Responsible AI

By:-

Shyam Sundar Velmurugan

Praxis

-> F27PX

Introduction

A responsible ai is the working of :

-Designing,

-Developing &

- Deploying

of ai with good purposes for the empowering of businesses, employment & treatment for customers and society by using AI technology with higher lower confidence by believing that the chances of damage that could be caused by the artificial intelligence are less.

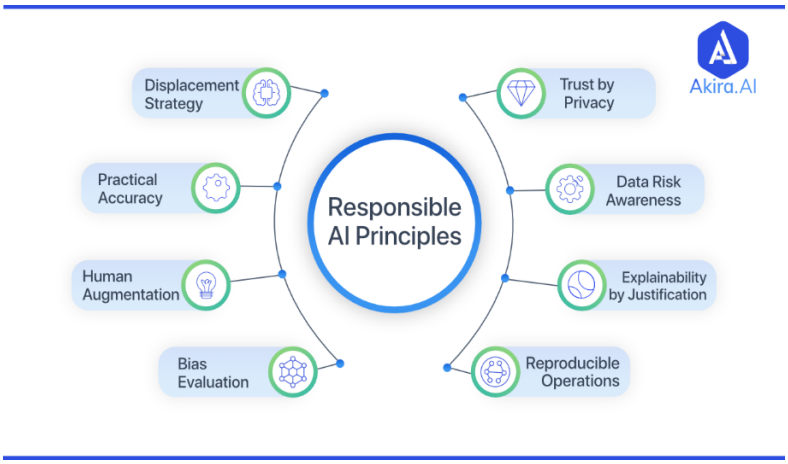

Fig (1): The principles of responsible AI from Akira.ai {1}

Content

->About AI

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Abstract

Artificial Intelligence has basic principles on which they are designed and developed to satisfy human needs. They are :

Fairness, human-centeredness, privacy, security, transparency& explainability.

All the above principles are important in their way and all of them should be present as they shouldn't be forgotten. The defining characteristic of AI is that there is no requirement for human input to decide what the system should do at each step. Today, AI has been put into action in many fields, starting from insurance underwriting to detecting cancer.

An AI can be so-called an Ethnical AI if it works on well-defined ethical guidelines which include many fundamental values such as individual rights, privacy, non-discrimination, and non-manipulation.

When we talk about a Responsible AI, there are many pros and cons, plus and minus, highlights and obstacles, etc which we will be discussing.

How well is AI designed, developed, and deployed

When we talk about AI, we describe it in the shortest way possible a machine learning system that is designed and developed in such a way that no human input is required to accomplish a task.

And many prefer MNCs prefer AI systems in many important places as it increases the production rates of their product by producing large numbers in a short period (advantage) & at the same time requires less labor, thereby many become unemployed (disadvantage), and unemployment rates

increase.

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Therefore AI acts as a highlight in some situations and also as an obstacle too.

As mentioned, it is in fields like banks and other platforms which have our primary data which can be accessible by anyone in the method of hacking and stealing our data and information and selling it to other people for money. So therefore the higher official in these fields must have a clear approach before depending on AI completely.

How safe is artificial Intelligence

When we speak about Responsible AI, safety and security play a vital role in it. They are developed with the techniques like encryption and software tests. So that they aren't as deterministic as compared to general computers. When it faces a new scenario for which they weren't developed or designed, it eventually fails to do the expected incorrect decisions.

For example, the cruise control function. It differs based on a different company and different vehicle. Many must be familiar with their vehicle and when trying it on a new vehicle the chances to switch cruise control will be less. Thereby resulting in a crash, causing injury, or death. {5}

And after a few incidences, car companies started working on automatic braking systems which detect objects and release the brake automatically.

Fig (3): Model Y from Tesla

AI in different fields and their uses

Online shopping

To provide a personalized recommendation based on what you searched previously and also send offers on that particular object from different sites.

Personal assistants

AI in smartphones to provide services. Eg: Alexa and Siri.

Cars

Autopilot, automatic braking system while cruise control, and parking sensors.

Cyber security

Detects malware sites or any other sites that take our data and informs us to return to the previous site.

Healthcare

Used for emergency calls and also in detecting cardiac arrest.

Drawbacks

No transparency

AI consists of complicated and complex programming on various products produced by each company which cannot be explained to the common people.

Biased systems

Algorithms and complicated programming of AI show biased results when it is developed by biased minds. Different systems are coded in different ways to generate the same result, but their working differs according to different minds.

Privacy

With the help of programmed AI, it is difficult for a citizen to ensure their privacy as companies collect data of these citizens

High costs

Developing an interactive system that works on a highly developed AI system requires plenty of time and resources that can cost a huge amount of money

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WHAT WAS AI ACCORDING TO OTHERS IN VARIOUS FIELDS

->ARTIFICAL INTELLIGENCE IN MEDICINE [1]

According to (Haghrah, 1989), he felt the Fuzzy Susceptible-Infectious-Recovered-Deceased (Fuzzy-SIRD) model worked as a perfect model compared to other previous models made by the researchers which lacked adaptability and reliability to various parameters over time. The Fuzzy-SIRD model performs a first-order linear system for better dynamics, and also works by Particle Swarm Optimization (PSO) algorithm for the selection from

various parameters. An objective function for optimization is the Root Mean Square Error (RMSE) which tells us the approximate deceased population in particular time intervals. Its main reason for creation was to inform us about the death tolls caused by COVID-19 in seven countries and compare them. On comparing with both the Fuzzy-SIRD model and the conventional SIRD model, the Fuzzy-SIRD reduced the RMSE by 80%. The average reduction of RMSE for short and long-term predictions were approximately 45.8% and 72.6% respectively.

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Since, it showed positive results in every field and aspect, the model was a suitable and adaptable one.

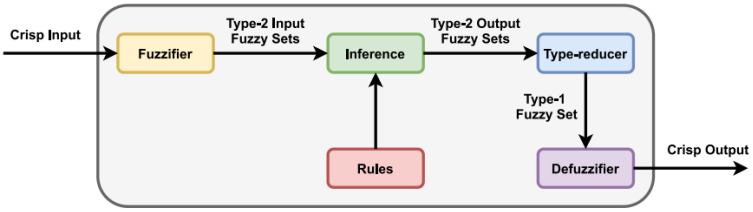
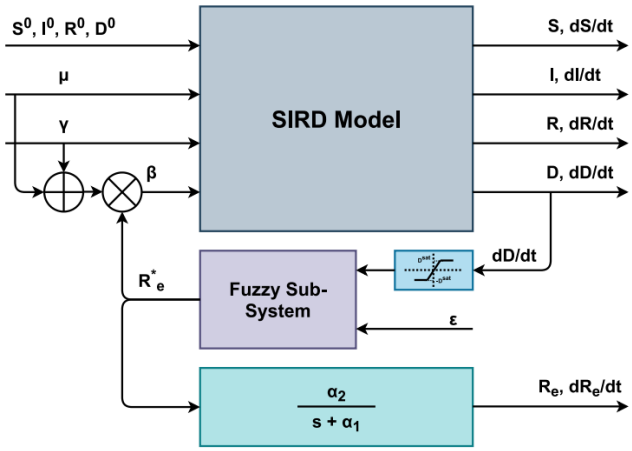


Fig. 1. Block diagram representation of the Interval Type 2 Fuzzy Logic Systems [35].



Fig(4): The block diagram of the Fuzzy-SIRD model

->ARTIFICIAL INTELLIGENCE BY ONTOLOGIES

It concentrates on the primary uses of ontology-mediated query answering and extends query answering as many questions with the aid of query languages. They make advantage of the logic of positive existential two-way regular path inquiries (SQL). It refers to the expansion of the ALC's fundamental description logic with transitive soles (S) and qualifying restrictions (Q), which can be applied to both transitive and non-transitive roles without any limitations (.u).According to (Gutiérrez-Basulto, 1989)by the use of the query language, we can create a tree-like counter model property and characterize a query when it's not satisfied in tree-like interpretations by which we are able to answer queries automatically with the help collected results. They were successful when applied to data management-related subjects, and they have also become extremely well-liked in a variety of academic areas, including databases, knowledge representation, and reasoning, among others . It was also successful in the integration and

accessing of data. One of the main characteristics of the Ontology-Based data access (OBDA) paradigm is that data can be queried, with several benefits. {11}

->APPLIED ARTIFICIAL INTELLIGENCE

This journal of (Manit Chansuparap, 1987) talks about Autonomous Unmanned aerial vehicle Navigation (AUN), which was put forward during the social distancing during the pandemic and also for logistic industries. They have been focusing on Deep Reinforcement Learning (DRL) just to overcome the AUN task, which was too far from satisfactory. For example, Due to its greater mobility compared to land traffic jams, Unmanned Aerial Vehicles (UAV), often known as drones, have assumed a significant role in numerous applications. But, the Uav did not get much attention as expected for regular tasks. this was because they are either manual or semi-automated. To create an AUN, we need two main factors. The first is the use of distant surrogates, which enables the reduction of labor in a number of sectors, including transportation, security, and resource exploration.

This makes it easier to avoid making physical contact while there is a pandemic. AUN is able to work more closely with real-world adoption because to the ongoing advancement of deep learning.

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->ARTIFICIAL INTELLIGENCE IN AGRICULTURE

The Agricultural Internet of Things (IoT) was recognized for introducing innovative improvements to agricultural production that greatly improved agricultural quality while also increasing agricultural output.. This journal (J.Xu, 2019)explains in detail the research status of agricultural IoT. This journal speaks about the development, application, and system architecture of agricultural IoT. It also speaks about the 5 main key technologies based on which an agricultural IoT is based on:

1)Sensor perception technology

2)Information transmission technology

3)Information processing technology

4)Radio-frequency identification

5)3S technology.

The 3S technology is further divided based on its various functions:

1)Remote Sensing (RS) technology

2)Global Navigation Satellite System (GNSS)

3)Geographic Information System (GIS) technology

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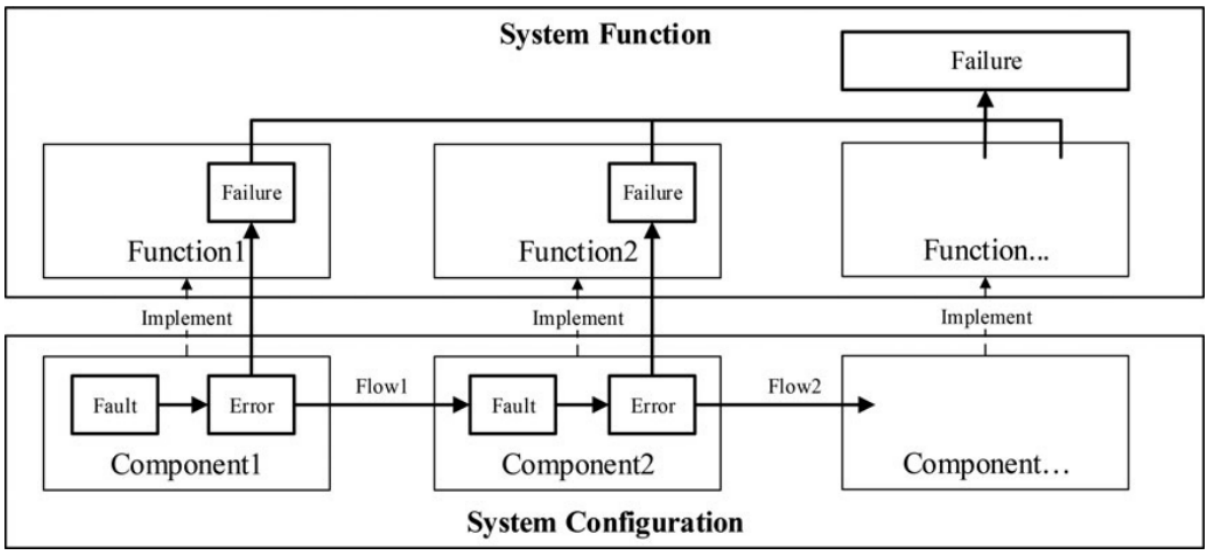
->AN ONTOLOGY-BASED FAULT GENERATION

This journal of (Diao, 1987)talks about analysis of fault propagation. This method is used to discover the outcomes of computer system issues. A computer system initially consists of a number of parts, some of which may be electronic and some of which may be software. And, the faults from both components are of various types. To describe these faults and find their initial point to different components of the system, these faults are addressed in fault propagation analysis. The ontology-based approach is based on the

allowance for generation, injection, and propagation process which helps in understanding the initial point of the faults at the earlier stage.



Fig(5): Working of Fault propagation analysis {14}

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