirement, she returned to the Raman Research Institute in Bangalore as a visiting professor for the next three years. This was the very place where she embarked on her research career in 1940 as a young and pioneering science researcher.

On her 100th birth anniversary, the World Meteorological Organization honoured Anna Mani with a biography and an interview. On August 23, 2022, Google celebrated Mani's 104th birthday with a Google Doodle. Anna Mani passed away on August 16, 2001, in Kerala, but her legacy as a pioneering scientist and champion of women in science lives on.

FACTS

One of her notable contributions was the development of the "Mani Whirling Psychrometer," an instrument used to measure humidity in the atmosphere. Her innovation greatly improved the accuracy of humidity measurements in meteorology.

On her 100th birth anniversary, the World Meteorological Organization honoured her with a biography and an interview. On August 23, 2022, Google honoured Mani with a Google Doodle on her 104th birthday.

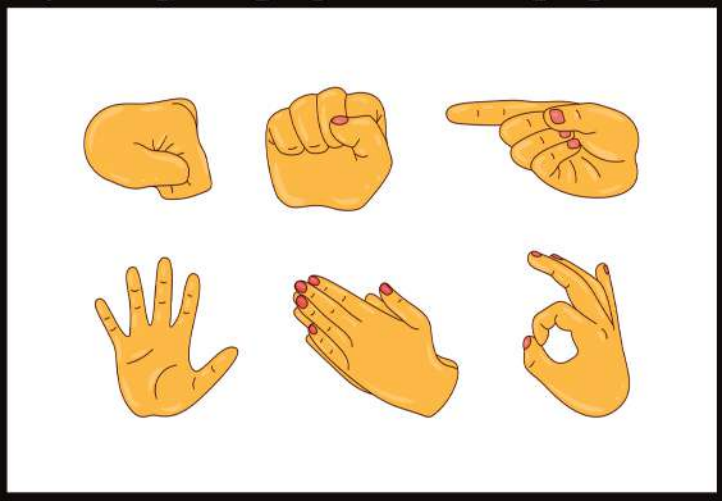
SIGN LANGUAGE AVATARS: ANIMATION AND COMPREHENSIBILITY

In the vast landscape of online content, accessibility remains a crucial yet often overlooked aspect.

While progress has been made in catering to various needs, one group still faces significant barriers: the deaf community. Individuals whose primary mode of communication is sign language encounter formidable challenges when navigating the digital realm. However, emerging technologies offer promising solutions, particularly in the form of signing avatars.

To understand the importance of signing avatars, one must first understand the unique linguistic and cultural landscape of the deaf community. Sign language, such as Indian Sign Language (ISL), is not merely a manual representation of spoken language; it constitutes a rich and intricate mode of communication in its own right. Unlike spoken languages, sign languages are spatial and visual, relying on hand gestures, facial expressions, and body movements to convey meaning. For deaf individuals, sign language is not just a means of communication but an integral part of their identity and community. Despite the complexity and significance of sign language, accessibility to written materials remains a challenge. Deaf individuals often struggle with learning written languages, such as their country's spoken language, due to the absence of auditory cues and reliance on written symbols. Consequently, many deaf individuals encounter difficulties in reading and writing, hindering their access to information and opportunities in the digital age. Traditionally, prerecorded videos of human signers have been used to make written content accessible to the deaf community. While effective, these videos present limitations such as high production costs, static content, and lack of customization. However, signing avatars emerge as a solution: digital representations capable of dynamically translating written text into sign language. Signing avatars offers a range of advantages over traditional videos. With intuitive tools, production costs can be significantly reduced, and content adjustments can be made easily, even automatically or at runtime. Additionally, signing avatars provides a level of anonymity for content producers, which is an important consideration in today's digital landscape. The applications for signing avatars are diverse and far-reaching. From automatically translating web pages to interactive e-learning applications, sign language lexicon visualization, and even train or flight announcement services, signing avatars have the potential to revolutionize accessibility for the deaf community in the digital sphere.

However, the development of signing avatars is not without its challenges. Sign language is highly multimodal, requiring synchronization of hand gestures, facial expressions, and body movements. Current state-of-the-art avatars struggle to achieve high levels of comprehensibility, with studies reporting varying levels ranging from

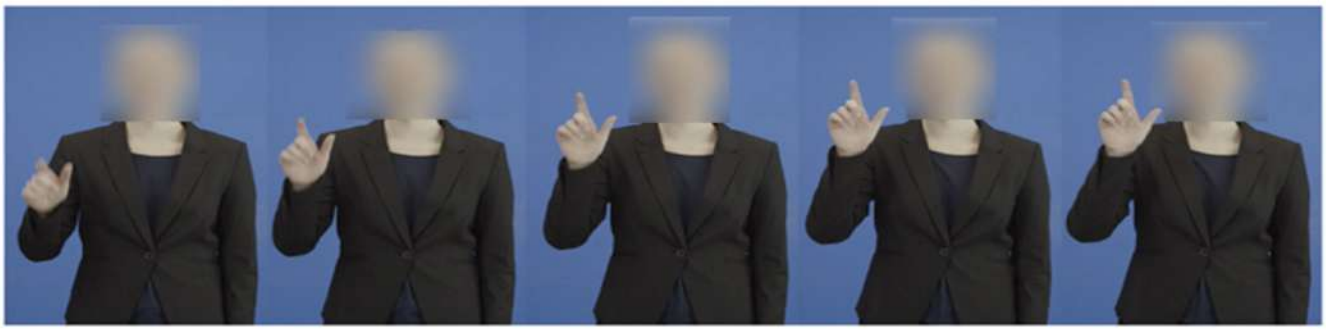


58% to 71%. The lack of a universal writing system for sign language further complicates content representation and translation. Despite these challenges, the development of signing avatars represents a significant step forward in improving accessibility and inclusivity online. As technology advances and researchers continue to refine animation techniques and comprehensibility levels, signing avatars have the potential to become indispensable tools for the deaf community, bridging the gap between written content and sign language communication in the digital age.

Motion capture avatar

Computer synthesized avatar

Live human signer



FACTS

1) Deaf people often use name signs to refer to people. These name signs are attributed to each person and doesn't requires fingerspelling the entire name. When you meet a deaf person, it is a practice to tell them your name sign.

2) Each sign is composed of five components. The components are handshape, movement, palm orientation, location, and facial expression. Any change in them will change the entire meaning of the sign.

3) The UN General Assembly has proclaimed 23 September as the International Day of Sign Languages in order to raise awareness of the importance of sign language in the full realization of the human rights of people who are deaf.

V. Kathiresan

Once A.P.J. Abdul Kalam's driver, this man is now a history professor

Kathiresan had to drop out of school to support his family. Years later, while working as A. P. J. Abdul Kalam's driver, he received encouragement to resume his studies. Now, he holds a PhD, has authored two books, and works as an assistant professor at Arignar Anna Government Arts College in Vadachennimalai, Tamil Nadu. Should we say that nothing is impossible? The story of V. Kathiresan proves that.

"I will never forget Kalam Ayya's guidance. For five and a half years, I worked as his driver, and during those long drives, I would discuss my goals and dreams with him. Ayya suggested that I should resume my studies one day while we were driving. He advised me that distance learning was the best course of action," says Dr. Kathiresan.

Dr. Kathiresan found it challenging. After working a 10-to-6 job, he would return home and study to make up for the years he had lost. His students have been inspired by his resilience in the face of adversity. One of his students, Santhosh Mani, describes his teacher's story as akin to a fairy tale. Mani asserts, "We often complain about the workload and other life responsibilities. I now hold him in high regard and remind myself daily that anything is possible with effort and dedication."

After losing his father at a young age, Dr. Kathiresan had to provide for his family. Despite his passion for learning, he was compelled to drop out of school due to financial difficulties. "Even though it was one

of the toughest decisions I've ever had to make, I chose to embrace it as my way of life," says Dr. Kathiresan. He received training in electrical work and joined the Indian Army in 1979. His first posting was in Bhopal, followed by assignments in Sikkim and Hyderabad. In the 1980s, he crossed paths with A.P.J. Abdul Kalam for the first time at the Defence Research and Development Laboratory (DRDL) in Hyderabad. Kathiresan was employed as Kalam's driver, as Kalam held the position of director at that time. Observing Kathiresan engrossed in reading books, magazines, and newspapers, Kalam took an interest in him. Kalam then encouraged and inspired him to pursue further education.

Kathiresan received assistance from Dr.

Kalam in learning English, a subject in which he had failed in Class X. Subsequently, he retook his Class 10 exams and successfully passed his English paper. Following this achievement, he pursued his Class XII exams and eventually obtained a bachelor's degree in history from Madurai Kamraj University through distance learning. Later, he completed a master's degree in political science.

In 1996, he resigned from his job to focus on his higher education. "Over time, I found that the urge to pursue advanced studies began to seep into my being," says Dr. Kathiresan. He pursued a B.Ed., followed by an M.Ed. from Madras University, and subsequently earned an M.Phil. from Kamraj University. He then delved into the field of law before ultimately completing his PhD in history from Manonmaniam Sundaranar University. Reflecting on his academic journey, one cannot help but pause and truly comprehend the depth of his passion evident through these pages.

Kathiresan was selected based on merit in 2001 after successfully passing the teacher recruitment exam. Kovilpatti was his first assignment as a teacher. Shortly thereafter, he was transferred to the Virudhunagar district collectorate, where he worked as a coordinator for teacher training programs and reported directly to the collector. Following this role, he was appointed as an assistant professor at the Government Arts and Science College in Athur.

Additionally, Dr. Kathiresan has authored four books on history and a travel guide to the Tamil Nadu district of Tirunelveli. He will always remember the pivotal role played by his wife, Kasthuri, throughout his struggles. Being a teacher herself, she served as a steadfast pillar of support during his challenging times.

Dr. Kathiresan now desires to support other students who have not had the chance to complete their education, expressing gratitude for having had Dr. Kalam as a mentor. "I would be delighted to share this knowledge with students who are eager to learn and strive for excellence," says Dr. Kathiresan.

FACTS

"I wrote to Dr. Kalam to inform him that I quit DRDL and joined the CEO's office. I was touched when I got a reply. By then, he had become president. I still have the letter with me," says Dr. Kathiresan. He has written four books on history and a travel guide for Tirunelveli district in Tamil Nadu.

TECH-TASTIC

01 2001:A SPACE ODYSSEY (1968)

The film's soundtrack is famous for its use of classical music, including the Richard Strauss's much famous "Also sprach Zarathustra" which is featured during the opening sequence.

02 BLADE RUNNER (1982)

The film's ending is ambiguous, and there has been much debate among fans about whether Rick Deckard (Harrison Ford) is himself a replicant.

03 WARGAMES (1983)

The film's portrayal of hacking was surprisingly accurate for the time, and it helped to raise awareness of the growing threat of cyberwarfare.

MOVIE PICKS

04 MINORITY REPORT (2002)

The film raises interesting questions about the ethics of precrime and the role of free will in a society that can predict the future.

05 WALL E (2008)

The film features very little dialogue, relying instead on visual storytelling and sound effects.

06 THE SOCIAL NETWORK (2010)

The film's portrayal of Facebook founder Mark Zuckerberg has been controversial, with some critics accusing it of being overly negative.

CRACK THE CODE-WORD

1. WHAT TYPE OF TECHNOLOGY PROTECTS YOUR DATA BY TURNING IT INTO A SECRET CODE?
ANSWER: _ N _ R Y _ T I O N

2. WHAT IS A ROBOT THAT HELPS PERFORM SURGERIES CALLED?
ANSWER: D _ V _ N C I

3. WHAT IS THE SMALLEST UNIT OF A DIGITAL IMAGE CALLED?
ANSWER: P _ _ E L

4. WHAT DO YOU CALL A DIGITAL SIMULATION OF A REAL-WORLD ENVIRONMENT?
ANSWER: _ I _ T U _ L R _ A L _ T _

5. WHAT IS THE MAIN CIRCUIT BOARD OF A COMPUTER CALLED?
ANSWER: M _ _ H E _ B _ A _ D

6. WHAT DO YOU CALL A DRAWING THAT SHOWS THE LAYOUT OF AN ELECTRONIC CIRCUIT?
ANSWER: S C _ E _ A _ I C

WORD PUZZLE GAME

Q A G C H B R H E L L T
V I R T U A L U M I N T
A P P R A C T I E A N S
R A C H A T B O T I L K
A D R A W I N G A A G Q
V D A N G E R H V E U U
E R I C P A C T E R F A
N E V I O K A R R D T N
E S A B C A L L S T A T
F S N O I T O M E Y G U
H O L O G R A M O H O M
G B M A H N O O R N O A

HINTS:

1. STORES DATA IN BLOCKS THAT ARE LINKED TOGETHER IN A CHAIN.
2. AN AI-POWERED PROGRAM DESIGNED TO SIMULATE CONVERSATION WITH HUMAN USERS.
3. A UNIQUE IDENTIFIER ASSIGNED TO DEVICES ON A NETWORK.
4. A COMPUTER-GENERATED ENVIRONMENT WITH SCENES AND OBJECTS THAT APPEAR TO BE REAL.
5. AI LACKS THIS KIND OF INTELLIGENCE AND EMPATHY.
6. VIRTUAL WORLD IN WHICH USERS REPRESENTED BY AVATARS INTERACT.
7. A 3D IMAGE CREATED WITH LIGHT THAT APPEARS REALISTIC.
8. SMALLEST UNIT OF MATTER AND ENERGY, OFTEN USED IN SCI-FI CONCEPTS.

Siddharth Nair
Chairperson

Atharva Kale
Vice Charperson

Sarika Shailendran
Secretary

Rohan Gharge
Content Head

Shreya Naik
Graphics Head

ALUMNI BATCH 2022-2023

Dear Reader,

Thank you for choosing our magazine as your source of inspiration, information, and entertainment. We take pride in bringing you articles that are insightful, well-researched, and engaging, and we hope that first ever issue has lived up to your expectations.

Whether you're looking to stay up-to-date with the latest trends, learn something new, or simply unwind and enjoy a good read, we believe that our magazine has something for everyone. We are grateful for your continued support, and we promise to keep deliver- ing high-quality content that informs, entertains, and inspires.

Thank you for being a part of our community, and we look forward to sharing our next issue with you.

Sincerely,
IEEE Team.

Andrew Nithin J

Parth Yadav

Ruchi Pawar

Achintya Pednekar

Anusha Aherwar

Aryan Shirsat

Anushka Pawar

Magazine Team 2023-2024