

DEPARTMENT OF ELECTRONIC & TELE-COMMUNICATION ENGINEERING

VOL 11 ISSUE 1



VISSION:

E-NEWSLETTER

2023

To promote excellence in Tele-communication & Information Technology education and prepare our students to face fast growing challenges of the competitive world.

MISSION:

To provide excellent education by balancing both theoretical and practical aspects of Tele-communication Engineering.

Department is dedicated to equip students with strong foundation to enable them for continuing education.

To promote Professional skills, Ethical and Spiritual values resulting in service to the community



"We want the education by which the character is formed, strength of mind is increased, the intellect is expanded & by which one can stand on our own feet."

Swami Vivekananda

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VESP-Diploma Engineering



THIRD YEAR



AARYAN SURVE 91.94%



PRANJAL BHANUSHALI 88.71%



2023

SOURABH GUPTA 88.53%



NITIN YADAV 81.26%

JAYDATTA DHALE

86.27%

SECOND YEAR



NIHARIKA PALKAL 79.26%

FIRST YEAR





SUNIL MOHANTY 82.93%



AARYA DESAI 78.74%



DEEPAK JEETARWAL 82.13%

2023

STUDENT FORUM

GUEST LECTURE

Sr. No.	Date	Progra m code	Course name	Торіс	Name of Expert	Designation	Organization	Page no.
1	15/04/2023	EJ4I	LIC	Future trends in 5G heterogeneous wireless communication Networks	Dr. Janani Natarajan	Selection Grade Lecturer	St.Xavier's Technical Institute Mahim, Mumbai - 400016	1
2	13/04/2023	EJ6I	ONS	Optical Networks: types, technology and use cases, elastic optical networks (EONs)	Dr. Baban Rindhe	H.O.D.	K.C. College of Engineering & Management Studies	2
3	11/4/2023	EJ4I	DCS	Milimeter wave communication, Device to Device (D2D) communictaion, MIMO, massive MIMO,multiuser MIMO(MU-MIMO)	Dr. Devidas Chikhale	Associate Professor	L.T. College of Engineering Koparkherane Navi Mumbai.	3
4	8/4/2023	EJ6I	ETE	Career Opportunities in Cyber Security	Mr.Mihir Gangurde/ Mr.Kushal Jadhav	Owner	Cyber Wokes, Kurla, Mumbai	4





INDUSTRIAL VISIT

Sr. No.	Date	Program Code	Course Name	Objective	Industry Name	Address	No. of Student Participated	Report Docume nted	Page no.
1	19/4/2023	EJ2I	EEC	To know about construction ,manufactur s of three phase induction motors	A.N.Enterprise s.(Motors Manufactuer)	Anant Villa,Near MSEB Office,Gothi vali Gaon,Rabal e Navi Mumbai- 400701	62	Yes	1
2	18/03/2023	EJ6I	MAN	To provide an insight regarding intractionan d working method	NAB IDBI Polytechnic	Plot no.A- 52,Anand Nagar M.I.D.C.,Am bernath,Ma harashtra- 421506	55	Yes	2
З	18/03/2023	EJ6I	MAN	To provide an insight regarding intractionan d working method	Bunty Foods Pvt. Ltd	A- 66,Additiona I M.I.D.C.,Am bernath,Ma harashtra- 421506	55	Yes	3
4	09/03/202 3	EJ4I	BPE	To study power electronics components	Prachi Electronics	13-B, Collector Colony, Chembur	43	Yes	4
5	25/2/2023	EJ6I	CND	ISRO Space Exhibition	Exhibition Ground,Matun ga	Exhibition Ground,Mat unga,Mumb ai	47	Yes	5





<u>Community Related Activities NSS</u>

Sr. No.	Name of Activity Date		Number of Participant/ Beneficiary	
1	Drugs Free India Pledge	12/8/2022	60	
2	Azadi Ka Amrut Mahotsav Abhiyan	13-17/08/2022	697	
3	Tree Plantation	15/10/22	30	
4	Blood donation Camp	22/02/23	96	
5	Health Checkup Camp	22/02/23	123	
6	3 days Residential camp	04-06/04/2023	50	

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STAFF FORUM

STAFF ACTIVITY

Sr. No.	Name of Staff	Title of Program	Organised by	Duration	Mandays
1	MRS. DEENA SHAH	Electromagnetic Waves in Guided and Wireless Media	NPTEL	8 Weeks	10
2	MR. AVINASH DANGWANI	Data Analyticswith Python	NPTEL	12 Weeks	10
		Digital Circuits	NPTEL	12 weeks	10
3	MRS.NEELIMA P.	Emerging Trends in Information Technology	VESP	2 Days	2
4	MP MANISH D	Research Methodology	Saboo	5 days	5
		Electric Vehicles	NPTEL	4 Weeks	10
5	MRS.VAISHALI R.	Introduction to Wireless and Cellular Communication	NPTEL	12 weeks	10
6	MRS. NIRMALA PRABHU	Digital Circuits	NPTEL	12 weeks	10
7	MR. ASHOK NAVALE	Research Methodology	Saboo	5 days	5
			VESP	5 Days	5
8	MR. SANDIP PAWAR	Enhancing Soft Skills and Personality	NPTEL	8 Weeks	10

STUDENTS SECTION

THE ROAD AHEAD: SELF-DRIVING CARS AND THE FUTURE OF TRANSPORTATION

Yash Khedekar (EJ3I)

• Introduction:

In the last few decades, self-driving cars have transitioned from being the stuff of science fiction to a technological reality. These autonomous vehicles have the potential to revolutionize the way we travel, offering benefits ranging from enhanced safety to increased efficiency. As the world continues to embrace this transformative technology, it's essential to explore the advancements, challenges, and implications of self-driving cars.



Advancements in Self-Driving
Technology

Self-driving cars, also known as autonomous vehicles, rely on a combination of sensors, cameras, radar, lidar, and advanced artificial intelligence (AI) algorithms to navigate and make decisions on the road. These systems work together to detect obstacles, interpret traffic signals, predict pedestrian movements, and ensure a safe driving experience. One of the most significant advancements in self-driving technology has been the development of machine learning algorithms that enable cars to learn from real-world driving experiences. This allows the vehicles to adapt and improve their driving skills over time, making them more capable of handling complex situations.

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• Benefits of Self-Driving Cars

1. Enhanced Safety:

One of the most compelling arguments for self-driving cars is their potential



to significantly reduce accidents caused by human error. With advanced sensors and algorithms that never get tired or distracted, these vehicles have the potential to save lives and prevent countless injuries.

2. Reduced Traffic Congestion:

Self-driving cars can communicate with each other and the surrounding infrastructure, optimizing traffic flow and reducing congestion. This could lead to smoother traffic patterns and shorter travel times.

3. Increased Accessibility:

Autonomous vehicles have the potential

to people who are unable to drive due to age, disability, or other reasons. This increased accessibility could improve the quality of life for many individuals.

4. Environmental Benefits:

Self-driving cars can be programmed to drive more efficiently, reducing fuel consumption and emissions. Additionally, shared autonomous vehicles could lead to fewer cars on the road, further reducing environmental impact.

Challenges and Concerns

Despite the promising benefits, self-driving cars also face significant challenges and concerns:

1. Technical Challenges:



Creating a fully autonomous vehicle that can handle all road conditions and scenarios is a complex task. Adverse weather, construction zones, and unique traffic situations can pose difficulties for self-driving technology.

2. Ethical and Legal Questions:

Autonomous vehicles may face situations where ethical decisions need to be made, such as in potential accidents where human lives are at stake. Determining liability and legal responsibility in the event of accidents involving self-driving cars is also a complex issue.

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3. Cybersecurity:

Autonomous vehicles rely heavily on software and communication networks, making them vulnerable to cyberattacks. Ensuring the security and privacy of these vehicles is a critical concern.

4. Public Acceptance:

Many people may be hesitant to trust selfdriving technology, especially during the transitional period when both autonomous and human-driven vehicles share the road. Building public confidence in the safety of these vehicles is essential.

• The Future of Self-Driving Cars

The journey towards fully autonomous vehicles is ongoing. As technology continues to advance, we can expect to see more selfdriving features integrated into conventional cars. Moreover, the development of regulatory frameworks, infrastructure, and safety standards will play a crucial role in shaping the future of self-driving cars.

Conclusion

Self-driving cars have the potential to reshape transportation as we know it. While there are challenges to overcome, the benefits in terms of safety, efficiency, accessibility, and environmental impact are substantial. As the technology matures and gains public acceptance, the road ahead for self-driving cars holds exciting possibilities for the future of mobility.

THE TRANSFORMATIVE ROLE OF ARTIFICIAL INTELLIGENCE IN INDUSTRY

Sunil Kumar Mohanty (EJ3I)

• Introduction:

In recent years, the rapid advancements in artificial intelligence (AI) have revolutionized industries across the globe, reshaping the way businesses operate and innovate. From manufacturing to healthcare, finance to agriculture, AI's transformative role has been profound and continues to reshape the various landscape of sectors. This comprehensive article delves deeper into the multifaceted impact of AI on industries, exploring its effects on efficiency, innovation, challenges, ethical considerations, and the potential future landscape.



Al's Impact on Efficiency and Productivity

1. Al-driven Automation:

Al-powered automation has become a cornerstone of industrial transformation. Manufacturing processes have evolved with the introduction of robotics and autonomous systems. In sectors such as automotive and electronics manufacturing, robots equipped with AI algorithms can assemble intricate components with precision and speed, reducing human error and increasing production rates.

2. Supply Chain Optimization:

Al's ability to analyze vast amounts of data has revolutionized supply chain management. Industries now employ Al-driven predictive analytics to forecast demand patterns, optimize inventory levels, and even predict potential disruptions. This not only improves operational efficiency but also minimizes costs and wastage.



3. Enhanced Customer Experience:

Customer-centric industries are leveraging AI to provide personalized experiences. Retailers analyze customer behavior to recommend products tailored to individual preferences, boosting customer satisfaction and loyalty. Similarly, the travel industry uses AI-powered chatbots to assist travelers in booking flights, hotels, and answering queries, ensuring a seamless customer journey.



• AI-Driven Innovation & Transformation

1. Healthcare Revolution:

Al's impact on healthcare is transformative, from early disease detection to drug discovery. Al algorithms analyze medical images, such as X-rays and MRIs, with exceptional accuracy, aiding in diagnosing diseases like cancer and neurological disorders. Drug discovery has been accelerated as AI analyzes molecular structures and predicts potential drug candidates, drastically reducing research and development timelines.

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2. Smart Agriculture:

The agricultural sector is benefiting from Aldriven precision farming techniques. Sensors and drones equipped with AI algorithms monitor crop health, soil moisture, and pest infestations, enabling farmers to optimize irrigation, fertilization, and pesticide use. This not only increases yields but also reduces resource wastage and environmental impact.



- Challenges and Ethical Considerations
- 1. Data Privacy and Bias:

The utilization of vast amounts of data for Al systems raises concerns about privacy and bias. Industries must prioritize data security to protect sensitive information. Moreover, Al algorithms can inadvertently perpetuate biases present in training data, leading to discriminatory outcomes. Ensuring fairness and transparency in Al decision-making



processes is imperative.

2. Workforce Transformation:

Al's automation capabilities have led to discussions about job displacement. Industries must adopt a proactive approach by investing in upskilling and reskilling programs for employees. Collaborative efforts between humans and AI can create new roles that leverage the strengths of both, leading to a more agile and productive workforce.



• Advantages of the Transformative Role of Artificial Intelligence in Industry:

1. Increased Efficiency and Productivity:

Al-driven automation reduces human error and speeds up processes, leading to enhanced efficiency and higher productivity in various industries.

2. Data-Driven Insights:

Al's ability to analyze large datasets provides valuable insights that inform decision-making, helping industries anticipate trends and optimize operations.

3. Cost Savings:

Al-powered automation leads to cost savings by minimizing labor costs and reducing downtime due to predictive maintenance and optimized processes.

4. Personalized Customer Experiences:

Industries can provide tailored products and services to customers based on AI-driven analysis of their preferences and behavior, leading to improved customer satisfaction and loyalty.

5. Innovation Acceleration:

Al contributes to the acceleration of research and innovation, as it aids in tasks such as drug discovery, material design, and complex simulations.



6. Enhanced Safety:

Al contributes to the acceleration of research and innovation, as it aids in tasks such as drug discovery, material design, and complex simulations.

7. Precision Agriculture:

Al-driven smart farming techniques optimize resource utilization, resulting in higher yields, reduced wastage, and sustainable agricultural practices.



• Disadvantages of the Transformative Role of Artificial Intelligence in Industry

1. Job Displacement:

The automation of tasks through AI can lead to job displacement, particularly for roles that involve repetitive tasks. This can create challenges in the job market and require significant efforts in upskilling and reskilling the workforce.

2. Privacy Concerns:

Al's reliance on data raises concerns about privacy and data security. Collecting and analyzing vast amounts of personal data can lead to breaches if not managed properly.

3. Dependency on Technology:

Overreliance on AI systems could make industries vulnerable to disruptions if the technology fails, leading to potential economic losses and operational setbacks.

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4. Human-Machine Collaboration Challenges:

Integrating AI into industries requires a balance between human capabilities and AI technologies, which can pose integration and collaboration challenges.

4. Ethical Dilemmas:

The use of AI in industries raises ethical questions, such as the responsibility for decisions made by AI systems and the potential consequences of AI-powered actions.

Conclusion:

The transformative role of artificial intelligence in industries is a dynamic journey, marked by advancements, challenges, and immense potential. Industries that embrace AI responsibly, address ethical considerations, and prioritize workforce development will emerge as leaders in this transformative era. With the fusion of human ingenuity and AI capabilities, industries are poised to achieve unprecedented levels of efficiency, innovation, and growth. The path forward lies in harnessing AI's power to augment human potential and shape a brighter future for industries worldwide.

EXPLORING THE MULTI-FACETED BENEFITS OF 5G TECHNOLOGY

Hrishikesh Chinchkar (EJ3I)

• What is 5G?

5G is the fifth generation of wireless cellular offering higher technology, upload and download speeds, more consistent connections, and improved capacity than previous networks. 5G is much faster and more reliable than the currently popular 4G networks and has the potential to transform the way we use the internet to access applications, social networks, and information.



For example, technologies like self-driving cars, advanced gaming applications, and live streaming media that require very reliable, high-speed data connections are set to benefit greatly from 5G connectivity.

• Why is 5G important?

The demand for internet access, combined with the emergence of new technologies such as artificial intelligence, the Internet of Things (IoT), and automation, is driving a massive increase in the amount of data created. Data creation is growing exponentially, with volumes set to increase by several hundred zettabytes over the coming decade. The current mobile infrastructure was not designed for such a high information load and requires upgrading.



At the same time, with its high speed, massive capacity, and low latency, 5G could help to support and scale several applications like cloud-connected traffic control, drone delivery, video chatting, and console-quality gaming on the go. From global payments and emergency response to distance education and mobile workforce, the benefits and applications of 5G are limitless. It has the potential to transform the world of work, the global economy, and people's lives.

How will 5G benefit businesses?

The capabilities of 5G can support innovation and improved customer experiences for business. Here are some areas to look out for.

1. Autonomous mobility solutions

Previously, fully autonomous cars have not been considered viable because of the length of time it takes for a vehicle to send and receive information. However, the low latency of 5G means we could see self-driving cars

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become more commonplace, with roads connected with transmitters and sensors that send and receive information to vehicles in 1/1,000 of a second. The reduced time is critical for AI and radar technology to interpret what they see (other cars, pedestrians, stop signs) and control the car accordingly.

2. Smart factories

5G mobile networks are an opportunity for manufacturers to create hyper-connected smart factories. 5G supports the Internet of



Things, meaning factories can wirelessly connect several thousands of smart devices like cameras and sensors to automatically collect data in real-time. The factories can analyze and process this data to make operations more efficient and cost-effective. For example, smart sensor technology can make accurate predictions about equipment lifecycles, inform planning decisions, and predict when machines need maintenance.

3. Virtual reality

Virtual reality and augmented reality technology (V R/AR) allows mobile phones, headsets, smart glasses, and other connected devices to add digital overlays to live views.



VR/AR has a host of use cases including guided maintenance, repairs, operations in industrial facilities, workplace training, sales and marketing, and real-time collaboration. The low latency and high bandwidth of 5G mobile technology will make VR/AR accessible to more businesses and use cases.

4. Edge computing



Edge computing is the process of delivering data storage and analysis capabilities closer to endpoints. You can build highvour performance applications that can process and store data close to where it is generated, enabling ultra-low latency, intelligent, and realtime responsiveness. With the ever-increasing quality of edge computing use cases and data requirements, a high-speed network is necessary to satisfy the need for near realtime responsiveness. As such, 5G network infrastructure supports and enables the increasing complexity and specialization of edge computing.

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QUANTUM COMMUNICATION

Deepak Jeetarwal (EJ3I)

• What is quantum communication?

Quantum communication is a field of applied quantum physics closely related to quantum information processing and quantum teleportation. lts most interesting application is protecting information channels against eavesdropping by means of quantum cryptography. The most well known and developed application quantum of cryptography is quantum key distribution (QKD).



QKD describes the use of quantum mechanical effects to perform cryptographic tasks or to break cryptographic systems.

The principle of operation of a QKD system is quite straightforward: two parties (Alice and Bob) use single photons that are randomly polarized to states representing ones and zeroes to transmit a series of random number sequences that are used as keys in cryptographic communications.

Both stations are linked together with a quantum channel and a classical channel. Alice generates a random stream of qubits that are sent over the quantum channel. Upon reception of the stream Bob and Alice — using the classical channel — perform classical operations to check if an eavesdroper has tried to extract information on the qubits stream.



The presence of an eavesdropper is revealed by the imperfect correlation between the two lists of bits obtained after the transmission of qubits between the emitter and the receiver. One important component of virtually all proper encryption schemes is true randomnessm which can elegantly be generated by means of quantum optics.

• What is quantum key distribution?

QKD involves sending encrypted data as classical bits over networks, while the keys to decrypt the information are encoded and transmitted in a quantum state using qubits.

Various approaches, or protocols, have been developed for implementing QKD. A widely used one known as BB84 works like this. Imagine two people, Alice and Bob. Alice wants to send data securely to Bob. To do so, she creates an encryption key in the form of qubits whose polarization states represent the individual bit values of the key.

The qubits can be sent to Bob through a fiber-optic cable. By comparing measurements of the state of a fraction of these qubits—a process known as "key sifting"—Alice and Bob can establish that they hold the same key.



As the qubits travel to their destination, the fragile quantum state of some of them will collapse because of decoherence. To account for this, Alice and Bob next run through a process known as "key distillation," which involves calculating whether the error rate is high enough to suggest that a hacker has tried to intercept the key.

If it is, they ditch the suspect key and keep generating new ones until they are confident that they share a secure key. Alice can then use hers to encrypt data and send it in classical bits to Bob, who uses his key to decode the information.

We're already starting to see more QKD networks emerge. The longest is in China, which boasts a 2,032-kilometer (1,263-mile) ground link between Beijing and Shanghai.

Banks and other financial companies are already using it to transmit data. In the US, a startup called Quantum Xchange has struck a deal giving it access to 500 miles (805 kilometers) of fiber-optic cable running along the East Coast to create a QKD network. The initial leg will link Manhattan with New Jersey, where many banks have large data centers.

Although QKD is relatively secure, it would be even safer if it could count on quantum repeaters.

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• What is a quantum repeater?

Materials in cables can absorb photons, which means they can typically travel for no more than a few tens of kilometers. In a classical network, repeaters at various points along a cable are used to amplify the signal to compensate for this.

QKD networks have come up with a similar solution, creating "trusted nodes" at various points. The Beijing-to-Shanghai network has 32 of them, for instance. At these waystations, quantum keys are decrypted into bits and then reencrypted in a fresh quantum state for their journey to the next node. But this means trusted nodes can't really be trusted: a hacker who breached the nodes' security could copy the bits undetected and thus acquire a key, as could a company or government running the nodes.

Ideally, we need quantum repeaters, or waystations with quantum processors in them that would allow encryption keys to remain in quantum form as they are amplified and sent over long distances. Researchers have demonstrated it's possible in principle to build such repeaters, but they haven't yet been able to produce a working prototype.



There's another issue with QKD. The underlying data is still transmitted as encrypted bits across conventional networks. This means a hacker who breached a network's defenses could copy the bits undetected, and then use powerful computers to try to crack the key used to encrypt them.

The most powerful encryption algorithms are pretty robust, but the risk is big enough to spur some researchers to work on an alternative approach known as quantum teleportation.

• What is a quantum internet?

Just like the traditional internet, this would be a globe-spanning network of networks. The big difference is that the underlying communications networks would be quantum ones.

It isn't going to replace the internet as we know it today. Cat photos, music videos, and a great deal of non-sensitive business information will still move around in the form of classical bits. But a quantum internet will appeal to organizations that need to keep particularly valuable data secure.

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It could also be an ideal way to connect information flowing between quantum computers, which are increasingly being made available through the computing cloud.

China is in the vanguard of the push toward a quantum internet. It launched a dedicated quantum communications satellite called Micius a few years ago, and in 2017 the satellite helped stage the world's first intercontinental, QKD-secured video conference, between Beijing and Vienna. A ground station already links the satellite to the Beijing-to-Shanghai terrestrial network. China plans to launch more quantum satellites, and several cities in the country are laying plans for municipal QKD networks.

Some researchers have warned that even a fully quantum internet may ultimately become vulnerable to new attacks that are themselves quantum based. But faced with the hacking onslaught that plagues today's internet, businesses, governments, and the military are going to keep exploring the tantalizing prospect of a more secure quantum alternative.



THE IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN SOCIETY & BIOETHICS

Mr. Ashok Navale (Faculty)

Artificial intelligence (AI), known by some as the industrial revolution is going to change not only the way we do things, how we relate to others, but also what we know about ourselves. This article will first examine what AI is, discuss its impact on industrial, social, and economic changes on humankind in the 21st century, and then propose a set of principles for AI bioethics. The IR1.0, the IR of the 18th century, impelled a huge social change without directly complicating human relationships. Modern Al, however, has a tremendous impact on how we do things and also the ways we relate to one another. Facing this challenge, new principles of AI bioethics must be considered and developed to provide guidelines for the AI technology to observe so that the world will be benefited by the progress of this new intelligence.



• What is artificial intelligence?

Artificial intelligence (AI) has many different definitions; some see it as the created technology that allows computers and machines to function intelligently. Some see it as the machine that replaces human labour to work for men a more effective and speedier result. Others see it as "a system" with the ability to correctly interpret external data, to learn from data, and to use those learnings to achieve specific goals and tasks through flexible adaptation. Despite the different definitions, the common understanding of AI is that it is associated with machines and computers to help humankind solve problems and facilitate working processes. In short, it is an intelligence designed by humans and demonstrated by machines. The term AI is used to describe these functions of human-made tool that emulates the "cognitive" abilities of the natural intelligence of human minds.

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The impact of artificial intelligence on human society and bioethics

Basically impact are categorise in to two parts

- 1. Negative impact
- 2. Positive impact

1. Negative impact

Questions have been asked: With the progressive development of AI, human labour will no longer be needed as everything can be done mechanically. Willhumans become lazier and eventually degrade to the stage that we return to our primitive form of being? The process of evolution takes eons to develop, so

OR

we will not notice the backsliding of humankind. However how about if the AI becomes so powerful that it can program itself to be in charge and disobey the order given by its master, the humankind?

1. A huge social change that disrupts the way we live in the human community will occur. Humankind has to be industrious to make their living, but with the service of AI, we can just program the machine to do a thing for us without even lifting a tool. Human closeness will be gradually diminishing as AI will replace the need for people to meet face to face for idea exchange. AI will stand in between people as the personal gathering will no longer be needed for communication.

2. Unemployment is the next because many works will be replaced by machinery. Today, many automobile assembly lines have been filled with machineries and robots, forcing traditional workers to lose their jobs. Even in supermarket, the store clerks will not be needed anymore as the digital device can take over human labour.

3. Wealth inequality will be created as the investors of AI will take up the major share of the earnings. The gap between the rich and the poor will be widened. The so-called "M" shape wealth distribution will be more obvious.

4. New issues surface not only in a social sense but also in AI itself as the AI being trained and learned how to operate the given task can eventually take off to the stage that human has no control, thus creating un-anticipated problems and consequences. It refers to AI's capacity after being loaded with all needed algorithm may automatically function on its own course ignoring the command given by the human controller.

5. The human masters who create AI may invent something that is racial bias or egocentrically oriented to harm certain people or things. For instance, the United Nations has voted to limit the spread of nucleus power in fear of its indiscriminative use to destroying humankind or targeting on certain races or region to achieve the goal of domination. AI is possible to target certain race or some programmed objects to accomplish the command of destruction by the programmers, thus creating world disaster.

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2. Positive impact

There are, however, many positive impacts on humans as well, especially in the field of healthcare. Al gives computers the capacity to learn, reason, and apply logic. Scientists, medical researchers, clinicians, mathematicians, and engineers, when working together, can design an Al that is aimed at medical diagnosis and treatments, thus offering reliable and safe systems of healthcare delivery. As health professors and medical

researchers endeavour to find new and efficient ways of treating diseases, not only the digital computer can assist in analyzing, robotic systems can also be created to do some delicate medical procedures with precision. Here, we see the contribution of AI to health care.

• Fast and accurate diagnostics

IBM's Watson computer has been used to diagnose with the fascinating result. Loading the data to the computer will instantly get AI's diagnosis. AI can also provide various ways of treatment for physicians to consider. The procedure is something like this: To load the digital results of physical examination to the computer that will consider all possibilities and automatically diagnose whether or not the patient suffers from some deficiencies and illness and even suggest various kinds of available treatment.

• Socially therapeutic robots

Pets are recommended to senior citizens to ease their tension and reduce blood pressure, anxiety, loneliness, and increase social interaction. Now cyborgs have been suggested to accompany those lonely old folks, even to help do some house chores. Therapeutic robots and the socially assistive robot technology help improve the quality of life for seniors and physically challenged.

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Reduce errors related to human fatigue

Human error at workforce is inevitable and often costly, the greater the level of fatigue, the higher the risk of errors occurring. Al technology, however, does not suffer from fatigue or emotional distraction. It saves errors and can accomplish the duty faster and more accurately.

• Artificial intelligence-based surgical contribution

Al-based surgical procedures have been available for people to choose. Although this Al still needs to be operated by the health professionals, it can complete the work with less damage to the body. The da Vinci surgical system, а robotic technology allowing surgeons to perform minimally invasive procedures, is available in most of the hospitals now. These systems enable a degree of precision and accuracy far greater than the procedures done manually. The less invasive the surgery, the less trauma it will occur and less blood loss, less anxiety of the patients.







• Improved radiology

The first computed tomography scanners were introduced in 1971. The first magnetic resonance imaging (MRI) scan of the human body took place in 1977. By the early 2000s, cardiac MRI, body MRI, and fatal imaging, became routine. The search continues for new algorithms to detect specific diseases as well as to analyse the results of scans. All those are the contribution of the technology of AI.



• Virtual presence

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🕂 एक स्वप्न 🕂

एका काळया रात्रीच्या स्वप्नात हरवुन गेलो मी..

> स्वप्न की वास्तवता हे कळलो नाही मी...

वास्तवात म्हणावे तर स्वप्नात होतो मी..

मग तुझ्या प्रेमाची स्वप्न का बघत बसलो मी...

तु जरी विसरली पण तुझ्या येण्याची वाट बघत बसलो मी..

> तुझ्या छोट्या दुखण्याची काळजी करत बसलो मी...

तु जर माझी नव्हती तुला का जवळ घेतले मी...

वास्तवता अनुभवली मी..

स्वप्न म्हणावे तर

तुझ्या शरीराच्या अलगद स्पर्शाने घायाल होऊन बसलो मी..

तुझ्या हृदयाचा हलका ठोका कान लावुन ऐकला मी..

स्वप्न आहे की वास्तवता याच विचारात पडलो मी....

- प्रो. अशोक नवले

2023



ART GALLERY



Pratik Salonki (EJ3I)



Vedangee Bhagat (EJ3I)



Chaturthi Pimple (EJ3I)



Vignesh Parkar (EJ3I)





Mr. Ashok Navale (Faculty)



Chaturthi Pimple (EJ3I)



Mr. Ashok Navale (Faculty)



Vedangee Bhagat (EJ3I)



PHOTO GALLERY

2023

Faculty Development Training Program







2023



INDUSTRIAL VISIT OF FIRST YEAR STUDENTS



VIVEK TECHNOTRONIXS









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EDITORIAL TEAM



MR. SANDIP PAWAR (MENTOR)



