

Essay

Artificial Intelligence

Pros And Cons

Outline

(I) Introduction

Thesis statement

Artificial intelligence, which replicates certain aspects of human thinking and behaviour, plays a significant role across various fields including automation for economic growth, space surveillance, data mining for good governance, combating climate change, enhancing judicial processes and revolutionizing education. AI also poses significant risks such as the decline of human creativity, rising unemployment, cyber warfare threats to national security and corruption in democratic systems.

(II) Pros of AI.

(i) Massive automation in manufacturing yards
and its results in the form of economic boost

- a) BMW's agreement with open AI for humanoids
- b) New jobs in machine learning and deep learning
- c) Crypto-currencies and revolution in banking system

(ii) Space surveillance through satellites
and their uncountable services for humanity

- a) Remote-sensing satellites: eyes on our planet Earth
- b) Asteroid mining, geo-tagging and geo-fencing; new techniques for extraction of natural resources

(iii) Data mining, a lending hand for good governance

a) Sifting and sorting of data,
by complex algorithms for policy making

b) Use of scanning technology for electoral
process

c) Land record management in Punjab

(iv) Fighting against climate change through
artificial gadgets and tools

a) Carbon tracking system and Carbon
quenching for the reduction of green house gases

a) The digital agricultural revolution
and 'precision farming'

c) Space-based solar power and use
of nano-technology for green energy

(v) Microbots and their services for the
healing of humankind

a) Use of nano-motors for Bone-Marrow
Transplant (BMT)

b) 'The First Cell' by Dr Azra

c) Genetic replication and Bio-Printing through 3-D Printers

(vi) Penetration of Artificial network in judicial proceedings and their positive role for speedy justice

a) Forensic genetics - a scientific aiding agent for investigation process

b) E-lawyers, E-judges and E-Courts - the new comers in judiciary

c) Safe city projects for elimination of criminal activities

(vii) Digital regimes and new ways of learning

a) Changing mechanism of classrooms in the 21st Century

b) Bots as teaching assistants in Japan

c) E-books and E-libraries - the new normals

The flip side of AI

(i) Generative AI and the death of Creativity

a) Chat-Gpt and the demise homework and education

b) The dictatorship of the Like Culture - Nexus

(ii) The advent of digital hands and the rising fear of unemployment

a) Job termination because of massive automation in industrial system

b) Replacement of physical teachers, doctors and lawyers with their E-competitors

(iii) 'Cyber warfare': a new episode of destruction and undone

a) Algorithmic takeover and cyber theft

b) Digital anarchy and cyber vandalism in the form of logic bombs

c) Code war and cyber terrorism

(iv) A threatened future of national security

in the presence of digital soldiers, spies and pilotless aircrafts

- a) 'Maritime espionage' and 'swarm bots'
- b) Hacking of 'sensitive data and gross violation of state's sovereignty'

(v) Big data - A new oil for imperial powers

- a) Digital Colonization of Big Five such as Alphabet, Amazon, Apple, Meta and Microsoft
- b) The Silicon Curtain: Global Empire or global split

(vi) Psychological analysis through neural network and its repercussion on democratic system

Example, Electoral manipulation in Cambridge Analytica case

(vii) Excessive Penetration of labour-saving machines and their negative impacts on individual life

- a) Loss of attention span and entry of 'Hurry Culture'
- b) Personal identity theft and end of privacy
- c) Overuse of apps and lethargic behaviour of humans

(v) Conclusion

The Essay

Mark Zuckerberg, ^{the} CEO of Facebook
Said

" We are entering a world where we will learn to co-exist with AI, not as its masters but as its collaborators "

Artificial intelligence is an electro-mechanical mechanism which works like a human being. Just like human beings, it has all the senses such as hear, sight, touch and taste. Its working mechanism is data intake, data processing, data simulation, and decision making through logical reasoning. It has different types such as Narrow AI (For example Alexa or Siri), Super AI (Hypothetical) Reactive Machines (IBM "Deep Blue"), Limited Memory, Theory of Mind, Self-aware AI (futuristic level)

It helps in various fields such as automation of economic growth, space surveillance, data mining for good governance, combating climate change, enhancing judicial processes, healing of mankind. It also has negative impacts on an individual's life and on society such as decline in human creativity, rising unemployment, cyberwarfare, a threat to the national security and corruption in democratic system.

Massive automation in manufacturing yards has revolutionized the industrial production, leading to significant economic growth by replacing manual labour with advanced machines. Companies have greatly increased efficiency, precision and output. For example, in January 2024, BMW did an agreement with Open AI for the production of

humanoids. According to this agreement digitalization is future

Mark Zuckerberg in his book
"THE BOY BILLIONAIRE" said

"If your business is not digitalized; your business is out of business"

It was the first time
in mid 2024 that BMW Group
plant Spartanburg used
humanoid robots in production.

Board Member of Production
with BMW said "we are going
to accompany this technology
from development to industrialization"

AI might help create new jobs in
different ways. Instead of humans competing
with AI, they could focus on
servicing and leveraging AI.

For example in 2015, in war
between US and Syria, the US

Air Force lacked sufficient trained humans to fill the positions in Reaper drones flying over Syria, and therefore faced an ironic crisis in manning its unmanned aircraft. In the same way AI helps in **Crypto-Currencies** and **revolutionizing the banking system**. These Currencies work on the principle of **Block chain Technology**. This technology has some useful features such as **Decentralization, Immutability and Transparency**.

Artificial intelligence also serves the humanity by continuously monitoring the Earth with the help of space satellites. They help in weather forecasting, environmental monitoring and disaster management. Orbiting high above the earth these remote-sensing satellites collect valuable data through sensors that detect different forms of

energy such as light, heat. These are basically "Eyes in the Sky". So, the world is advancing very fast in the field of Artificial Intelligence.

Jeff Bezos, Founder of Amazon

said "The Pace of Progress in Artificial Intelligence is very fast"

In 1957 during the Cold war between US and USSR space race started. In 1978 US launched his first satellite system GPS. In 1982 Russia launched GLONASS. In 2000 China deployed BeiDou into the orbit. India launched IRNSS in July 2013. Pakistan launched PRSS-1 in July 2018. AI

Asteroid mining, geo-tagging and geo-fencing are the techniques used for extraction and management of natural resources. Asteroid mining is now being explored

As a future solution to Earth's depleting mineral resources, Geo-tagging allows precise identification and mapping of resource-rich areas using satellite data and GPS technology. Geo-fencing creates a virtual boundary to monitor and control movement and enhancing security. **Gold**, **Osmium**, **platinum** and **plutonium** are abundantly present on Asteroid near Earth. To bring all these metals back scientists are launching various missions. **For example** **India** made a soft landing of '**Chandrayaan-II**' on the moon. In **2013**, they also launched '**Mars Orbiter Mission**'. Once these metals discovered, robots will be deployed for extraction, packing and landing these metals on our Earth.

Data mining serves as a powerful tool for promoting good governance by enabling government to make informed, transparent and efficient

decisions Pakistan's governance system is persistently facing issues such as inaccurate identity records, election frauds, corruption and opaque financial system (Dawn news). Pakistan

ranked 140th out of 180 countries (Transparency International Corruption Index 2024). Officials in

Federal Finance Ministry removed dissent note from the document outlining 1.25 trillion in contingent liabilities in 2018. Thus data

mining strengthens public accountability by identifying corruption risk. In the age of digital governance, the sifting and sorting of data by complex algorithms has become a crucial process for effective policy making.

Michael Bloomberg, former Mayor of New York City said

"Without good data, you are flying blind; if you

Can't see it, you Can't Solve it "

The use of Scanning technology in electoral process has revolutionized the way votes are casted, Counted and verified.

Now a days fair, free and Transparent elections are Conducted by using **EVM** which ultimately leads to robust democracy. **India** used these electronic voting machines first time in **1982**. Then it is used in **2004** in **General Elections**. **Brazil** used **EVM** in **1996** in municipal elections. Then it is used in **2000** nationwide. In the same way **USA** used this technology first time in **1964** in **Georgia**, electronic **Punch Card System**.

AI technologies, such as machine learning and image recognition, are used to digitize old records, detect fraudulent entries

and resolve boundary disputes
using Geographic information system (GIS)
In provinces like Punjab and
**KPK Land Record Management
System (LRMIS)** is being
upgraded with intelligent automation
to ensure and secure land record.

AI tools are increasingly
being used to combat climate change
being enabling smarter, faster and
more precise decision making. Machine
learning algorithms analyze vast
climate data to improve weather
forecasting and predict the impact
of extreme weather events like floods
and wildfires.

Fei-Fei Li - AI Scientist said

"AI is not just about robots
or automation - it has the
potential to become a key weapon
in fight against climate change,
helping us to see, understand,

respond faster than ever before”

AI is being used in Carbon tracking system and Carbon quenching for the reduction of Green house gases. **For example Mei Shao Coke dry Quenching Project of China**, has CO_2 sensor which detect CO_2 quantity in air and provide us data. After capturing CO_2 , it is converted into $CaCO_3$ or concrete which ultimately reduces Green house gases.

Artificial intelligence has revolutionized the agriculture system and precision farming is being done by this technology. **Farming drones** helps us in Crop monitoring and **Soil sensors** are used to calculate the exact quantity of pesticides, fertilizers and water which ultimately saves the tracts of lands from salinity and water logging.

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(SBSP) Space-Based Solar Power that involves collecting solar energy in space, where sunlight is constant and un-interrupted by weather or atmospheric interference and then transmitting it to the Earth using laser beams. For example

India launched a space-based solar mission **Aditya L-1** on **2-sep-2023**. It was first time used to observe the behavior of chromosphere and corona and to understand solar atmospheric motion and heating process.

AI has paved the way for revolutionary advancement in the medical field too particularly through the development of **microbots-tiny robotic devices** designed to operate inside the human body. These microbots, guided by AI can navigate blood stream detect abnormalities and target

treatment accurately. **Nano-motors** are being used in most expensive Cancer treatment **Bone Marrow Transplant**. In this process unhealthy cells are extracted from bone marrow and new healthy stem cells are placed. In that complex process nano-motors are life-savers. **Dr. Azra**, a famous oncologist and a genius lady in her book "**The First Cell**" says

"Cancer is only be curable if it is found at stage-I. If you are at stage-IV you are already too late to get rid of it"

Here she suggests for early detection of first Cancerous cell. Smart watches and other wearable devices are way forward. According to **Gallop Pakistan (2024)** 70% Pakistani youth is facing

mental health issues such as **Anxiety** and **depression**. For this **Claude** an **AI therapy** can be used to reduce depression.

Kelly and Zach Weinersmith said in their book **Soonish** that if artificial meat can be produced in laboratories, it opens up the possibility of cloning vital organs such as the heart, liver and kidney which will be a revolution in medical field.

Artificial intelligence

is transforming 'forensic genetics' into a more powerful and precise tool in the field of criminal activities investigations. AI helps forensic scientists identify individuals, trace biological relationships and even reconstruct physical appearances from DNA samples. DNA tests, finger prints and psychometric analysis produce scientific evidences.

For example, in Zainab murder case and Motorway rape case culprits were arrested on the basis of DNA testing.

AI has also replaced the traditional judicial system with E-lawyers, E-judges and E-courts. E-lawyers are drafting legal documents. Similarly E-judges, supported by AI, exist in analyzing evidences and even delivering verdicts in minor civil disputes. E-courts provide online platforms for filing cases and attending hearings. Estonia used E-judges and E-courts first time in 2000. China used it first time in 2017. UK and USA have been using E-lawyers

since Covid-19 pandemic. Supreme Court of Pakistan in its ruling in April 2025 mandated AI guidelines for judicial use.

Safe City Projects are modern

urban security initiatives that aim to reduce and eliminate criminal activities through the use of surveillance technology and AI. The projects include installation of high resolution CCTV cameras, facial recognition system and licence plate reader.

In the age of digital regimes, AI is transforming traditional education system by introducing an innovative ways of learning. AI based system can analyze students 'learning style' adapt content to individual needs and provide instant feedback. These technologies support self-paced learning and enhance access to quality education across geographical barriers.

John Dewey said

"We should not teach

Our children how the world is
but how it will be."

He further said,

"Code learning is
the global Curriculum,
learn it and move on."

AI is revolutionizing the
traditional classroom structure in
the 21st Century by transforming
how education delivered, received
and managed. Intelligent tutoring
system and AI-powered tools are
placing one-size-fits-all teaching
methods. By integrating AI into
classroom, the education system is
shifting from passive learning to more
interactive form of learning.

AI-powered bots are
being used in classrooms to support
teachers by handling routine tasks,
like taking attendance, answering frequently

asked questions and providing instant feedback. **For example** in Japan there bots are being used effectively. They gauge the intellectual capability of the students and teach them stem subjects which are Science, Engineering and Mathematics according to their understanding level. With the widespread use of smartphones, tablets and E-readers students and readers now enjoy instant access to vast range of books journals and study material without restriction of time and place.

According to the report of UNESCO(2023), digital learning can improve rural education by 35%.

While having so much benefits AI also have drawbacks ~~to~~ and negative impacts on human life. The rapid rise of AI which can produce

art, music, text and even code, has sparked a growing debate about its impacts on human creativity. While these tools can enhance productivity and serve as creative collaborators, they may lead to the death of originality and genuine human expression. Assignment, presentation and even final thesis are just one click away but this luxury is hampering mental growth of an individual.

In Constructivist Learning Theory

it is stated that Critical thinking and Creativity are backbone of an education system. But unfortunately excessive use of Chat-gpt these capabilities are gradually declining.

Yuval Noah Harari in his book "Nexus"

mentioned that how people are becoming blind followers of like digits. When anything gets viral they aimlessly start following it.

which cause the death of
their imagination.

Yuval Noah Harari is
his book **Sapiens** said

"Humans risk becoming
emotionally and creatively
irrelevant, replaced by algorithms
that understand us better than
we understand ourselves."

The rise of automation
and artificial intelligence - often referred
to as the advent of digital hands -
has transformed industries by
making tasks faster, cheaper
and more efficient. However this
technology has also sparked
a growing **fear of unemployment**.
While digital technologies promise
progress they also pose a serious
threat to traditional jobs
especially for low skilled and

routine-based workers

Warren G. Bennis Said,

"The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipments."

The rapid advancement of artificial intelligence and digital technologies is leading to the gradual replacement of traditional roles such as teachers, doctors and lawyers by their virtual counterparts. E-teachers now deliver their lecture through online platform and assess the assignment accordingly. Similarly telemedicine and AI-driven diagnostics are reshaping the role of doctors. E-lawyers and legal bots

are being used to review contracts and offer legal advice.

Farid Zakria said

"When you grow up you might not have job because your E-competitors are so efficient and smart that they can easily kick you out from the competition."

Cyber warfare, has emerged as a new frontier in modern wars, where battles are no longer confined to land air or sea but are fought through lines of code and digital system. Algorithms now govern everything from financial system and social media to national defense and health care. However their misuse can lead to severe consequences including data breach, identity theft and large scale financial loss.

Cyber theft, ~~with~~ whether through phishing or AI driven tools has become a multibillion industry.

For example **Spyeye** which is being used in personal identity theft ATM scanning and phishing **George Seigl** says

"Innovations bring change and With it new opportunities to commit crimes"

Logic bombs

Trojan horses are designed not just to steal or disrupt but also cause maximum chaos often silently embedded in sensitive systems. Logic bombs are hidden piece of code that activates only under specific conditions or specific command. Trojan horses are a kind of software that allows hackers to access to the sensitive system where they can steal data or they can erase it

Both are used for Cyber stalking
Cyber bullying and cyberspionage

Cyber terrorism involves
the deliberate use of computer networks
to attack critical infrastructure of

other countries. **For example**
in **Operation "Outside the box"**

in **2007** Israel attacked suspected
nuclear reactors in Syria. **For example**
"Stuxnet" was the first digital
weapon that was used by Israel
to destroy Iranian nuclear centrifuges
with a computer bomb.

The future of national
security stands at the crossroads,
increasingly threatened by the rise
of **digital bots**, **pilotless**
aircrafts or **drones**. In this
modern and digital world, a
major threat to the national security
is the use of **maritime espionage**
and **swarm bots** in order to
dominate one naval army

over the other and also used in ocean surveillance. There are a number of examples where **Russian navy** and some other countries have engaged **dolphins** and **whales** for naval surveillance. **For example in 2019 Norwegian Coast Guard** suspectedly observe a **Beluga** whale which later reveal out to be a **Russian Spy**.

Hacker used artificial intelligence as a tool for breaching the state sovereignty and stole the data containing sensitive information. **Yuval Noah Harari** in his book '**Nexus**'

revealed mind-boggling facts that in **2014-15** Pakistani Cellular Companies handed over the data of **55 million** people of Pakistan to **CIA** and **US National Security Agency**. They tested the behaviour of people of Pakistan

through an **AI app 'Skynet'**
 Those who are marked
 suspected by that app were
 ruthlessly murdered by **CIA**
 through a ~~set~~ secret operation.

In this modern era,
big data has emerged as the
 new oil for countries. This is
 the powerful resource to fuel
 economic, political and Technological
 superpower. Just as Oil empowered
 colonial empires in **20th century**,
 data now empowers digital empires in
21st century. In the modern
 world digital Colonization is not
 carried out through armies or warships
 but through big data centres.
 The so called "**Big Five**" - tech
 giants **Google, Amazon, Apple,**
Meta and **Microsoft** have
 become digital empires and have
 an unprecedented control over information.

Commerce, Communication and even human behaviour.

Yuval Noah Harari in his book **21 Lessons for the 21st Century** said that the **19th** Century belongs to those states which control the big tracts of land, **20th** Century was dominated by those states which established big industrial empires but the dynamics of **21st** Century have changed completely. This is the Century of data. **Those who own the data own the future.** Thus data colonialism is widening the gap between have or have not.

In **21st** Century, the world is witnessing the rise of new divide - not made of iron but of **silicon, data and algorithms**. The "**Silicon Curtain**" refers to the emerging digital

boundary separating technological
superpowers particularly **US**
and **China**. On one side
there are **Western-led** platforms
like **Google, Apple, Meta** and
Microsoft. On the other side
there are **Chinese** giants like
Huawei, Tencent, Alibaba and
ByteDance. This silicon curtain
may lead not to digital freedom
but to a **global split** where cooperation
is replaced by suspicion and
technological progress becomes a
new battleground for powers.

The use of **neural
network** for psychological analysis
analysis represent a powerful tool
of artificial intelligence, enabling
the extraction of behavioral patterns,
and emotional states from vast databases.
When employed without strict ethical
oversight, such tools to manipulate

public opinion, infringe on privacy and erode an individual's autonomy. — Key pillars of a **democratic system**

Authoritarian regimes or powerful corporate actors can influence a voter's behavior and his decision to cast a vote according to his will.

For example **The 2016 US Presidential election** exposed the dark side of psychological analysis powered by data-driven algorithms most notably through **Cambridge Analytica scandal**.

Donald Trump took data from Facebook of the people of **Swing states** without their consent and provided this data to the Cambridge Analytica. This organization through psychological analysis and political messaging not only provided the Trump an absolute majority but also controlled the whole election. In this way ^{sensitivity} ~~security~~ of democracy was protected.

In this age of artificial intelligence and big data the phrase "**dictatorship of algorithm**" captures a growing concern about the invisible power of machines in shaping the human behavior. From social media feeds to online shopping, algorithms now determine what a person see, think and even desire. These machines track our preferences, emotions and desires gradually taking over the psychological '**buttons**' that guide our thinking.

The excessive penetration of labour-saving machines in daily life has brought convenience but it also poses serious challenges to individual well being. A machine takes over tasks that once required physical or mental efforts, people are becoming increasingly sedentary.

leading to health problems **Obesity**
Stress and **muscle deterioration**

In the digital age,
the human attention span is
continuously shrinking giving rise
to what experts called a

'**Hurried culture**'. **Kary J Daly**

in his book "**Families and**
Times" wrote that in last

two decades the attention
span of an individual has
drastically decreased from **15 seconds**
to **8 seconds**. Our patience

level has also decreased with

time. In the same way

the misuse of artificial intelligence
has led to the end of

privacy and personal identity of
a person. **Bruce Hartman**.

have a famous and well known novel

"**Big Data is Watching You**"

Recently **Jeffrey Epstein**

committed suicide in prison

in case for running sex trafficking

network. Using **hidden cameras**

they blackmailed powerful figures
when they come to their his

property and on his '**Lolita Express**'

In this way
the privacy of an individual can
be breached. The overuse of mobile
apps in daily life has contributed
to the growing lethargy and
passivity among people. Physical
activity and real-world engagement
have sharply declined.

To pen it off, it
can be said that artificial
intelligence is a wonder of
man's mind. It has certain pros
and cons. It increases access
to data and knowledge. It
has a significant role in healthcare
and manufacturing sector. It can
alter outdated agriculture sector.
It can cope with climate related

challenges. Despite all these advantages it also has many flaws. AI replaces human jobs in various sectors. It makes people vulnerable to manipulation and cyber bullying. AI breaches their privacies and plays with their feelings. AI kills human creativity and concentrates power in hands of few individuals. Mankind must be aware of the imperfection and consequences of this manufactured intelligence.

It is truly said

"Artificial Intelligence is a fool- whether it becomes a mirror of our wisdom or a weapon of our flaws depends on how we choose to use it."