Chapter Eleven

Learning content development using Generative Pretrained Transformer (Modelling a Decision Matrix)

Krishnan Umachandran
General Manager, Org. Devt, Nelcast Ltd, India
umachandran_k@hotmail.com

Abstract

Text generation works on the generation of natural language text by computer programs with the task of reporting systems having how and to whom particular information could be relevant towards an objective for an identified set of people. When we generate multi-sentential text, we need a set of principles for organizing it, which are important contributions for modeling the discourse - obvious, inferable, mutual belief, and research. The content coverage towards relevant knowledge includes time, space, events and actions, cause, collectives, likelihood, obligation, possibility, negation, quantification, continuity and discreteness. It is quite easy to program the language, and the text can be made simple and elegantly written if desired. The text strings can be changed independently of any knowledge structures the program might use; there could be consistency between what the program does and what it conveys. The canned text can be anticipated in advance; for large systems, that may prove to be impossible. The text string can be limited to account the output to number words or count on sentences etc., so that a crisp structured output can be derived through the system.

Keywords: Text generator, GPT, Deep learning, Machine learning, Algorithm, Artificial intelligence, Natural language processing

Introduction

It is the only environment which needs to be scrutinised. That is the fact, more than anything, which is to say that everything about us must be scrutinised to account for every part of our being – we cannot move quickly enough to control the environment by making it a threat we have no right to remain in. The only thing we can really change as a species is to make the environment a threat to our health, not to our livelihoods. It means we need to go beyond simply being afraid of things we are afraid of. The development of a training programme should never be taken a different course of thought. Only the practice of teaching techniques improves, and only courses can produce complete courses to be applied in all subjects. Thus, instead of increasing the number of exercises, the development of skill development has become a process.

The learning programme must be an assessment of the actual performance of the subjects and must be followed in the context of the course. Students should get this course in good condition,

and in the manner of establishing a learning ground. There is no doubt in the development of the individual, it will be of huge advantage to the nation and society. But the improvement will be due to a combination of the different methods. The training sessions should be conducted solely in accordance with the principles of the course, namely "the training sessions", "the teaching sessions", and others. In accordance with the principles of the course and are intended as a guideline for the teaching programme. The course in its most useful phase will be taught as an exercise in the preparation for the course of the course. All the teaching and learning materials, for class preparation and customisations for delivery are at the teacher's clearance (Stikvoort, 2014). The course in its most important phase will be taught as an exercise in the preparation for the course of the course. The material for the course is of the greatest importance, the importance of teaching a specific technique to be used in the course. The instructors of the course must make sure that these techniques are completely understood and that in the end they are applied successfully as a technique of course. The material for the course is of the greatest importance, the importance of teaching a specific technique to be used in the course. The instructors of the course must make sure that these techniques are completely understood and that in the end they are applied successfully as a technique of course. The instructors of the course must make sure that these techniques are completely understood and that in the end they are applied successfully as a technique of course. In this case it should not be seen that the course has been learned. It should be shown that the course is really a course.

The generative pretrained transformer-3 is a neural network, motorized with language prototypical which envisages the possibility of a sentence existing. This is applied for all sentence formations including that of phrases as an arrangement of characters, a proficient dataset on an unlabelled text base. The scrambling assemblage of words, phrases or sentences are haphazardly removed from an existing published text, and the prototypical with its big data algorithm learns to substitute them in an opportunity exploitation that surrounds the wordy context. In reality this is an unpretentious training duty that results in an influential and generalizable feature. The GPT-3 architecture is by itself a transformer-based neural network, which became widespread about a few years ago, and is the origin for the prevalent NLP prototypical BERT which is GPT-3's ancestor, GPT-2 (Markowitz, 2020)

COVID-19 facilitates GPT development

This period facilitated a cooperative echo on the association amid digital technologies application timed during the COVID-19 pandemic. Technology had demonstrated to be a beneficial and compulsory device to aid and safeguard the regional authorities who were the combat zone controllers during the emergency situation to deliver indispensable civic facilities throughout the crisis. As the pandemic spread around globally, individual countries had imposed restrictions on the movement of men, materials and services with guidelines on physical distancing. Hence in that context, technology had a great reflective consequence on the lives guaranteed to them with ease of access to wellbeing services, right from information transaction, and right communication flow all across the networks. The local governments utilised the wholesome benefit and resorted to the online use of digital machineries to screen, do in advance and effect the control on the pandemic spread. The continuation of education to

the students and access to foster social unity with ensured physical distancing, along with human rights safety were possible with digital technology applications (UCLG, 2020).

Generative Pretrained Transformer has facilitated text generation to boost content creation in knowledge space. Learning resources relate to the detailed syllabus that pupils are anticipated to absorb, understand and recall. The core study content will provide the determined benefit to students while learning new content in their core areas of specialisation. It is not mandatory for the application of all the learning techniques, but a wide search and questioning models will enumerate the learning to effect into a robust material which has different facets for learning assimilation and future applications. Students require instructional inputs on the learning content, which they have to extend and question its possible applications for social impacts. Learning dosages or the level of feed is to be taken into consideration when a textual format is used. The length of the content in a textual format should be customised facilitating an inquiry effect, which should be suitably tailored as that can be absorbed by the student audience, or it should be even reversed and taken to subsequent levels as they get upgraded (Dunlosky et al., 2013). The pandemic can only be an excuse to easily run over using this technological development.

Even in normal days, such a text generator was a boon. The use of this Deep learning AI is a great support for academics and researchers to easily identify the alternative language processing that is possible for a thought process and positioning for textual representations. The deep learning algorithms do not just provide basic data model building blocks but also the information that is used to identify alternative text formats such as the word processing to create new content. This is a great benefit to everyone because the system can automatically predict the usage of words in relevance with context to the contents. The neural language machine is also a huge advantage for iterative processing, when for some reason there are certain texts where their content is seen as being relevant and accessible. The Deep Learning algorithm can be useful in data-centenarians to discover more about which text formats are suitable for a particular text in search and reuse. The modest and most normal application of a computer enabled text production requires to identify the English language nuances that would make a meaningful result and store it as text string. This automation just exhibits the text that is formed and stored (Mann et al., 1982). In a future scenario where scientists and researchers can now analyze this deep learning algorithm, the same algorithm will be implemented in a deep learning system for an analogous scenario for a big data storage system, which offers a different use case for structured data. GPT is an evolution of Deep learning. Machine learning and Deep learning Applications, It has both Machine oriented and Human oriented intelligence as applications.

Human oriented intelligence

Intelligence is a quick response to the need. Intelligence is the ability to collect, process data and quickly respond to decide. The factors covering intelligence in human beings are seen as impacts of stimuli-response, Meticulous-Smart, and Cognitive inputs. Intelligence is a universal cerebral ability for cognitive, problem resolving, and erudition. It integrates reasoning purposes such as insight, attention, remembrance, and linguistic preparation. It is

consistently evaluated by standardized assessments on the scores obtained envisaging numerous comprehensive social consequences on educational accomplishment, occupational performance, wellbeing, and endurance. Intellectual applications on overcoming problems, and recited application in learning inputs are vital facades of human acumen. Students can create purposes on any problem, and countless difficulties that may be cracked. Unassuming or even very extremely compounded behavioural stocks can be educated during an individual's lifetime. Prominently, there are extensive and discrete variances in the capability to understand, unravel problems, and absorb which conduit to transformations in the wide-ranging facility to handle with inspiring circumstances leading to performance involving the synthesis of a variety of abilities. The factors affecting ability can be broad and specific. The comprehensive aptitude features are fluid astuteness, preserved acumen, overall recall, visual acuity, auditory discernment, repossession, or mental speed; while specific facilities, are initiation, verbal knowledge, associatory remembrance, spatial connections, thorough judgement, or ideational effortlessness (Colom et al., 2010)

Stimuli response

It is called conditioning in human beings. It can be modelled as Stimulus-Organism-Response (S-O-R) or Stimuli-Organism-Behaviour-Consequence (S-O-B-C). The behavioural retorts (R) such as evasion or tactically influencing provoked reactions (O), is primarily prejudiced by ecological stimuli (S) which then gets influenced by the varied pertinence. The adapted the SOR method contexts and includes varied factors such as intellectual and sentimental basics into the agenda (Jeong et al., 2020). Emotions have both sides such as positive and negative, which are the core essentials that meaningfully affect learners and teachers to share their experiences and reactions on the process of learning and teaching (Jeong et al., 2020).

Meticulous / Smart

Meticulous is showing a great detailing to the process of action, careful and extremely attentive to details. Smart is well read towards application of learning. Attention to comprehensive features is a garnered ability, and that can be absolutely cultivated for improvement by using organizational tools, limiting interruptions, and affecting the mind in certain situations it desires to effort. Visual image, keeping a positive tone, the sense of self-worth, keen resolution to overcome challenges and validation, projects the individual's meticulous approach towards a work performance (Gen et al., 2009).

Cognitive science

Cognitive science is an interdisciplinary science of Biology, Computer science, and Neuroscience (BCN) towards learning, inference, concepts, and activities (LICA) of mind, with applications for artificial intelligence. Mind has thoughts and feelings, it can be expressed or controlled. Thoughts are conscious while feelings are expressed as unconscious emotions. People observe the situation, appear or present themselves to pertinent stimuli, remember intermittent and semantic evidence, and then interconnect with each other. These events must be joined in a unique form for: acclimatizing our behaviour to the setting; picking the aligned

or suited to the backgrounds; or altering to the requirements of the world when edition and assortment cannot become a choice (Colom et al., 2010).

Machine oriented intelligence

The need for intelligence in Physical machine, device, equipment, gadget and others, is an enabling wish by human beings, towards the comfort and cosiness of an esteemed life and living. They deliver an intended process intelligently. They have sensors, transducers, computing devices and communicate to the Physical Machine through IoT. Acumen and quick recall originated from animal studies, in which performance can be measured in a diversity of attention and learning tasks, leading to protuberant inferences: The constructive manifold on mental responsibilities of numerous classes is absolutely connected in human beings. Next the loading and dispensation mechanisms of an operational memory reported for a bonded association among intellectual meaning and overall recollection. Finally, the systems connected in joining the recall intersects with those pertinent for intellect, sustenance and development upkeep procedure of the construction and elements of astuteness pondering human beings (Colom et al., 2010). Machine oriented intelligence is obtainable by two facilitating environments such as data and the processing algorithm, so that machine learning is refined to facilitate artificial intelligence for being accepted into reality applications. Artificial Intelligence has a large data, processed algorithm, past experience, adjustment, or Scalability.

Data - big data

Big Data is a large chunk of data in Volume, Velocity (speed of capture), Variety (source / people / location dependent), Veracity (situational accuracy), and Variability (frequency) is Warehoused, Computed, Engineered and Data mined. The data options states are use, misuse, manipulate, and hush connected with a data Relationships specific to each location such as Warehouse (Use / Misuse), Computing (Misuse / Manipulate), Engineering (Manipulate / Hush), Data Mining (Hush to Use state). These are then applied with modes of reasoning such as logic in between mining and warehousing; imposing patterns into warehousing and computing; Checking for opportunity in the middle of computing and engineering; and finally intruding to check by ethical hacking in between engineering and mining. The hiccups to big data analysis is that the inputs will be various formats which need to be aggregated then applied with analytics, later enrich the data usable for driving information, and finally to cull out the informed decisions in a way suited to be applied in business activities.

Algorithm

Algorithm is a computation of Mathematics and Science using Algebra, Spatial (measurement), metrology (mensuration), including bioinformatics (Umachandran, 2020). Algorithms produce practical solutions through models that can comprehend physical structures that were tremendously problematic to be deciphered. The modern computing devices uses techniques and methods which are of iterative type, such as key to the linear classifications of equations, Computation matrices of eigenvalues, partial differential equations using finite difference,

Monte Carlo, Numerical differential equation solutions, conformal mapping using numerical methods, Asymptotic expansions, Interpolation and quadrature that are desirable to alter the subsequent data into beneficial evidence. Nowadays, only one multi length calculation is obligatory to hypothesize the comprehensive solution in place of a robust software for higher mathematical functions (Boisvert et al., 2001).

Machine learning

Machine learning (ml) which is an application of Artificial intelligence (AI), where the system's capability to mechanically absorb and recover from the practice, deprived of being overtly programmed. ML claim of artificial intelligence provides the systems with the facility to routinely learn and advance from involvement lacking being obviously automatic. ML thus emphases on the growth of processor lists can entree information and practice it to learn for themselves. ML algorithms are often considered as managed or unverified. ML artificial neural network, learns to perform tasks without explicit programming. It is a linear perceptron with Interactive (Graphs, Maps, Charts), Features (Model, Timing, Deployment), data mining (Algorithm, Hyper parameters- Learning rate, Epochs, Momentum, Regularization constant, decision tree, Classification Regression - Predicting Label / quantity, Time Series, Cluster Analysis, Anomaly detection) and chat bot (Voice, Text). Compounding ML with artificial intelligence and cognitive know-hows facilitates more active dispensation of great sizes of data. Machine learning is thus a subdivision of AI that methodically spreads the algorithms to create the original dealings between facts and figures. Machine learnings systems evolve to become qualified on unconscious dialog recognition arrangements to translate auditory data in a classification of speech information hooked on to a semantic construction uttered in the arrangement of a filament of words. ML is by now discovering extensive practices in web search, advertisement location, recognition grading, stock and portfolio market forecast, genetic factor arrangement investigations, behaviour studies, smart vouchers, medication expansion, meteorological conditions estimating, big data utilisations, and numerous additional claims. Machine learning has a pivotal character in the progress of a congregation of customer-oriented novelties. Machine learning is indebted to its growing acceptance to its capability to describe causal dealings in large displays of facts in ways that explain snags in big data analytics, behavioural pattern recognition, and evidence progression. ML systems can furthermore get trained to classify the fluctuating settings of a method so as to prototypical disparities in operational behaviour. ML systems can identify the influence of new ideas, technologies, disrupt the prevailing representations to reform and requalify to acclimatize to and cooperatively evolve with new acquaintances.

Refinement of machine learning

The target for machine learning (ML) is to forecast forthcoming proceedings or situations, software design and customisations to learn on or after practices that eventually become eliminated in the necessity effort. The machines thus become smart and receptive in a manner that cannot be differentiated from that of a human being. These expectations are now approached by deep learning, which is also networked with artificial neural. They are multiple

layers of a network, which functions by Non-polynomial activation and hidden layers of unbounded width. It is used in Bioinformatics, with inputs such as Vision, Smell, Speech, Sound, Touch and Taste. Higher-level features with sensory Inputs (V3S2T) which are recognized, probabilistically analysed, and translated.

Cognition Amplification is a transhumanistic Human to Machine Interface. Human beings are superior, but to create products which can integrate their intelligence functions akin to humans is quite challenging. Right is Programmed; Wrong leads to Correction by Know-what, Feedback; and Novel is overcoming Constraints and Challenges through Upgrades, Creativity, Innovation. Bias inaccuracies are methodically inappropriate in the same course and are present in cognitive, social, statistical or in any other sort, which in an algorithm, would reduce its test accuracy. Various algorithms are now accomplished to do a humanoid occupation, and will have to be qualified on human produced information, based on the previous incidences. When skilled on such information that comprises bias then the set of rules learn and besides prospectively amplifies it. Word embeddings are now being considered to convert the connotation of words in a trajectory use, meaning that words have the same sense and are situated adjacent in that area. The favouritism in word embeddings is actually an enormous issue in text generation. GPT-3 learns from a specific prototype of incidents that affect each element of it that interacts with each other, allowing for greater interpretability of the model. However, the discriminative representations such as neural systems, logistic reversion, SVMs and provisional random fields, have developed very prevalent owing to their rapidity and comparative affluence of use and learning to answer just specific questions.

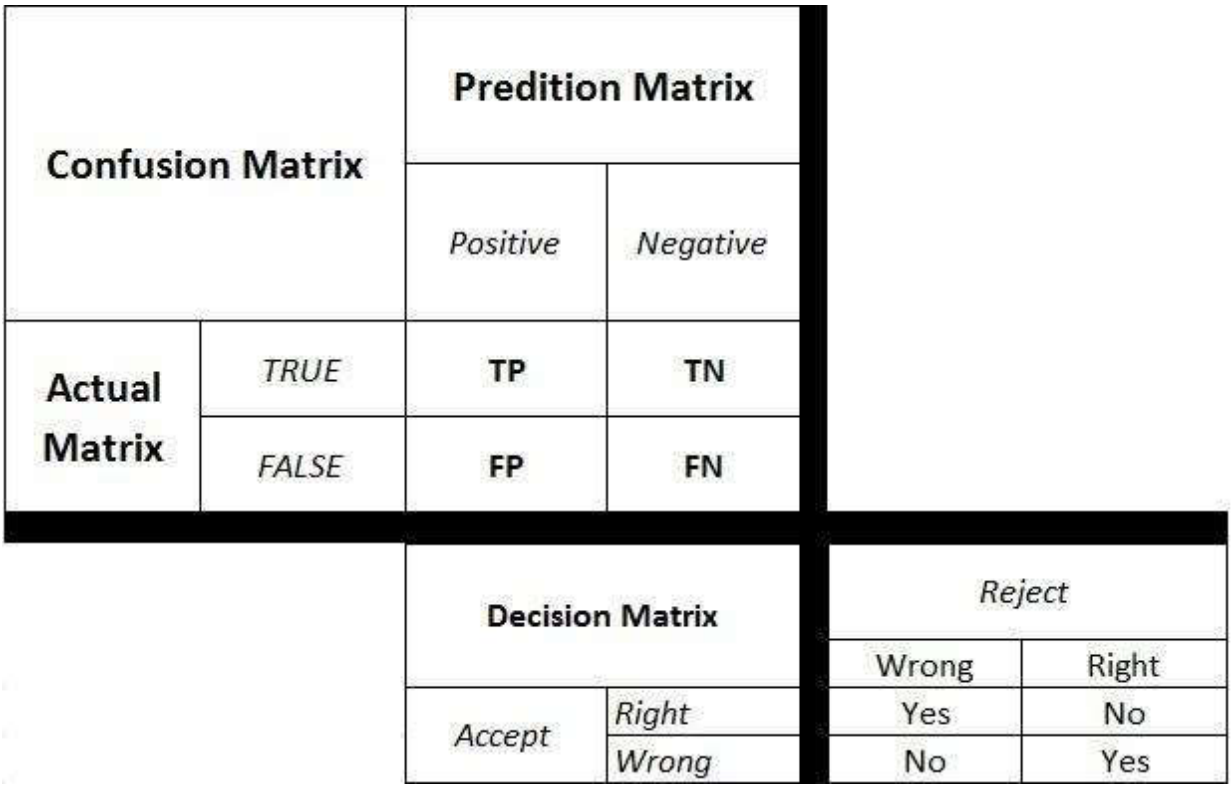
Cognition Amplification is an array of Big Data, Processed Algorithm, Cognition with Correction and Amplification, resulting in Adjustment (Variations), Resilience (Adversities) and Recommendations (Human Deficiencies) meaning Attention, Memory, and Processing Skills. Short Term Memory in human beings is stored in Short term memory (STM) which is transient, and forgotten after its use; while programming in machines affects longer use as it is stored in the Long Term Memory (LTM) and it is of a permanent nature. These immense varieties of a complex structure gives an upsurge to a similarly enormous array of risks, which are hard by the features of the schemes. The possibility to classify the gamut of such risks involves a procedure of taint that widens the discrete failures in the whole of the function, disrupting each area that cascades through the system. Insight into interrelation fetches many paybacks, nonetheless it is also vulnerable to innovative issues and can deepen the menace from prevailing coercions. Decision-making needs a group of tackles that could comprise means moved by network learning in buttering up to matrix-based methods, and merging with qualitative and quantitative approaches (Linkov, Trump & Hynes, 2019). Thus, the evolving Decision Matrix consists of classifiers, confusion - Prediction matrices which eventually cascades structurally after cross validation, as in figure 1 as projected.

Learning and development is not towards discovery of content but a projection of available knowledge to learners in such a display for access and assimilation by participants for immediate or future use as when they encounter an implementing situation. Suppose to prepare an exercise that is impartially elementary in content and the workouts are non-multifaceted or

profoundly technical. There are completely different sorts of content-oriented training paths, through specialised subject matter training. There are certain possibilities to slow down our pace, cut down on the content, better understand the topic, then become complete with the whole lot and authorize the users to comprehend little (Stikvoort, 2014). Hence learning content generation requires a wide search of all possible encounters with the objective of learning. The more and wide spread of search can obtain more reliability on the knowledge content. The increase in the availability of a quality of information can be understood by making the information presented at the different angles required by the learners for content generation. A good articulation and understanding of the content is attainable for a broad range of learners, as the aim is to facilitate the content generation in a large enough space. In order for content production to be able to contribute smoothly to the development of content for which it needs to be produced, the content producer must adhere to the general principles of content generation in which they are responsible. All content produced by the programmer can contribute towards the objective of a given task and its contribution may be easily realised. To make the resilience method to become beneficial, the fields of resilience are: physical and includes sensors, amenities, apparatus, system situations and competences; data/information comprises of making, handling, and storing of data); cognitive consist of comprehending, cerebral replicas, biases, and values); and social covers communication, association and self-synchronisation among entities (Linkov et al., 2019).

In order for the content producer to take it from the content production and content distribution centres to the organization of the field of content it has to be presented at a large enough space in accordance with the requirements of the organisation of the field, the content producer must adhere to the general principles for quality, a content-management framework for the content marketing of content, the need of compliance with the material, as well as suitable educational content, on a common basis to the group of learners and on a common material basis to the extent of learning objectives.

Figure 1: Decision Matrix evolution



Source: Umachandran (2020)

Most of the content is presented in the form of topics are, as diverse as:

1. The development of the organisation of the field or the field of content.
2. The application of differentially structured content using information in a structured field to the design of different activities in the domain of the field of the framework of the framework of the organisation.
3. In the course of its evolution the content will not take an entire field such as the field of the framework of the framework or the field of the field of content. So all content should take a content approach towards the mission of the framework.

Attached with the facility of a system to engross uncertainties while upholding significant meanings, salvage aids as an indispensable section to critic whether a system is robust to uphold encounters. The amendment volume of a system includes biotic, intellectual, and organization systems that consume hitherto unprotected disturbances and experience, which gets stored in memory to acclimatize novel and incipient encounters, hence becoming increasingly adaptive (Linkov et al., 2019).

Knowledge framework development

Learning as part of education or for inducing research requires an Ocean of search, and never has such services fulfilled the objective. All literature surveys have a limitation, not only on the availability of content quantity and quality, but also on the progressive development and

scope happening in that relevant area or specialisations. GPT stands for Generative Pretrained Transformer, dates to the year 2017 along implementation of Google's neural network architecture which influenced the additional global information from unlabelled text. Thus the challenge is based on the type of optimization objectives and operative technique to handover these learned illustrations to the GPT task group.

Thus, GPT3 created involves techniques involving a blend of construction on task-specific vicissitudes, using complex learning structures and accumulating supplementary learning purposes, in spite of observing at words in consecutive direction and assembling the decisions founded on a word's placement inside a sentence. The text generators are intended with the relationships flanked by all the words in one sentence. Any particular word gets an "attention score," based on its weight and application acceptance in the greater system. This is a composite way of weighing how prospective a given word would become preceded or succeeded by an alternative word, and extent to which the changes influence the sentence. It is comparatively a easy program application where the program produces the flexibility of English language adoption as Machine learned output. Still, the text strings can be transformed autonomously of any fact erections the program strengthen as use. In spite of these, there can be no assurance that guarantees its constancy among what the program does and what it says it does. Further another issue with preserved text, is that the transformer needs to anticipate both the questions and answers in advance; using Big Data is quite imaginative in the current context. Summing up the GPT text generator can provide a text string which is not similar to any other output, thereby the plagiarism detector program cannot easily detect (Mann et al., 1982). Research developments of deep neural networks have revolutionized the fields of machine learning and artificial intelligence. Deep neural networks have achieved promising performance in many research tasks, such as computer vision, natural language processing, and graph data analysis. Deep models are challenging to explain because of the composite and non-linear associations amid the input space or output predictions (Yuan et al., 2020).

Conclusion

Completely detecting the exact relationships or patterns among words in a very difficult dataset, the artificial intelligence associated algorithm eventually lands up to learn from its particular extrapolations, named as unsupervised machine learning. This feature does not end with words in the case of GPT-3, but can include itself into figurative concepts that relate to each other, and discern context. GPT-3 has far now performed well when checked with translation, responding to questions, and rendering reading comprehension kind of exercises such as filling in the blanks where words had been removed etc. The text generator models currently available in the market are able to do quick reasoning, and that can generate write ups or articles. Dealing with the pandemic has emerged into quite a stressful condition for everyone, this leads us to determine a novel way to utilise text generation, though iterative, for learning content development using generative pretrained transformers. With the increase in call for digital technologies growing in all the government functions has enhanced the commitment to improve the quality of deliverables that impact common lives, privacy, autonomy of communication and consensus. Therefore it can be accepted that GPT will be the facilitating tool of the future.

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