Innovating for a Greener Future: Role of Artificial intelligence in Climate Resilience

Introduction:

Thesis statement:

Artificial intelligence (AI) powered tools can lessen the impacts of climate change by using convolutional and recurrent neural networks methodologies.

2- **Innovating for a Greener Future: Role of Artificial intelligence in Climate Resilience:**

(2.1) Help in the process of carbon sequestration

well

(2.2) Predict future floods

(2.3) Improve air quality.

(2.4) Record Oceanic health status

(2.5) Provide deforestration risk maps

(2.6) Help in the reduction of Green House Gases emission

(2.7) Predict future wild fire chances

(2.8) Counter the plight of meteorological droughts

(2.9) Plan sustainable and climate resilient urban planning

(2.10) Help in the process of land filling

(2.11) Help in the usage of renewable energy through sustainable ways

(2.12) Assist in the recycling of wastes

3- **Conclusion:**

"Everything is expect to change -
the air, the food, the water,
the oceans, the seasons, our
children will have to adapt it
or become extinct... This is not
for me, I am happy I won't
be here."

Quoted israeli
climatologists — Climate
Crisis and the Global Green New Deal.
The words of Israeli climatologists
affirm perfectly in the contemporary
era. Today, the Damocles' sword of
climate change is hanging over the
world in the form of meteorological
droughts, floods and water scarcity.
Due to these challenges a massive
part of the world is displaced,
creating further Aeh Augean Hable
such as unplanned and unregulated
urbanization. Consequently, due
to this challenge the world is further
pushed in the vicious cycle
of climate-induced disasters. However,

today the AI-powered tools rise like a phoenix from the ashes and challenge these all challenges through their ground breaking and innovating strategies like deep analysis of pictures, and provide five risk maps. Ultimately, due to these meticulous and thorough strategies the world is hoping for a sustainable and green future. Ironically, this wish could only fulfill, if the world realizes that the clock of climate-induced disasters is ticking. Therefore, to make this dream into reality, the world must consider that complacency is a luxury and they can no longer afford.

Currently, AI can provide a streamlined and stringent service in the process of carbon sequestration. As it becomes open secret that due to Carbon Dioxide (CO_2) a rise in global temperature has manifested. Seeing and analyzing

the increasing doldrums of CO_2, the climatologists believe that sooner or later the emission of CO_2 is going to be irreversible, leading to further increase in overall temperature of the globe. However, this fear likely to be tackled by installing and deploying the AI-powered tools. As these tools have the ability to store the carbon and later react with the minerals such as calcium and magnesium. After the reaction of CO_2 and calcium or magnesium the new substance is formed such as mineral rocks. Surprisingly, this technique has been adopting by numerous countries, including Australia. Recently, multidisciplinary Digital Publishing Instutute (MDPI) reported that Australia performed 80% of CO_2 sequestration by using AI-powered tools. Hence, AI-driven tools help in the storage of CO_2.

Furthermore, AI-driven tools easily predict the future floods. Currently, conventional thinking suggests that AI-driven tools are failed to analyze future disasters. However, AI has been playing an imperative and pivotal role in the prediction of natural disasters more accurately and precisely. As AI powered tools analyze a large data by using the techniques of convolutional neural networks. These networks help the tools to predict future disasters with sophisticated and efficient accuracy. Eventually, due to its groundbreaking accuracy a number of nations have adopted this methodology. For instance Google AI Flood Forecasting in India and Bangldesh. In 2018, Google, in patersip, with India's Central Water Commission and Bangldesh's ministry of Disaster Management, launched a flood forecasting initiative using

AI models. Using this technique, both countries provided location-specific alerts to over 75 million people in 2023 as per the report of Google Crisis Response Team Report. (2023). Hence, AI-driven tools fly in the face of future disasters like floods prediction.

Moreover, AI-powered tools assist the world by improving the air quality. As ill luck would have it, around 7 million people die each year from exposure to air pollution as per the analysis of World Health Organization (WHO). Nonetheless, AI-driven tools have brought a transformational shift in order to counter the plight of air pollution by managing transportation networks. Recently, the general school of thought argues that AI tools can't improve the air quality in true letter and spirit. However, this claim proved wrong

when United Kingdom introduced AI powered mechanism in order to manage air quality. currently, Alimissi published a research paper 'Spatial estimation of urban air pollution with the use of AI neural network models' where he made a claim that after the introduction of Catalano and Galatioto AI powered neural networks in Manchester, UK, the cities manifested an improvement in overall air quality. Thus, it is appropriate to say that AI driven tools throw down the gauntlet against the doldrums of air quality.

Besides, air quality contribution, AI driven tools help to record oceanic health status. Today, a major portion of oceans have made dirty due to anthropogenic activities. Consequently a number of species faced extinction, including Bramble and

Cay melomys. Fortunately, AI powered tools have made it possible to monitor the oceanic health status, making ocean more safe and secure for marine life. Ultimately, due to such vivid and engaging abilities, a number of countries have considering the option of AI-driven tools. The matter becomes much spicy and engaging when Ocean cleanup official published a report in 2023. As per their observation that AI powered tools have removed 200 sooke of plastics. Ultimately, this report suggests that AF remains a necessary crossing of the Rubicon in the fight against ocean pollution.

Additionally, AI powered neural networks provide deforestation risk map, making the world more prepared against this challenge. In the current dynamics, deforestation has become a prominent challenge

for the world. To resolve this challenge, the countries have been introduced major plans such as green initiative programs, save forest and many others. However, through these strategies, the world hasn't gotten a positive result. But today by utilizing the power of AI neural network, the world has gotten a massive transformational outcome. For instance, Dominguez published a research paper in 2022 by the name of Forecasting Amazon Rainforest Deforestation using hybrid machine learning model. This report suggests that mexico and madagascar have installed AI powered tools, which monitor and provide risk maps with full accuracy. As a result, these countries have saved their forests from the plight of deforestation, enabling them to take prudent and proactive actions

against illegal cutting of trees. Thus, AI powered tools are the Hobson's choice for the world to save the forests.

Apart from providing risk maps, AI enables the world to reduce the Green House Gases' emission by shifting on sustainable alternatives. Today, almost everysphere of the world uses fossil fuels for the production of energy. As a result, a rise in Green House Gases (GHGs) emission has recorded. Due to rise in GHGs emission a number of diseases have been recording: respiratory and heart problems. Therefore, a sustainable mechanism is required to decrease the emission of GHGs. This mechanism can be seen in the form AI driven tools. These tools have the capability to integrate with ISO 9000 management and excellence management systems. These systems are used in industries

to reduce the emission of toxic gases such as GHGs. By integrating with these management, the AI powered tools easily analyze the data at micro-level. After analyzing the data at micro-level, the AI driven tools suggest that how to decrease emission from different machines. The successful experiments have been done by numerous developed countries such as United Kingdom (U.K) and Germany as per the report of Control Engineering Europe. Hence, AI has the potential to reduce the GHGs' level in the atmosphere.

Moreover, AI driven tools have the ability to predict future wildfires in the forest. Currently, the world has been facing the challenge of wildfire due to increase in overall temperature of the globe. The recent best example can be seen in the form of California wildfire in the US. Therefore, to

lessen future wildfire chances, numerous countries are regulating their forests via using AI powered models. For instance, Tien Buid published report in 2016 by the name of a case study of vietnam. In his report, the writer suggests that vietnam has been using mart AI trained model to regulate its forests and avoid the risk of wildfire. Thus, this case study suggests that countries are utilizing the AI tools to lessen the risk of wildfire.

Over and above, AI driven tools can be used to counter the plight of meteorological droughts. In 2018, South Africa declared zero Day which means no water. In South Africa, due to extreme rise in heat, no major rain was recorded in 2018. Consequently, a major challenge of droughts have recorded. However, this

problem has efficiently and effectively solved by AI powered tools. As through the help of AI, the world can easily perform the cloud seeding activity. This activity could enable the world to avoid the risk of droughts in future. Currently, cloud seeding AI powered techniques have been used by numerous nations including United Arab Emirates (UAE). According to UAE National center of meteorology, AI assisted cloud seeding operations increased rainfall by up to 20-30% in targeted areas. Thus, this report suggests that AI algorithms help in cloud seeding making the world more sustainable and resilient against meteorological droughts.

On the top of that, AI algorithms help to provide a sustainable and climate resilient urban town planning maps. Primarily, unsustainable urban planning has

become a challenge for the world. As due to unsustainable planning a massive increase in GHG, has recorded. Nonetheless, this problem has been solved by AI-driven tools efficiently and effectively. Today Iran uses the system which is known as **Bayesian learning** system. This system operates while using AI-driven modern algorithms, which provide accurate and precise maps for sustainable urban planning. This system was highly appreciated by Ghavami SM in his research paper An intelligent spatial land use planning support system using socially rational agents. Thus, AI algorithms are helping the world to make a sustainable cities and lessen their impacts on climate change.

Furthermore, AI neural networks help in the process of landfilling. Currently, the world

generates 2.2 billion tons waste annually as per the report of World Bank's 2018. Analyzing and evaluating the amounts of waste generated by the world, it becomes clear that there must be a prudent and thorough mechanism to dump it sustainably. Surprisingly, AI driven tools also provide their services in order to dump waste at more resilient and sustainable way. For instance, AMP Robotics operate in the US which sort 80+ types of material from waste streams as per the AMP robotics official. Ultimately, this case study suggests that AI powered robots are helping to reduce the mechanism of landfill.

Apart from utilizing the waste in sustainable way, AI powered neural networks help in the integration of renewable energy sources. Unfortunately, it becomes the habit of the

world to exploit any resources in unsustainable way. For example, over reliance on fossil fuel usage. The same is in the case of renewable energy generation. Today, the world is overly dependent on solar energy production, which could likely create problems in the near future. However, to avoid this risk, AI powered tools have integrated all type of renewable energy sources; solar, wind, thermal. By integrating these sources, the world could likely generate energy in sustainable way. Amazingly, South Australia has generated 75% of its energy by using the integration of renewable energy techniques as per the report of The Guardian 2023. Ultimately, the transition of South Australia suggests that by using AI powered techniques the world could decrease its dependency on a single source. Similarly, AI powered

tools are helping the world to recycle the materials more accurately and precisly. Today, a small city of Pakistan-Karachi- generates 7 million tons waste annually as per the Report of Dawn. Imagine there are 194 countries across the world. Each countries generates a large amount of E-waste, plastics and many others in overwhelmingly manner. Thus, to overcome on this challenge, AI remaing a Hobson's choice for the world. Today, AI powered tools use the techniques of **Greyparrot**. Through this technique, the tools analyze and learn between different wastes material. Thus, after understanding the material nature, the tools easily distinguish between recycleable waste. Surprisingly, the accuracy of AI tools remain astonising and promising. As per the report of Fang (2023): Artificial intelligence for waste management

in smart cities are say between 72.8% to 99.95%. Thus, this groundbreaking studies suggest that AI tools can lessen the deldrum of waste material.

To recapitulate, AI driven tools are providing their services in different fields are effectively and efficiently. As it enables the world to fight against the deldrums of climate induced threats by using different AI driven tools. As these tools have the ability to predict future disasters and challenges with full accuracy. Additionally, these tools provide a comprehensive and detailed information regarding the future challenges in the form of fire risk maps. Thus, it is appropriate to say, Artificial intelligence has not only transformed the world through its modern innovation, but also helped the world to counter

the plight of climate change. Therefore, it is high time for the world to implement these technologies in true letter and spirit. As the clock of disaster is ticking, and complancency is a luxury the world cannot longer afford. In this regard the words of James Hasen resonate perfectly, "There is no longer any doubt that human activities are changing the earth's climate change. The only only question now is, what are we going to do about it".