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The Future of Decision Making: Augmented Intelligence

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ABSTRACT- Artificial intelligence's protracted objective seems to be to teach robots to learn and think like humans. Due to the general tremendous degrees of accuracy as well as fragility in human existence, as well as the open-ended nature of the challenges that people face, no despite how sophisticated robots are, they will never be able to successfully wipe out the human race. Artificial intelligence, with a significant computing information processing capacity as well as an appropriate methodology, could perhaps broaden humans' cognition because once attempting to address complex nature, so even though Homo sapiens can indeed could provide a rather more holistic, interactive approaches to dealing to uncertainty as well as interpretation of data in organizational decision making. This assumption is similar to the concept of intelligence amplification, which also asserts that automated tools should have been built with both the goal of supplementing, rather than substituting, human contributions. As a result, in order to produce a new type of artificial intelligence, hybrid-augmented intelligence, it is important to include cognitive processing model capacities or cognitive processing modelling capabilities within artificial intelligence algorithms. This type of artificial intelligence, often referred to as computer intelligence, seems to be a viable as well as crucial development paradigm. The two primary concepts of hybrid-augmented intelligence are human-in-the-loop information services featuring human-computer cooperation as well as mental health counseling technology based augmented intelligence, in which a cognitive model is incorporated inside the recurrent neural network.

KEYWORDS- Artificial Intelligence, Augmented Intelligence, Cognitive Model, Decision Making, Machine Learning.

I. INTRODUCTION

The remarkable advancement of artificial intelligence technology is significantly altering interpersonal interactions as well as interaction styles, as well as human-human interactions with their physical environs as well as society. Solving various challenges such as high sophistication, lack of certainty, as well as vulnerability in every field of engineering technology, knowledge production, as well as living person community engagements, as well as constantly and consistently encouraging the development of societal structure as well as financial status, have now become the treasured objectives of engineering and innovation only with help of artificial intelligence[1]. Artificial intelligence seems to be an underlying technology that's also causing various revolutionary developments in some kind of a variety of sectors. Using artificial intelligence technology wisely as well as successfully may foster important innovation as well as boost competitiveness across both humans and machines. As a result, artificial intelligence is really no simply just separate, independent, as well as self-cycling educational institution, but rather a component of the humanity dynamic development. Deep learning approaches have advanced rapidly as digital information collecting, storage, as well as computation capacities had also improved. A new wave of artificial intelligence recently emerged, particularly in high-demand industries including such cloud technology, data science, ubiquitous gadgets, and intelligent robots, which together encourage the advancement of artificial intelligence techniques and theories[2].

A. Buzz Around Artificial Intelligence

There are several other different types of artificial intelligence, but nevertheless the notion may very well be roughly characterized simply intelligent machines that could really process information. Artificial intelligence is comprised of a diverse mix of tools, methodologies, as well as computations. Artificial intelligence encompasses a wide range of applications as well as techniques, spanning neural network models through speech/pattern recognizing to evolutionary algorithms to reinforcement learning[3]. Speech recognition (the technique through which computers can read as well as analyses language which is used by humans) as well as machine learning are two three of the most common aspects that expand artificial intelligence cognitive model capabilities yet can supplement human employment.

Natural language processing enables IBM's Watson ability comprehend complicated human-written phrases as well as attribute different interpretations to terminology and concepts. Watson's machine learning capabilities can help that one to learn it the hard way as well as data engagement, as well as to build advanced technologies derived from previous encounters. Watson has trained to recognize cancerous abnormalities using machine learning approaches as well as availability of medical published

papers, electronic medical data, and furthermore doctors' comments from Memorial Sloan Memorial[4]. Artificial intelligence has made strides towards providing viable therapy options. Finally, AI-powered machine vision has permitted Watson could swiftly analyses dozens and dozens more MRI brain pictures as well as to pinpoint extremely minute hemorrhages inside the images alerting clinicians.

Emerging artificial intelligence systems, such as Watson, have an amazing potential to understand as well as enhance independently, and speeding their usage for just some knowledge-based jobs which have been previously thought to be the sole province of humans. These duties were formerly undertaken by white-collar people and who were thought toward being impervious against technology. Artificial intelligence systems' understanding was indeed continuously developing, and that they are operating as de facto independent decision - making in much more complicated and diverse environments[5]. Because of powerful smart technologies that should be on track to substitute human employees throughout numerous areas, post - industrial society civilizations are relevant and timely information another new machine era. As artificial intelligence applications expand, companies are confronted with perplexing concerns concerning AI's impact on labor. It is stated that out of every given talent, some theoretical physicist has already been working on developing software algorithm to achieve it.

B. Artificial Intelligence in the Financial Industry

The pervasiveness of artificial intelligence becomes undeniable. From virtual personal assistants through smart technology through autonomous automobiles, artificial intelligence's near-omnipresence has proven transformative. Alan Turing's inquiry as to whether the algorithms can convince the people that they would be human inspired Princeton Students of the university to create the world's earliest artificial neural network. Unfortunately, due to reductions throughout funding for research, the above excitement did not last in the 1970s.

Artificial intelligence advancement may be defined that used a three-dimensional (3D) space that contains strength, extension, as well as capacity. Overall intelligence level underlying Artificial intelligence systems is referred to as intensity, the spectrum the issues that can also be addressed through Artificial intelligence systems is referred to as extensions, as well as the average solution excellence something which Artificial intelligence systems could give is referred to as capacity. Unsupervised classification may be accomplished effectively by general artificial intelligence systems based on experience as well as knowledge acquisition[6]. Comprehensive Artificial intelligence, on the other hand, can indeed be attained with a developing a strong sense of computer modelling and simulation derived from Artificial Intelligence methodologies. DeepBlue, Watson, as well as AlphaGo seem to be Artificial Intelligence technologies that have outperformed human intelligence in several sectors by leveraging computers' enormous processing capability.

However, technological systems can indeed rise to such a higher level of sophistication because of their own cognitive processes. In terms of great self-learning capacity, there is a gap between such systems as well as broad Artificial intelligence. Intelligent machines have now become human's personal friends, with interaction and collaboration between someone human as well as an intelligent machine being essential inside the construction of future modern civilization[7]. Almost all of the challenges that people encounter, on the other hand, are of considerable complexity, unpredictability, as well as open-endedness. Also because humans seems to be the servicing objective as well as arbitrator through an intelligent machine's final 'value judgments,' human interaction inside the machine must have remained consistent however throughout evolution among these systems. Furthermore, although if adequate or unlimited information opportunities are distributed for artificial intelligence systems, personal interference within Artificial intelligence technologies can indeed be considered altogether.

C. Different Aspect Oriented Definitions [6]

1) Human in the Loop Hybrid Augmented Intelligence

A human-in-the-loop hybrid-augmented intelligence model is one that requires human intervention. Throughout this form of intelligent system, humans are constantly an accountable to the public as well as, as a consequence, influence the effectiveness in a somewhat manner that humans provide additional judgments if a computers provides a low confidence conclusion. HITL hybrid-augmented intelligence additionally conveniently addresses problems and needs that reinforcement learning may not always be able to train as well as classify.

2) Cognitive Model Computing Based Hybrid Augmented Intelligence

Generally principle, behavioral modelling programming host - based and network intellectual ability applies to innovative programming and/or infrastructure technology replicates this same functioning of the body brain as well as enhances its computer's awareness, understanding, as well as decision-making skills. In this manner, behavioral prototype computing-based combination artificially enhanced learning is an emerging information technology guideline well with purpose of improving extra sophisticated forecasts of how much the human brain/mind sensations, explanations, as well as needs to respond to external stimuli, particularly how and when to construct hypothesized relationship, instinctive rationalization modeling techniques, as well as experiential remembrances inside an intelligent agent.

Furthermore, due to qualifications as well as potential repercussions concerns, not all challenges can sometimes be represented; for example, it really is hard to identify all the requirements about an operation or just the branching that accompany that operation. Machine learning could indeed comprehend real-world situations and therefore can interpret partial information as well as difficult spatial and temporal relationship tasks as well as the cognitive domain. A formal machine learning model cannot represent the interplay of something like the human brain throughout the spectrum of non-cognitive model elements as well as mental health counseling functionalities, nor can it imitate the brain's neurological system's tremendous adaptability. Comprehension regarding non-cognitive parameter estimates inside the brain generally obtained from perception as well as affected by experimental as well as long-term information collection. Every one of these

progressive neurological attributes significantly improve equipment ability to adapt throughout complex dynamic surroundings as well as on the incident, trying to promote computer strengths in non-integrity as well as unstructured information processing as well as self-learning, as well as empowering this same development of CC hybrid-augmented intellectual ability.

D. Human-Computer Collaborative Hybrid-Augmented Intelligence

1) Human intelligence vs. Artificial intelligence

Individuals can educate, communicate, think, as well as interact with their surroundings in order to execute acts as well as conduct research. Such a learning mechanism is however required for international migration. Humans' greatest inventive and vital trait would be the characteristic can learn something new. The human brain is capable of self-adaptation including information extrapolation that goes beyond experiences. Furthermore, humans are promiscuous, a trait wherein collaboration as well as adaptive optimization demonstrate the aggregate intellect is far superior to just about any other individuals[8]. Human intellect was, in some kind of a nutshell, imaginative, multifaceted, as well as changing. Human intelligence includes creative throughout the sense that it should be skilled in analytical thought, argumentation, as well as inventiveness, as well as in developing new information as well as forming associations.

The structural complexity intrinsic connective adaptability of something like the neuronal system inside the cerebral cortex, as well as the sophistication embedded in something like a sequence of perceptual, unconscious, as well as cognitive procedures, are all implied by the complexities of human intellectual ability[9]. There is no consensus somewhat on mechanism underpinning intelligent behavior at this time, even though it is exactly due to the general complex biological neural network than human ingenuity should effectively specialize in responding on non-integrity as well as transactional data. Humans become increasingly effective at acquisition, thinking, collaborating, and other high cognitive tasks due to the rapidly changing underlying scientific understanding progression as well as learning capacity. When compared to human intelligence, artificial intelligence possesses characteristics such as normalization, repeatability, as well as internal consistency.

Normalization attests to the notion that machine intelligence could indeed currently only interact only contextual features; that is, program input must adhere to particular standards. The mechanical component of machine intelligence is referred to as reproducibility. Because of such a computer's tremendous computational capabilities as well as abiotic characteristics, repetitive labor does not decrease its performance as well as correctness. Logicality implies that AI really does have an advantages when responding with both the symbolic challenge, therefore indicates that AI is better when performing specific particular assignments rather than finding or violating the principles on its own.

E. Limitations of Existing Machine Learning Methods

Machine learning allows for the prediction of something like the future based on the patterns in historic information. Inside a nutshell, machine learning is the mechanization of predictive modeling, but it still produces models related to computer information. When confronted with a challenge task, this same system places a greater emphasis on a data-driven model, which would be a 'training & test' learning mode[7]. Every learning approach seems to be totally dependent somewhat on machine's learning and performance procedures. In fact, the process of using machine learning to deal with complex, dynamic, as well as non - structured knowledge is so much more complex than with the living thing procedures since a computer system must choose between data sources and options, whereas a human can quickly make a decision based on minor differences throughout the tasks and deep connections amongst some of the information.

F. Human in the Loop Hybrid Augmented Intelligence

By incorporating human intelligence into the knowledge system installations, it is possible to achieve a strong relationship between it analysis-response higher - order cognitive model processes involving fuzzy as well as uncertain issues as well as computing technology systems. As a result, the two adapt as well as interact with one another, producing a multiple information transmission as well as control system. Integrating subjective experience, mental health counseling abilities, machine computation, as well as storage capacity can result in hybrid-augmented intelligence. Finally, information from just a large-scale, incomplete, as well as disorganized level of understanding can indeed be digested, as well as the hazards of out-of-control AI technology may be addressed[10]. For hybrid-augmented intellectual ability, the World Wide Web presents an enormous experimentation space.

G. Hybrid-Augmented Intelligence Based on Cognitive Model Computing

Human intelligence seems to be unquestionably the much more formidable throughout environment. The development of hybrid artificially enhanced intelligence based on CC, which employs investigations on efficacious bilateral agreements between biologically inspired database management systems as well as contemporary computer systems, would provide a completely new method for solving long-term making plans as well as justification difficulties throughout Artificial intelligence.

1) Computing Architecture and Computing Process

Computing architecture as well as computing procedures should have been considered when developing CC hybrid-augmented intelligence. That really is, the type of computer architecture as well as computing method required to execute the computation must always be determined. The von Neumann architecture is the cornerstone of modern computing. The computational procedure is founded on the idea that symbolic systems may formulate computational jobs. Running a contemporary computer seems to be a calculating process performed by something like a formal model (software) under the von Neumann architecture that may create full as well as undifferentiated backups of information. Multiple approaches (software programs) have been required for the following challenges. Again when the model has been constructed, its computing capacities as well as the activities it must do are identified. A biological

intelligence's computational architecture is built just on human nervous system. The biological intelligence calculation procedure consists that continually adjusting to a surroundings or a circumstance, – i.e., implementing risk as well as value assessments.

The information processing method of biological consciousness comprises two components. The first is a basic evolutionary system that involves the biological information systems to really be capable of predicting the state of the environment although of itself and then give an 'interpretable model' that constitute the backbone of risk as well as value measurement. The cognitive model underlying physiological intelligence may be utilized to conclude the 'modeling' development as well as formalize its representations for a computational architecture. Ultimately, an integrated and coordinated calculations may be accomplished by utilizing current processors (processing equipment). A neuro-morphology model that mimics the physiological nervous system in form as well as processing may be built for the computer process. As a result, developing hybrid-augmented intellectual ability based on biological intelligence is a vital step in developing a successful CC framework.

2) Intuitive Reasoning and Casual Model

- *Intuition and Cognitive Model Mapping*

Intuitive is a term used to describe a group of mechanisms within the nervous system that have included method is verified, reinforcing, differentiation, and decision-making. Thus according research, human instinctive judgments have higher accuracy than non-intuitive judgments. People make countless judgments based on sentiments in their everyday routines, including such assessing the proximity of 2 things, experiencing the condescension of another's tone, and picking a spouse or possibly a book. Intuitive good management goes beyond common sense. It demands the employment of different sensors in applied to measure and then become fully informed about the outside environment. The three steps that form intuition are selective transmission, selective integration, and selection comparisons. The technique of separating useful information form irrelevant information is considered as selectively programming.

Intelligence is a characterization methodology that encourages higher-level cognition. One sort of psychologically model 'pattern' that forms in the mind may be thought of as a world model based on previous knowledge. This paradigm has three sorts of relationships: interaction, causation, as well as control. The world model may be viewed as a cognitive model map of this with the central nervous which appears as nothing more than a representation of this with the surrounds. It is a full representation of the local world that comprises not only a fundamental series of events and moreover directions, distance, and time. A psychologist or other mental health map may also be described using a semantic web. A mental health counseling map (sometimes mental health counseling mappings) appears to become a dynamic method that includes collection of information, deciphering, conservation, processor, decrypting, and employing evidence available.

- *Machine Implementation of Intuitive Reasoning*

Even though a machine seems to have the electricity of representational compute and communication capacity that perhaps a neural network could indeed complement, established deep learning model cryptographic functions struggle to realize the effects of different types above, including a cognitive model drawing, judgments call extra room searching, as well as cost of interior, in about the same way that somehow a human mind does. If the instinctive answer is seen as locating the global optimal solution inside the search process, intuition may be understood as that of the system provides initial repetition location. With something like a high degree of certainty, this viewpoint is correct. When addressing a basic issue, the beginning repetition location becomes unimportant. However, whenever handling complicated issues, the advantages utilizing rational grounds will indeed be accentuated when contrasted to established machine reasoning approaches. Machine learning argumentation approaches are prone to fall into global minimum during the latter scenario, however intuitive reasoning can offer a good beginning iteration point, allowing everything to escape the premature convergence difficulty to a large extent.

- *Knowledge Evolution*

The synergistic impact of the brain's memory system and information transmission mechanism seems to be the emergent phenomenon for scientific consciousness. The framework as well as complexity of something like the evolutionary development of language understanding, along with mental functions including such information processing as well as association. This is a structural as well as hierarchical process. Furthermore, knowledge is embedded throughout the human psyche inside a scattered form. The brain system retains information primarily by varying the strength the synapses interconnected neurons, but still it conveys diverse notions by varying the amplitude of several neuron assemblages. Human memory is associative memory, which means that the input information and the recovered memory are associated at some level in the human brain. For instance, the former is a subset of the latter, or they are comparable or linked in substance, or they appear to operate concurrently (spatial correlation), successively, synchronously, or progressively. Memory storage and management is a well-structured procedure with a variety of dynamic properties. This feature is the foundation of knowledge growth.

Furthermore, memory as well as information comprehension are inextricably linked. The information evolution paradigm inside the brain-inspired CC architecture is anticipated to fulfil the four conditions outlined below:

- Prior information is represented by an optimization method.
- The development approach is anticipated to achieve as well as refresh knowledge combination.
- The evolution modeling is anticipated to decide whether to proceed by employing an advertising process or through attempting different techniques, which would be a self-proven process.
- During the validation phase, the evolution model is anticipated to build a comprehensive understanding of the organization through leveraging relationships between the constructs via intuitive reasoning as well

as physically or emotionally experience. Such comprehension serves as the foundation for confirmation capability.

H. Visual Scenes Understanding Based on Memory and Inference

The visual system is critical in comprehending a situation via the visual center. In the human brain, knowledge of such environment creates a cognitive model map. A driver can formulate a steering choice and would then operate the car by combining regulations as well as expertise previously stored using available environment, also including map destination information. Similarly, a brain-inspired automated driving infrastructure may be built and illuminated by that of the human brain's remembering as well as reference capabilities. When someone is driving, the brain may generate the fundamental experience to create a simple description of something like the world with something like a quick glimpse. The understanding map of something like the traffic scene may be produced based on some of these environment perception data, which can be combined with understanding of the scenario as well as associated regulations stored in its memory.

II. LITERATURE REVIEW

The latest study by Stine et al., "A fully convolutional algorithm for differential detection of skin disorders," offers an important leap in dermatological intelligent machines, especially compared to therapeutic relevance[5]. They used a real-world tele-dermatology collection to create an algorithms that combined clinical data (demographics, signs/symptoms, and medical history) with several clinical images to construct a differential across 26 diagnoses. They assessed the algorithm's capacity to distinguish amongst clinically meaningful subcategories which including malignancy vs non-malignancy as well as inflammatory versus non-infectious diseases. Stine's colleagues compared the algorithm's effectiveness against that of nurse practitioners, primary care doctors, and dermatologists, with the algorithm outperforming the first two groups. They believe that applying the algorithm to non-specialist doctors might help provide broader and more accurate differentials, thereby enhancing treatment decisions.

Zuboff investigated the ramifications of digital technologies for the workplace[11]. She distanced information and communication technologies from mechanization and automation by presenting them as technological solutions. She defined information technology as the stimulation of a process that converts actions, objects, including events become communication. Even if information technologies provide promise contextual cues including such increasing transparency as well as generating a more satisfying workplace, Zuboff experienced comparable drawbacks when these technology were employed just for control and automation. As a result, automation has always been a popular topic of discussion amongst academic and professional professionals throughout decades.

Herbert Simon, a well-known cognitive model scientist, projected that by 1985, intelligent machines will be competent of doing every task that a person could[12]. Marvin Minsky, the founding member of MIT's Artificial Intelligence Lab, made another more audacious prediction about just the development of artificial intelligence throughout 1970: In 3 to 8 years, we would have an equipment with the intellectual functioning of either an average person being... learns to interpret Shakespeare, lubricants a car, play workplace relationships, tell a joke, as well as fight. At that time, the technology will aim to teach itself at a breakneck pace.

The automatic gearbox system is a highly integrated important research direction that has recently become a research hotspot [13]. Presently, fully automated driving faces significant technological difficulties. In the 1960s, the notion of human-computer collaborative driving was originally proposed. Human computer collaborative transportation has grown increasingly robust and complex as intelligent transport system, 5G wireless communications, as well as vehicle communication have improved. The sharing of movement control among a driver as well as an intelligence system is referred to as human-computer collaborating driving.

III. DISCUSSION

Cloud robots are one of the most rapidly evolving areas of hybrid-augmented intelligence research into commercial applications. The Internet of Things is a significant mobile Internet application (IoT). The Internet of Things (IoT) idea refers to the support of millions of ordinary gadgets or all of the objects used in everyday life that are linked to a wireless Internet cloud. Furthermore, entertaining is a people with the opportunity of hybrid-augmented intelligence. Technologies including such augmented reality as well as augmented reality have really been widely utilized in the gaming business in recent years.

Education is now traceable as well as transparent thanks to artificial intelligence. Another key use of hybrid-augmented knowledge is social media. Children can benefit from communicating with or without an online course system in the future, since education must become more individualized. Interpersonal communication throughout digital training is more than just a basic suggested by previous; it involves the constant transmission as well as updating of knowledge amongst students as well as machines during and after the learning process. The online hybrid-augmented intelligence educational application will be implemented to give tailored tutorials based on the conceptual framework, understanding, as well as competency of each learner. The system's basic goal is to turn core curriculum into a customized as well as individualized learning system, which again will fundamentally alter knowledge generation and distribution.

Human-computer collaboration hybrid augmentation intelligence has the ability to deliver application solutions for various workflow coordination, which has a high value creation potential. To give transparency and make procedures easy to follow at any moment, hybrid-augmented intelligence platforms of corporate collaborative decision making would have to be offered to all CEO partners. For hybrid augmented intelligence systems, the integration of several machine learning algorithms, decision models, as well as domain knowledge is crucial. The integration procedure is quite difficult. During the problem-solving process, many solutions must

be merged into a decision-making paradigm to acquire the best proposed answer.

A common use of hybrid-augmented intelligence is the management of industrial difficulties and hazards. How to handle the complexity and inherent dangers of industry in a modern economic environment has become a challenging job for many industries in the networked era. Various industrial settings are experiencing considerable risks and uncertainties as a result of the changing character of the business environment. Furthermore, the relevance of enterprise risk management, business process socialization, corporate social networks, and social technology configuration are being widely advocated as a result of improvements in our information society and sociocultural environment. Some scholars regard Internet information processing as something like the transmission of highly organized as well as standardized semantic information, which researchers suggest can be handled by computers if scientific consciousness has been appropriately marshalled. In truth, the Internet is flooded with chaotic, jumbled bits of knowledge, much of which can only be comprehended by humans. As a result, computers could indeed fulfil just about all the duties associated with Internet cognitive processing. Through many cases, additional treatment has always been required. Machine learning is overly reliant on rules, resulting in poor portability and scalability. As a result, it can only function in environments with strict limitations and restricted objectives, but it can also analyses dynamic, incomplete, or data sets. Although hybrid-augmented technologies that support systems can indeed be built using machine learning techniques, probabilistic logic, fuzzy set theory, approximate reasoning, as well as established the right such as evolutionary computation as well as committee made up, the combination of different machine learning methods as well as adaptive methodologies can circumvented separated as well as achieve complementarities to some extent. These systems are still unable to employ common sense, tackle time-varying complicated issues, or use past experience to make future judgments. Furthermore, no matter how much progress is made in machine learning, a computer will never be able to accomplish all of the jobs in modern civilization on its own. In other words, a person cannot totally rely on machine learning to do tasks such as financial decision - making, healthcare issue resolution, as well as mail handling.

There are numerous problems to be solved in Artificial intelligence, such as how to understand the complexities as well as fuzziness of language system in the face of a collaborative and interactive system, as well as particularly how to avoid the risks or even harms caused by the limits imposed of Artificial intelligence technology in some critical applications, including such industrial hazard identification, medical diagnosis, and the criminal justice system. Human supervision, engagement, as well as involvement must be incorporated for verification reasons in order to tackle these challenges. As a result, on just one extreme, reliance in cognitive computing will increase, and human-in-the-loop hybrid-augmented intellectual ability is always built; on the other contrary, human expertise will be properly used.

As a result, we highlight the notion of hybridization augmented intelligence in this work, which successfully integrates cognitive processing modelling capability with computer processing power in quick operations as well as flash memory. Based on the original creation of the cognitive model map, a more explicit cognitive model map should be developed and coupled using past aspects of traffic and pedestrian and vehicular organized and coordinated. The cognitive model map should then include a description of the road sensation as well as the driving strategy for the near future.

IV. CONCLUSION

Artificial intelligence has transformed intelligent robots into human friends, but it's still fundamentally transforming our lives as well as determining the future. People are looking for new mathematical methods as well as Artificial Intelligence implementation forms as a result of mobile computing as well as intelligence technologies. One of the important directions for something like the development of artificial intelligence is hybrid-augmented intelligence. Building human-computer interaction-based on hybrid-augmented intellectual prowess by trying to combine subjective experience as well as cognitive model functionality with computer functionalities to calculating the average as well as store data can greatly improve the decision-making functionality, mental health counseling complexity ability to manage challenging problems, as well as responsiveness to complicated problems of artificial intelligence algorithms.

Through intuitive reasoning, experiences knowledge, and other hybrid models, hybrid-augmented intelligence based on CC can overcome the difficulties of planning as well as reasoning which the Artificial Intelligence scope of the study has indeed been grappling with for a long time. The necessity of developing human-computer cooperative hybrid augmented intelligence and its fundamental framework are presented in this survey, which is based on a discussion of the limits of existing machine learning approaches. The fundamental difficulties of hybrid-augmented intelligence, including intuitive reasoning, causal modelling, memory, and knowledge growth, as well as the vital role and basic methodology of intuitive reasoning in complicated problem solving.

The approach of visual scene comprehension based on memory as well as logic is also described. Finally, common implementations of hybrid-augmented intellectual capacity are introduced in the disciplines of having to manage industrial complexities and risks, participatory tactical decisions in organizations, online intelligent learning, and medical as well as healthcare, general populace security and stability, human-computer collaborative driving, as well as cloud robotics. We urge both business and academics to research and improve hybrid-augmented knowledge, both theoretically and practically.

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