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AI Messenger on a Tree- Intelligence of Crow and Probabilistic Forecasting

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Abstract

India, a country rich in ancient literature and cultural traditions, the relationship between humans and crows has been a subject of fascination and study. Throughout generations, stories passed down by grandmothers have highlighted the significance of crows in Indian society. Rituals and beliefs often revolve around these intelligent birds, with their presence near households considered auspicious, particularly in the 1970s when their calls were believed to herald the arrival of loved ones.

Despite the longstanding cultural significance of crow behavior, understanding their minds remains a challenge. However, recent advancements in Computer Science and Cognitive Psychology offer promising avenues for decoding the intricacies of Human-Crow Communication. Techniques such as Block Chain Technology and Machine Learning Algorithms enable researchers to analyze various features of Crow Behavior, including Eye Movement, Facial Expressions, and Vocalizations.

Moreover, integrating sensor technology with radio frequency identification (RFID) allows for Real-Time Monitoring of Crow Signals, mimicking Human-like behaviors. By employing Neural Network Techniques, researchers can gauge Crow Intelligence and predict their actions with high accuracy. Hasse diagrams prove instrumental in visualizing the complex relationships within Crow Communication Patterns.

This paper explores the convergence of traditional beliefs, modern technology, and scientific inquiry in unraveling the mysteries of Human-Cro w interaction. By bridging the gap between folklore and empirical research, it sheds light on the profound cultural and ecological significance of these enigmatic birds.

1. Scope of Future Research

The significance of crows in Indian Culture and their role in ecosystem maintenance have garnered renewed attention, necessitating further research to safeguard their lives and preserve their cultural importance. Future studies could focus on devising innovative digital instruments and equipment tailored to enhance network extension in rural areas of India, where opportunities for such advancements abound.

Potential avenues for research include the design and development of sensor-based technologies equipped with radio frequency identification (RFID) for real-time monitoring of crow populations. These instruments could utilize Blockchain Technology and Machine Learning algorithms to decipher crow behavior patterns, aiding in conservation efforts and fostering a deeper understanding of human-crow interaction dynamics.

Furthermore, exploring the application of Neural Network techniques in assessing crow intelligence and predicting their actions could provide valuable insights for wildlife management strategies. Collaborative efforts between researchers, technologists, and local communities can lead to the creation of sustainable solutions that balance cultural preservation with ecological conservation.

By harnessing the rich tapestry of traditional knowledge and integrating it with cutting-edge digital innovations, future research endeavors have the potential to not only protect the lives of birds, particularly crows, but also contribute to the holistic development of rural India.

2. Research Outcomes for Industry &Corporate/Community and Society/Government and Private/Methodology and Policies

This research offers substantial benefits across various sectors. For industries and corporations, as well as communities and society at large, it provides invaluable insights into understanding and analyzing different aspects of AI, ML, and animal biodiversity. By bridging traditional knowledge with modern technological advancements, this work opens doors to multiple domains of inquiry.

The outcomes of this research are particularly pertinent for government and private sectors. They can inform policy decisions related to wildlife conservation and ecosystem management. Additionally, methodologies developed in this research can serve as frameworks for future studies, guiding researchers in devising digital instruments and equipment for network extension in rural India.

Furthermore, this research has the potential to sensitize society towards the lives of birds, such as crows. By highlighting the cultural and ecological significance of these animals, it fosters greater awareness and appreciation for biodiversity conservation efforts. Ultimately, the collective impact of this research extends beyond academia, influencing industry practices, community engagement, governmental policies, and societal attitudes towards wildlife conservation.

3. Introduction

Academia is well concerned that the Block Chain technology is the recent hot topic which is widespread in cloud for securing distributed data in cloud computing aspects. Computational approaches do not allow more study about the human-bird interaction and it is very less and it's an effort to insight the depth study of human-crow interaction in private secured manner by applying AI to read the feelings of the crow and its intelligence activity, speech and behavior recognition. Since the era of our forefathers a Crow is the most inimitable bird which has unique quality of better interaction with human when compared to other birds existing in our surrounding. Mathematically the Percentile growth of crow is decreasing due to drastic increase of hunting and lack of guardianship unclaimed. Readers are familiar with the facts that Artificial Intelligence is the machine sense from an environment and produce an action of the output of choice. In the case of Crow, term is applied in the intellectual approaches such as acting humanly, acting rationally, thinking humanly and thinking rationally in all the senses of understanding. Readers are familiar with the facts that learning, perception, reasoning and problem solving are the major research components in AI and it has changed the research arena. If Machines can be trained then why not any animals or at large birds? Notwithstanding acting humanly is one kind of learning concept in AI. Another fact is that the study of human-level intelligence is another field of AI for Researchers. Cognitive Psychology hints at the points that study of intelligence is nothing but learning, reasoning, knowledge representation, knowledge awakening and many more of human sense at the Core level. In the world of Machines, Human work is done by the computer and that transmits the communication to human sense organs. Some Experts opined that there is no physical sense like human instead computer precepts from the environment. Lattice based psychological experiment is a reality and combine together with computer model in general. It is very common to discuss that the experimental investigation is feed into the computer from the human active and it is done through psychological way where traits and habits matter more. As per our master, a human may think right or wrong in regular activities whereas the computer rectifies their own mistake and learn from the mistake on regular basis. Crow also learns on regular basis and learns from its mistakes and as per our Ancient Indian literature it recognizes its master or Person who throw the stone when it was sitting on a tree before a household. Computationally, thinking rationally is the expert of the expert who knows the Laws of logic and Boolean Operations. For a machine and for pattern recognition, "Syllogism" is a logic provide pattern for the correct conclusion for any individual entity. Classification of logics limits itself and as are two types of

logic as formal logic and informal logic. If we explain then, in more, we can say, formal logic is the historical development of logical notation in the program of our computational concern whereas the informal logic is logical notation in sense of computer that embedded with memory that contains description of thorough reading in a way of human logical thinking as par. Interestingly, this way is called logicism and there are so many examples existing where crow thinks informally, it seems. There is a concept of a Rational Agent as a human act for a crow sitting on a tree and as we know rational agent is something perceives from the middleman and act according to it as the needs warrant. Cognitive finding has been that the laws of thought are sometime assumed from the rational agent to represent rational knowledge and rational reason and for a suitable sense of logic. Existing literatures and study of AI approach that design rational hidden causal agent for the act of rationally and give solution for the given problem for voice and speech recognition. A hidden causal agent is the special features of crow that perceives from an environment and reacts for the sense then we recognize the traits of this bird. It's not a natural phenomenon but a fact that a rational agent uses the performance measure for the criteria how the world is like now and what action should do now, some say its God gift to crow. For the Ecosystem equilibrium and pleasant lives, crow learns from the mistake and recognizes the problem, improves and responds spontaneously. Some Environmentalists suggest that converging towards on the Human-crow interaction is must in order to avoid hackers of crow and to increase the growth rate of crow as crows important before death and after death where ritual performed in their presence our Atharvaveda says.

4. Recognition of Past Research

In certain parts of India, there is a custom to offer food to crows on Saturdays to appease Shani Bhagavan, who is believed to be mounted on a crow. Additionally, in some regions, crows are regarded as ancestral spirits visiting their hereditary families on the Amavasya days of every month. These practices are deeply ingrained in Indian culture, as documented in existing literature.

Contrastingly, in tribal communities of the USA, crows are revered for their intelligence and spiritual significance. In various Western countries, they are seen as messengers from the spirit world, bearers of universal wisdom, and protectors against malevolent forces. The symbolic importance of crows transcends geographical boundaries, with black crows often symbolizing prophecy, transformation, change, and freedom.

Throughout folklore, movies, religious texts, and cultural narratives, descriptions of crows abound. Those who understand the language of crows are believed to gain special knowledge, and tales often depict people transforming into birds, embodying their spirit and qualities. Crows represent thought, imagination, transcendence, and divinity, offering liberation from materialism. They may also symbolize the metamorphosis of love.

It is imperative for Indian researchers, irrespective of their political affiliations, to honor and respect this aspect of their cultural heritage. The study of crows and their significance holds profound meaning and relevance, reflecting a shared cultural ethos that transcends ideological divides.

5. Review of Literature

As per published resources the Block Chain technique is the recent cloud computing aspects implemented in AI at large. This technique helps to read the intelligence of crow in AI with privately secured manner for specific pattern. Generally, crows come in groups that are also a matter of study for other aspects. Some Authors explain life pattern and style survival. Some authors explain the birds as they offer nonprofessionals, unparallel opportunities to contribute to scientific knowledge at large and to the common. there is a study referred Fraser darling effect to note the density of breeding birds in a particular season and spread of laying and median date of egg-laying for social stimulation of reproduction process. Some study proposes the pigeon interaction compared with machine learning neuron using signal processing that may be similar in the case of Crow also. Some author proposes the intelligent system to study the diverse behavior of birds and crow. There seem some possibilities to discuss about a system and the scope extended further to read the mind of crow using intellectual learning process. Some author clearly explained about the block chain technique applied in biometric analysis and review with various existing study leading to the behavior and intelligence of a crow. Block chain techniques have wide range applications; some study reveals about the block chain technology had been implemented in agricultural sector for food production area. A recent study reviewed how block chain implemented successfully in the social and technology sectors.

Under interesting reading there is a finding that Crows perform yet another skill once thought distinctively human scientists demonstrate that crows are capable of recursion, one of the most practical aspects of Engineering. A study done in USA says that Crows are some of the smartest creatures in the animal kingdom who draws attention of all. Crows are capable of making rule-guided decisions and of creating and using tools is been clear by different means. Crows also appear to show an innate sense of what numbers are in the practical form. Some study suggests clearly and report that these clever birds are able to understand recursion, a key feature of language. Recursion enables us to build elaborate sentences from simple ones as phonetics stage too. Recent study on monkeys and human adults and children published in 2020, an Expert Group of researchers reported that the ability to produce recursive sequences may not actually be unique to our species after all and is matter of great concern. An important study and its finding say that both humans and monkeys were shown a

display with two pairs of bracket symbols that appeared in a random order as the pattern for their sense of recognition check. Study adds "the subjects were trained to touch them in the order of a "center-embedded" recursive sequence such as {()} or ({})". On the giving the right answer, humans received verbal feedback and monkeys were given a small amount of food or juice as a reward was given. Study further narrates that the researchers presented their subjects with a completely new set of brackets and observed how often they arranged them in a recursive manner and in the lattice form. According to a publication- two of the three monkeys in the experiment generated recursive sequences more often than no recursive sequences such as { (}) they needed an additional training session to do so and result obtained was saying to correlate this with the intelligence of a crow. Animal responds recursion because study says one of the animals generated recursive sequences in around half of the trials of response. When the same trial experimented on five-year-old children, by comparison, formed recursive sequences in approximately 41 percent of the trials of existence. In a paper Researchers Liao and her colleagues investigated whether crows, with their renowned cognitive skills, might possess the capacity for recursion as well or any prior condition was required. This team, in year 2020, trained two crows to peck pairs of brackets in a center-embedded recursive sequence, result remained pleasant. Team of researchers then tested the birds' ability to spontaneously generate such recursive sequences on a new set of symbols for the comparative analysis purpose.

Above reviews and discussion with the help of the Research of different Researchers, it is almost clear that crows exhibit extraordinary intelligence in comparison to the other members of the corvid family. Birds along with ravens, jays and others in the corvid family have inspired myths, legends and fables for centuries and draw the attention of authors of this paper. Al and ML will be here as most of the scientists have unraveled about their brain structure and behaviors where the more crows seem to resemble human beings. For decades, remarkable leaps in corvid research have captivated John Marzluff, an ornithologist at the University of Washington and his contribution in this field is termed as marvelous. There are other dozens of Research papers and published books, scientific newsletters, matters related to crows and their intelligence aspects but as per the scope of this Research paper and publication ethics, authors are bound to limit the discussion of Review of literature till this juncture. As per need of the support of our logical argument's authors would be referring some other works in the different segments of this Research paper with due respect and credits to the work of the cited authors across the globe.

6. Material and Methods

To study the AI aspects and intelligence o a crow relative to a person, Researchers are of the opinion that the complete synchronism may explained with the help of Hasse Diagram considering the binary facts of join and meets of Lattice. Here concept of Sentiment Analysis different models of those very subject domains may also be taken into the account.

If the information receipt process by a parent crow C be taken in form of a set as the Cartesian product of the two non-empty sets A and B, that is C= AXB, the symbol "X" may be taken as the meets of A and B.

Color of a crow is Black always in the Nature and according to a thermodynamical concept there is a Black body radiation concept. It is the evident fact that black color absorbs maximum heat from the Universe. Milk of a black cow is always proffered as is having of more rich nutrients and better for health here the fact is that due to black color body of a cow absorbs more sun rays and sun rays bear vitamin D with calcium for living bodies. Here, we are discussing all these facts just only to explain that how Artificial Intelligence concept is applicable on a crow and pattern recognition capacity is more in a crow.

We cannot claim that legs of a crow have some metallic property like sensor but some time Research dimension amounts on our material of discussion must look into these aspects also, any way we are coming on the main point of bases of study we have taken following all the ethical norms for birds and crows.

Let A be newly born crow and B be a person who visualizes the day today's activities of a crow.

We are tending to form set A by taking elements as minimum three specific characteristics like of a crow as imitation tendency, movement of eyes, movement of body consequently by the algebraic digits 1, 2, 3 in the form of a set as {1,2,3} whereas **we** can take a set B for some three different recursion components as 4,5,6 in the form of a set as {4,5,6 }. Finally, we have

A= {1,2,3 } and B={4,5,6},we know that the Cartesian product of these two sets would be forming nine order pairs and 2^9 subsets. Here with the help of these two sets and their Cartesian product, we may have Equivalence relation and Partial order relation (POR) leading to partial order set (POS). Clearly, if C=AXB, then the set will have 2^9 subsets.

Now, we are taking any two order pairs of AXB as (1,4) and (1,5). Considering digit 1 as imitation tendency and 4 and 5 as the different recursion, then here we see that one tendency of a crow is being reciprocated by two different recursion response of a man. It would be more relevant to remind once to our readers of this paper that Bock chain technology is nothing but an advanced Database Mechanism to allows a transparent information sharing within a business Network. Clearly 2^9 subsets of AXB would be forming a strong Data base Mechanism leading to the relation between A and B.

If we focus a little bit about the Sentiment Analysis Aspects of Artificial Intelligence then we can put a logic here for (1,4) and (1,5) that for one particular response there are two different reactionary responses. In another

words, we can say that one imitation response of a Crow is identical to two responses of a man in study the intelligence of a crow.

Practically, any reader can verify this logical argument of Block chain and Sentiment Analysis aspect. Remember the situation if a crow is sitting on a tree that is at distance of 10 yards from your home, if you climb to take piece of stone to attack on the crow, the moment you climb and start to touch the piece of stone crow recognizes this activity very fast fled away. Sometimes it seems that "crow is the transmitter of AI circuits. One response of a crow is always equal to the minimum two recursion of a man.

In the next part of this research paper researchers would be seeing how these relation of intelligence between a crow and a man would be explained by using Hasse Diagram technique of Discrete Mathematical Structure.

We coming below with an example that can be seen in fields of almost Indian farmers as the technique they use to protect the crops for their survival and livelihoods. Farmers in the rural area stall a dummy of man in their fields and they had been named "Scarecrows". As it the ancient Indian technique till today used by our landlords and farmers to protect their crops by the attacks of different animals and birds who use to chew or eat the crops of farmers. If we minutely pay attention on the nomenclature and meaning of the term "Scarecrows" then this is the composition of two small words of English language as Scare+Crows means a figure or a substance by which a crow can fear. This fact and existing logic of Scarecrows says that from very beginning it has been clear that Crows are more intelligent, they have ability to recognize any pattern, they are sentimentally very close to the human beings and imitates us very minutely.

Fig.1: Scarecrows (Courtesy: Google Photo)

Fig.2: Crow(Courtesy: Google Photo)

7. Result and Discussion

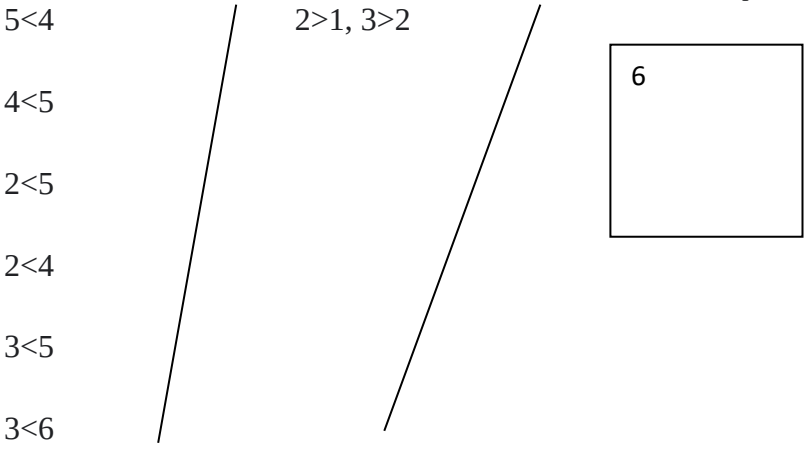
We have already discussed that for A= {1,2,3} and B= {4,5,6}, the Cartesian product of these two sets would be forming nine order pairs and 2^9 subsets. Here with the help of these two sets and their Cartesian product, we may have Equivalence relation and Partial order relation (POR) leading to partial order set (POS). Clearly, if C=AXB, then the set will have 2^9 subsets. Now, let us see the Cartesian product of these two sets as

AXB= {(1,4),1,5), (1,6), (2,4), (2,5), (2,6), (3,4), (3,5), (3,6)}, since we have considered C=AXB

Therefore, C= {(1,4),1,5), (1,6), (2,4), (2,5), (2,6), (3,4), (3,5), (3,6)}, ----------(I)

Now, we are breaking the partial order relation and partial ordered set of C as (C, <), (C,>) and (C, =), here by using the concept of Hasse Diagram, Researchers may easily understand the diverse behave of a crow and its imitating capacity with respect to a human being according to their growth to till old (limit as equal and may be termed as the critical value of the pair).

Firstly, let us observe that relation between the elements of the order pairs of equation (I)



(First) (Second) (Third) as critical value

Now, we are proceeding towards to different Diagrams connected with the concept of Hasse Diagram as below:-

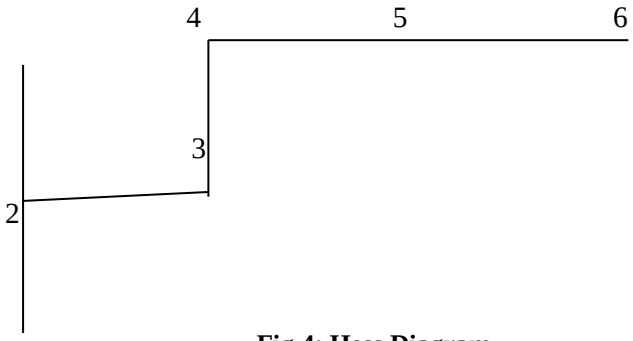


Fig.4: Hess Diagram.

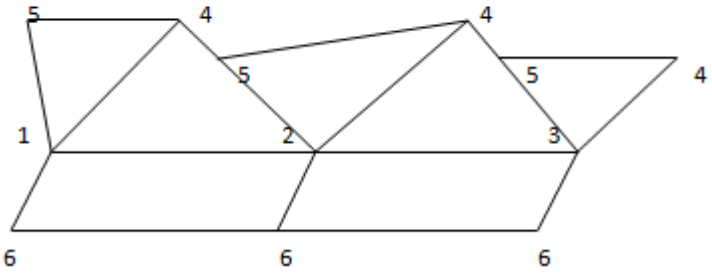
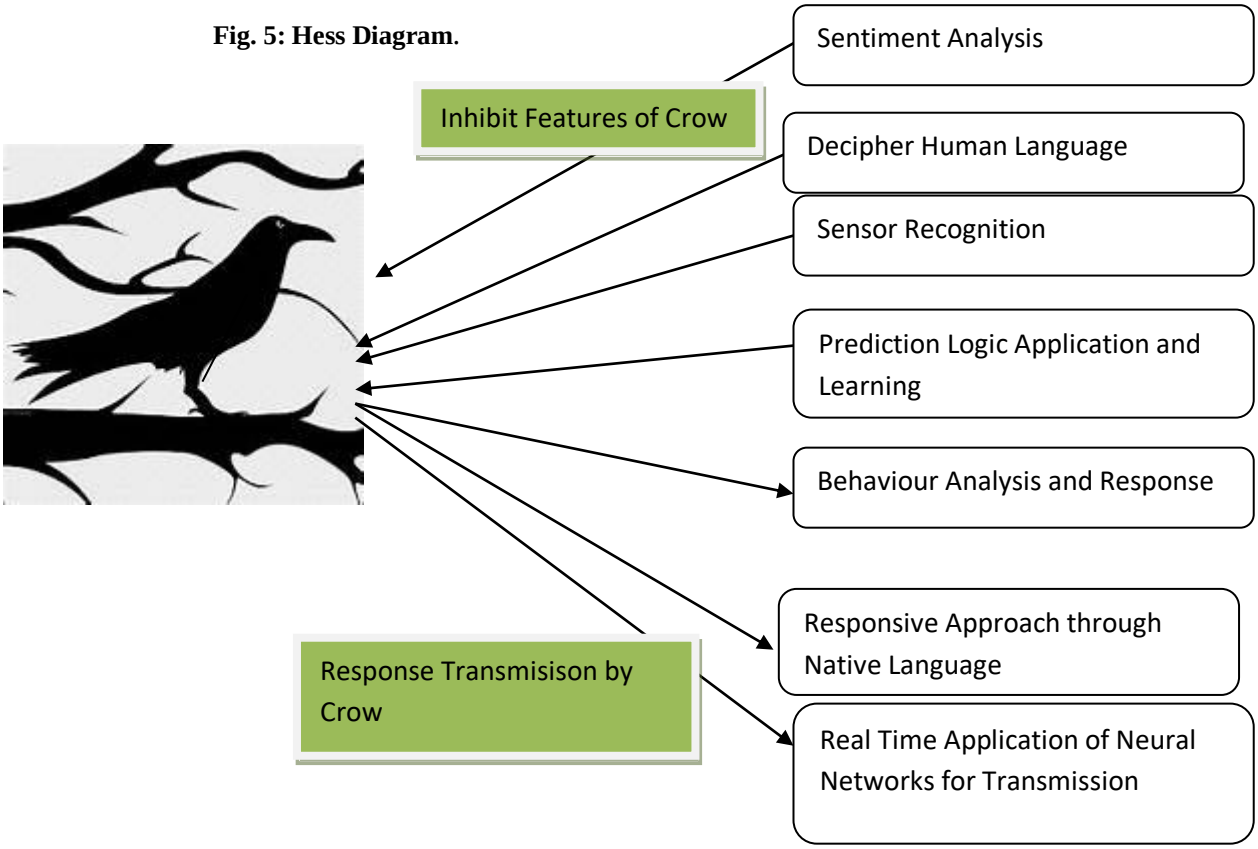


Fig. 5: Hess Diagram.



Now, one can raise the logic that the elements in the set A and set B have been taken in the Ascending order and bearing a definite gap as in Arithmetic progression, its why we getting three different case of partial order set (POS) and in the Hasse diagram they capable relation to say the different stages of intelligence in the life of a crow. More clearly authors of this paper want to say that the level of intelligence of a crow in the childhood, then the level intelligence in the young age and level of intelligence in the old age may be different as they gain from the society of human being. Here sentiment analysis pattern is the major factor of Artificial intelligence that helps more to forecast the probabilistic happening in near future by the crow. It's another part for the scientists and scholars working on the birds to study about the structures of the all two feet of a crow prevailing insulator properties exist there according to a study.

8. Conclusion

On the basis of the Review of literatures, some cognitive approaches adopted by crows in day today's life and the model we have developed by using Hasse Diagram, we conclude our study and Research as

1. Block chain technology and Artificial intelligence are very close to discuss about all human and neural Network types happening inside a crow
2. The probabilistic forecasting capacity by a crow sitting on a tree near a home of human is all based on Artificial intelligence and Block chain Technology
3. Detecting crimes, searching foot prints etc. by Dogs and some others pets in security sectors of Government and private agencies and their training by human being shows Block chain and neural network, AI and sentiment analysis aspects of Computer Science connected with the animals and birds.
4. POS is more capable to not only describe about different level of Mathematical structures but also it may be used in Biology of Diverse Animals and Birds.

9. Integration & Correlation with Ancient Indian Literature

In this segment of Research papers writing, we the authors, would like to show that in most of the cases of modern science and Computer Engineering, ancient Indian literatures, our Vedas, Upanishads and other religious books hide some surds for future research work. Followers of Hindus religion strongly believe that crows play major role in linking the dead and the living people life energy chain. Crows watch to know how they are linked to our dead ancestors or relatives and Atharveda details all these. If we search discussion about birds, we find more about Vedic sage Tittiri and it is a collection of verses from mythical students who became "partridges" (birds) in order to gain knowledge. If we discuss about Artificial intelligence and advancement in the study of AI based patterns and Block chain technology then it may be a matter of integration that our Veda has a lot of things, as today we have- Vedas contain various references to machines and robots that can perform human-like tasks, written between 1500 BCE and 500 BCE. Those who believe in the Mythology admit that Artificial Intelligence originated from the mythology and ancient people imagined artificial life, automatons (or robots), self-moving machines, as we have seen in different surds of Valmiki Ramayana and other marvels long before technology enabled them to be realized what were there today, they are as modern concept of liberal arts and science. One can remember Homer and his contribution in the ancient era published resources confirm that Ancient oral traditions about robots and other devices were first written down around the time of Homer in or around 2,700 years ago, beyond to the imagination for today. On Birds and AI are in our Ramayana, Mahabharata, and other epics contain similar tales where there is hoard of new Ideas and it has been talking of the common masses that Automatons are created by the engineer God Vishwakarma. Discussion we do today about the advancement of Computer science may be correlated with the study of analysis of Artificial Intelligence hidden in the ancient books of India as some sort of qualitative method focusing the secondary database which include ancient texts of Vedas, Ramayana, Mahabharata, Shrimad Bhagwat Geeta, Puranas and other Ancient Indian literatures.

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Conflict of Interest

Authors of this manuscript declares that there is no conflict of interest.

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