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GENERATIVE ARTIFICIAL INTELLIGENCE TECHNOLOGY-BASED ARCHITECTURE FOR AN INTELLIGENT CAMPUS MANAGEMENT PLATFORM

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Abstract: Generative artificial intelligence technology represents a transformation approach to the design and implementation of intelligent campus management platforms. As educational institutions increasingly seek to optimize operations, enhance learning environments, and improve resource allocation, the integration of generative AI can facilitate these objectives by providing data-driven insights and automating complex processes. This innovative technology enables institutions to harness vast amounts of data generated within campus ecosystems, thereby allowing for more informed decision-making and personalized user experiences. The architecture of an intelligent campus management platform powered by generative AI typically encompasses several key components: data collection, processing, analysis, and visualization. By utilizing IoT devices and other data sources, campuses can collect real-time information on various parameters such as student attendance, resource usage, and environmental conditions. Smart campus refers to a new education model that uses information technology, data as the core, and network as the basis to achieve comprehensive intelligence in campus environment, resources, services, and management. In this paper, the development of generative AI technology is sorted out, while relevant algorithms and models are summarised in detail, a smart campus management architecture based on generative AI technology is proposed, and its application scenarios are preliminarily planned. The method proposed in this paper will effectively improve the current intelligent level of smart campus management, which has high practical significance and theoretical value.
Keywords: Generative Artificial Intelligence; Education; Smart campus

1 INTRODUCTION

Generative Artificial Intelligence (GAI) technology has been increasingly utilized in various fields, including energy optimization, drug discovery, and education management. Mills et al. proposed a Cloud Edge architecture that leverages AI and data analytics for microgrid energy optimization and achieving net zero carbon emissions[1]. With the rapid development of the Internet, Internet of Things, big data, artificial intelligence and other technologies, the education industry is experiencing unprecedented changes, and smart campus, as an advanced stage of education informatisation, has become an important trend in the development of global education. This demonstrates the potential of AI technology in addressing complex challenges such as energy efficiency. Artificial intelligence systems, as discussed in the literature, involve advanced tools and networks that mimic human intelligence[2]. The architecture of AI systems plays a crucial role in their functionality and effectiveness. GAI, as explained by MIT News, is a powerful technology that has gained attention with the release of platforms like ChatGPT[3]. While generative AI is not entirely new, its applications continue to evolve and impact various industries. In the context of education management, generative AI technology has shown promise in empowering systems such as intelligent speech teaching system[4]. By leveraging natural language processing and generative AI, educational platforms can enhance the learning experience for students. Additionally, Siemens has accelerated its hydrogen ramp-up using generative AI software tools highlighting the potential of AI in optimizing industrial processes. Looking ahead, research will need to explore the evolving role of generative AI in AI platforms and technologies[5]. As AI continues to advance, understanding the implications and capabilities of generative AI will be essential for future developments. NIST has also released a draft publication on the AI Risk Management Framework to address the risks associated with generative AI technologies[6]. This framework aims to help organizations manage the potential risks and challenges posed by AI systems. In conclusion, generative AI technology has the potential to revolutionize various sectors, from energy management to education. By leveraging AI capabilities, organizations can optimize processes, enhance decision-making, and drive innovation in their respective fields. As research and development in AI continue to progress, understanding the architecture and applications of generative AI will be crucial for unlocking its full potential[7].

Education as one of the typical scenarios of AIGC technology landing, during 2023, a total of 45 investment and financing occurred in the global AIGC+ education track, half of which originated from the United States, and most of them are concentrated in the two sub-fields of K12 education and vocational training, as in figure 1. From the point of view of project maturity, the current AIGC+ education investment and financing is concentrated in the early stage, the global capital is generally concerned with a small amount of capital layout of early stage entrepreneurial projects.

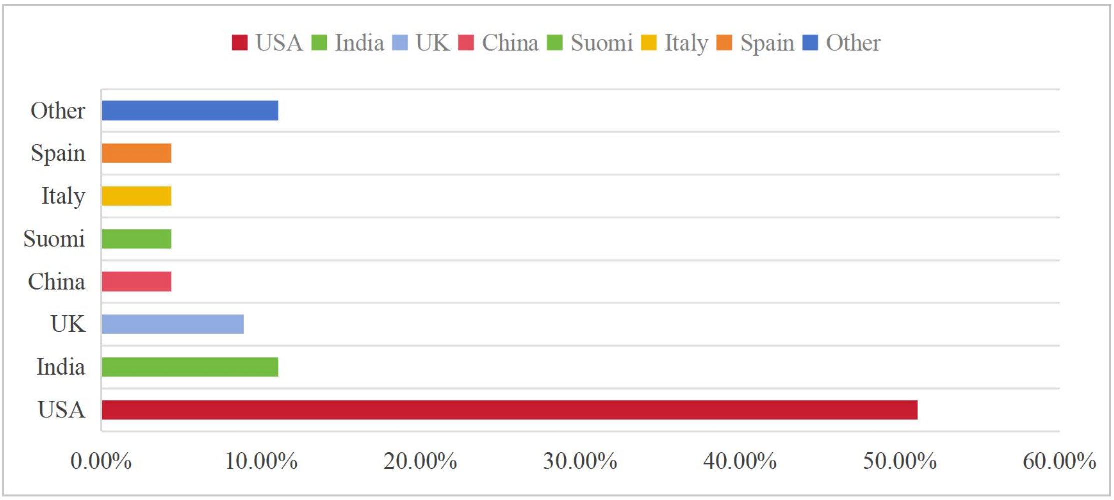

Figure 1 Global AIGC+ education investment and financing (2023)

Although there are fewer mature projects at present, compared with seed and angel rounds, the single financing amount of VC is higher. It can be predicted that with the application of AIGC in the field of education development towards maturity, capital will cut into the mature, high-quality project attention, as in figure2.

The technological frontier of GAI will move in the following four directions. **Multimodal Macromodelling.** From the human perspective, human intelligence is naturally multimodal, with humans possessing eyes, ears, nose, tongue, body and mouth (language), and from the AI perspective, vision, hearing, etc. can also be modelled as sequences of tokens, which can be learnt in the same way as the big language model, and further aligned with the semantics in the language, to achieve multimodal-aligned intelligence capabilities[8-9]. **Big Model of Video Generation**. OpenAI releases SORA, a Vincennesian video model, in February 2024, which dramatically increases the duration of video generation from a few seconds to one minute, with significant improvements in resolution, picture realism, timing consistency, etc[10]. The great thing about SORA is that it possesses the basic features of the world model, i.e., the ability of human beings to observe the world and then to further predict the world. The world model is based on understanding the basic physics of the world (e.g., water flows downhill, etc.) and then observing and predicting what events will happen next. Although there are still many problems for SORA to become a world model, it can be assumed that SORA learns the picture imagination and minute future prediction abilities that are foundational characteristics of a world model[11]. **Embodied Intelligence.** Embodied intelligence refers to intelligent bodies that have a body and support interaction with the physical world, such as robots and unmanned vehicles, etc[12]. The multimodal macromodel handles multiple sensor data inputs, and the macro-model generates motion commands to drive the intelligent body, replacing the traditional rule- or mathematical formula-based motion drive method, and realising the deep fusion of the virtual and the real[13-14]. Therefore, robots with embodied intelligence can gather the three major schools of AI: Connection represented by neural networks, symbolism represented by knowledge engineering and cybernetics-related behaviourism, and the three major schools can act on a single intelligence at the same time, which is expected to lead to new technological breakthroughs. **AI for Research.** Currently, scientific discovery mainly relies on experiments and human brain intelligence, with humans making bold conjectures and carefully seeking proofs, and information technology, both in terms of computation and data, only plays a role in assisting and verifying[15]. Compared with human beings, artificial intelligence has a greater advantage in memory, high-dimensional complexity, full field of vision, depth of reasoning, conjecture, etc[16]. Whether it is possible to make some scientific discoveries and technological inventions mainly by AI, and significantly improve the efficiency of human scientific discoveries, such as active discovery of the laws of physics, prediction of protein structure, design of high-performance chips, and highly efficient synthesis of new drugs[17-18]. Because the AI big model has a full amount of data, with God's perspective, through the ability of deep learning, can be more steps forward than a person, such as can be achieved from the inference (inference) to the reasoning (reasoning) of the leap, generative AI model has the potential to have the same Einstein's imagination and scientific conjecture ability, greatly enhance the efficiency of human scientific discovery, break the the boundaries of human cognition[19].

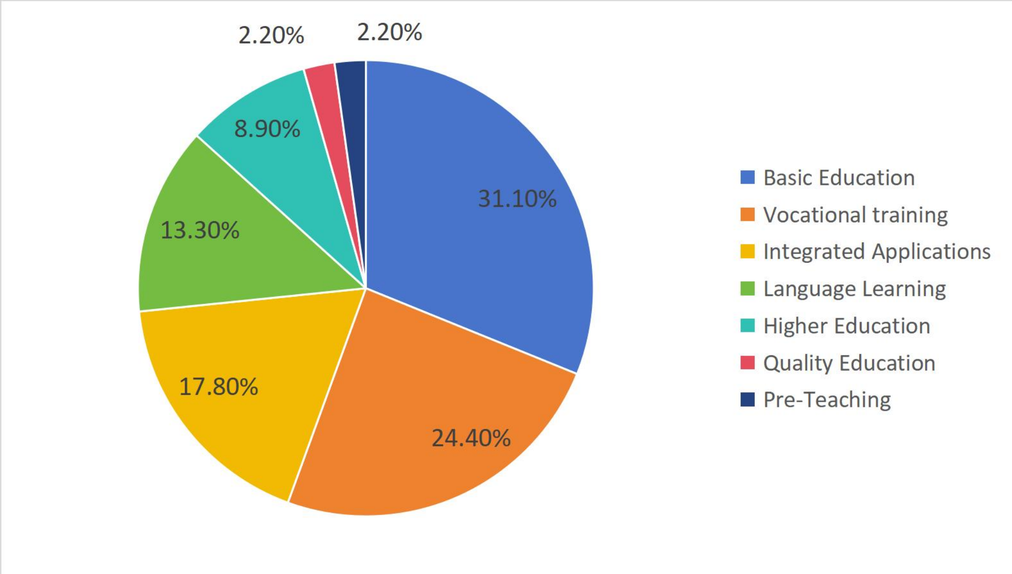

Figure 2 Global AIGC+ education investment and financing segmentation (2023)

Furthermore, the utilization of generative AI algorithms in educational settings can also facilitate personalized learning pathways, adaptive assessments, and data-driven decision-making processes to further enhance the effectiveness of academic programs. Additionally, the incorporation of generative AI algorithms in educational settings enables institutions to customize learning pathways for individual students, implement adaptive assessments to monitor progress, and utilize data-driven approaches for decision-making, thereby maximizing the efficacy of academic programs. Moreover, the integration of generative AI algorithms in educational settings allows for the customization of learning pathways tailored to the specific needs of individual students, the implementation of adaptive assessments for ongoing monitoring of progress, and the utilization of data-driven approaches for decision-making, thereby maximizing the efficacy of academic programs.

The paper is organised as follows. Chapter 1 gives the background of the study. Chapter 2 provides an analysis of the application of generative AI techniques in education. Chapter 3 proposes a smart campus management architecture based on generative AI technology. Chapter 4 provides a preliminary planning of the applications based on the architecture proposed in the previous chapter.

2 GENERATIVE ARTIFICIAL INTELLIGENCE TECHNIQUES IN SMART CAMPUS

GAI technology has emerged as a transformative force in various sectors, including education. The integration of GAI into campus management systems presents an innovative approach to enhance the operational efficiency and user experience of educational institutions. By leveraging machine learning algorithms and data analytics, an intelligent campus management platform can be developed to streamline administrative tasks, optimize resource allocation, and improve communication between stakeholders. One of the primary benefits of employing GAI in campus management is its ability to analyze vast amounts of data generated by students, faculty, and staff. Through predictive analytics, institutions can anticipate enrollment trends, identify at-risk students, and allocate resources accordingly. This proactive approach not only enhances academic performance but also fosters a supportive learning environment that addresses individual needs. Furthermore, GAI can facilitate personalized learning experiences by tailoring educational content based on student preferences and performance metrics. Moreover, the implementation of generative AI technologies can significantly enhance facilities management within campuses. Smart algorithms can monitor energy consumption patterns, predict maintenance needs for infrastructure, and optimize space utilization in real-time. This results in cost savings for institutions while promoting sustainability through more efficient resource use. Additionally, integrating chatbots powered by GAI into campus services allows for 24/7 support for students and staff alike, thereby improving overall satisfaction with institutional services. In conclusion, the development of an intelligent campus management platform using generative artificial intelligence technology holds immense potential for enhancing educational environments. By harnessing data-driven insights and automating various administrative functions, institutions can create a more responsive and efficient ecosystem that prioritizes both academic success and operational excellence.

Internationally, organisations such as UNSECO and the European Union, and countries such as the United States, Japan, the United Kingdom, and Australia have paid attention to a series of changes and impacts that AIGC will have on education, and have issued relevant policies and initiatives to provide guiding recommendations for its application, as in Table 1. Focusing on the scenario, on the technical side, the Interim Measures for the Administration of Generative Artificial Intelligence Services released in July 23rd clarified the service specifications and supervision and inspection responsibilities at the technical and general application levels, and encouraged the innovative application research and development of AIGC services. On the education side, various policies in the past have continued to mention encouraging the exploration of the application and development of AI technology in education, and policies on the technology side have combined to promote the positive and prudent landing of AIGC+ education.

Table 1 AIGC+ education-related policies and initiatives in key countries and organisations around the world

Country/Orgin	Department	Time	Policy	Main Course
UNSECO	UNSECO	2023.09	Guidelines for generative artificial intelligence in education and science[20]	Proposing the regulation of generative AI for educational purposes requires a series of steps and policy measures based on a human-centred approach to ensure its ethical, safe, fair and meaningful use.
European	European Parliament	2023.06	Artificial Intelligence Bill[21]	AI systems used in eight areas, including education and vocational training, are categorised as high-risk and are required to be registered in the EU database and assessed throughout their lifecycle. In addition, generative AI must comply with transparency requirements.
USA	Office of Educational Technology (OET)	2023.03	Artificial intelligence and the future of teaching and learning: insights and recommendations[22]	Describes the opportunities for using AI to improve education, as well as the challenges that will arise, and makes recommendations to guide further policy development.
China	Ministry of Science and Technology (MOST)	2023.07	Interim Measures for the Management of Generative Artificial Intelligence Services[23]	Encouragement of innovative applications, independent innovation of basic technologies, handling of training data in accordance with the law, accurate and clear labelling of data, etc.
Japan	Ministry of Education, Culture, Sports, Science and Technology (MEXT)	2023.07	Interim guidelines for the use of generative AI at the primary secondary level[24] & On the treatment of generative AI in university and high school teaching and learning[25]	Contains directions and considerations for the application of generative AI for primary and secondary schools as well as universities and high schools.
UK	Ministry of Education (MEC)	2023.10	Generative Artificial Intelligence in Education[26]	Setting out the Ministry of Education's position on the use of generative AI in education, the document contains the opportunities and challenges that generative AI presents to the education sector, recommendations for the effective use of AI, focusing on data privacy and intellectual property rights, and advocating for the development of future-proof knowledge and skills.
Australia	Ministry of Education (MEC)	2023.11	A Framework for Generative Artificial Intelligence in Australian Schools[27]	The framework is based on six guiding principles: teaching and learning, human and social well-being, transparency, equity, accountability, privacy, and security, and supports school leaders, teachers, support staff, service providers, parents, guardians, students, and policymakers.

This table shows the percentage of different countries in a given statistical category (unspecified). It can be seen that the United States of America (USA) has more than half of the share (51.10 per cent), followed by India (11.10 per cent) and the United Kingdom (8.90 per cent). China has the same percentage as Spain, Italy and Finland (Suomi) with 4.40 per cent. The Other category accounted for 11.10 per cent of the share.

3 INTELLIGENT CAMPUS MANAGEMENT PLATFORM ARCHITECTURE BASED ON GENERATIVE ARTIFICIAL INTELLIGENCE TECHNOLOGY

GAI technology has emerged as a promising tool for enhancing the efficiency and effectiveness of various applications, including campus management platforms. One potential application of generative AI in campus management platforms is the automated generation of personalized schedules for students based on their academic preferences and course requirements. By leveraging the power of generative AI, institutions can create intelligent systems that can automate various tasks, improve decision-making processes, and enhance overall user experience.

3.1 Generative Artificial Intelligence Algorithms

One of the key components of a generative AI-based architecture for an intelligent campus management platform is the use of machine learning algorithms to analyze large amounts of data and generate insights that can inform decision-making processes. These algorithms can be trained on historical data to identify patterns, trends, and anomalies, which can then be used to optimize resource allocation, improve student services, and enhance operational efficiency.Another important aspect of a generative AI-based architecture for a campus management platform is the integration of natural language processing (NLP) technology. NLP allows the system to understand and process human language, enabling users to interact with the platform in a more natural and intuitive way. This can improve communication between students, faculty, and administrators, and streamline various administrative processes.Furthermore, the use of generative AI technology can enable the development of personalized learning experiences for students. By analyzing individual learning styles, preferences, and performance data, the system can recommend tailored educational resources, courses, and activities that can help students achieve their academic goals more effectively.Overall, a generative AI-based architecture for an intelligent campus management platform has the potential to revolutionize the way educational institutions operate and deliver services. The current mainstream generative AI algorithms are shown in Table 2.

Table 2 Mainstream GAI algorithms

Algorithm	Time	Meaning	Main Features
VAEs[28]	2013	VAEs are generative algorithms based on probabilistic generative models that map the input data to a Gaussian-distributed latent space and then generate new data by sampling from the latent space.	**Interpretability:** VAE is able to explain the probability distribution of the generated data, which helps to understand the intrinsic structure of the data. **Flexibility:** VAE can be applied to a wide range of data types such as images, audio, text, etc. **Efficient:** The training process of VAE is relatively efficient and can generate a large amount of data quickly.
GANs[29]	2014	GANs consist of a generator network, which is responsible for generating fake data samples, and a discriminator network, which is responsible for distinguishing real data from fake data. By means of adversarial training, the generators are continuously improved to deceive the discriminators, and the discriminators are continuously improved to better distinguish the real from the fake.	**Autonomy:** GAN does not need to set the distribution of generated data artificially, but automatically finds a better generation strategy through adversarial learning. **Diversity:** the data generated by GAN has rich diversity and can generate various types of data. **High fidelity:** the data generated by GAN has high fidelity and is close to the real data.
RNNs[30] LSTM[31]	1996 1997	RNNs are a class of classical generative models capable of processing sequential data, such as text or time-series data. Through continuous iteration, RNNs are able to excel in generating text, music, etc. LSTMs are a variant of RNNs specifically designed to solve the long-term dependency problem.	**Memory function:** RNNs have a memory function that enables them to take contextual information into account when processing sequential data. **Long-term dependencies:** LSTMs control the flow of information by introducing gating mechanisms (forgetting gates, input gates and output gates) to learn long-term dependencies more effectively. **Widely used:** RNNs and LSTMs are widely used in the field of NLP for tasks such as language modelling, machine translation, sentiment analysis, and also for the prediction of time-series data, such as stock price prediction and weather prediction.
Transformer[32]	2017	Transformer is a model based on a self-attentive mechanism, which, unlike traditional models based on a recurrent structure, can process input sequences in parallel, thus offering advantages in training and inference speed.	**Parallel Processing:** Transformer is able to process input sequences in parallel to improve computational efficiency. **Self-attention mechanism:** The dependencies between sequence data are modelled through the self-attention mechanism to achieve more efficient computation. **Widely used:** Transformer has achieved great success in the field of NLP, especially in tasks such as machine translation, text classification, and named entity recognition.

By harnessing the power of AI technology, institutions can create more efficient, responsive, and student-centric environments that foster innovation, collaboration, and continuous improvement. Moreover, the integration of generative AI algorithms in educational settings can lead to the creation of adaptive learning environments that cater to the diverse needs and abilities of students, ultimately enhancing the overall educational experience. Consequently, the implementation of generative AI algorithms in educational settings has the capacity to enhance student engagement, improve learning outcomes, and optimize the educational experience for all stakeholders involved in the academic process.The current mainstream generative multimodal large models are shown in Table 3.

Table 3 Mainstream GAI multimodal large models

Model	Time	Meaning	Main Features
GPT-Series[33]	2021	The GPT family of models, developed by OpenAI, is a pre-trained language model based on the Transformer structure. By pre-training on massive text data, GPT is able to understand and generate natural language text with strong context-awareness. It includes GPT-1, GPT-2, GPT-3 and the subsequent GPT-4.	The GPT family of models is widely used in many fields such as natural language processing, question and answer systems, text generation, etc., and is capable of generating high-quality textual content such as articles, poems, dialogues, and so on.
DALL-E[34]	2021	DALL-E is another generative big model developed by OpenAI, focusing on the field of image generation. It is capable of generating image artefacts corresponding to a short textual description entered by the user.	The images generated by DALL-E are of high quality and creativity, capable of capturing key information in text descriptions and transforming them into vivid image content.DALL-E has a wide range of applications in art creation, design, advertising and other fields, and provides creators with a brand new source of inspiration and creative tools.
Stable Diffusion[35]	2022	Stable Diffusion is another popular image generation model, similar to DALL-E, but it uses a different technical route and training strategy.	The images generated by Stable Diffusion are also of high quality and versatility to meet the needs of different users. Stable Diffusion has a wide range of potential applications in the fields of image creation, virtual reality, augmented reality, etc., providing strong support for the development of related fields.
Imagen[36]	2023	Imagen is an image generation model developed by Google, similar to DALL-E and Stable Diffusion, but with its own unique features and advantages.	Imagen generates images that excel in detail and fidelity, and is capable of producing high-quality, high-resolution image artwork.Imagen has a wide range of applications in a variety of fields, such as advertising, design, entertainment, etc., and provides an efficient and convenient image generation solution for related industries.
Sora[37]	2024	The Sora model is a state-of-the-art text-to-video generation model developed by OpenAI, based on the diffusion transformer architecture, a deep learning model that gradually transforms random noise into meaningful image or video content.	The Sora model is capable of generating videos up to one minute long that are not only of high visual quality, but also highly consistent with the user's text prompts. Combining a diffusion model and a converter architecture, video training is achieved in three steps: video compression network, temporal patch extraction and video generation.

The above are the current mainstream generative macromodels, which have achieved remarkable results in their respective fields and driven the continuous development of generative AI technology. With the continuous progress and innovation of technology, more generative big models with excellent performance and wide application will emerge in the future.GAI algorithms then analyze this data to identify patterns and correlations that may not be immediately apparent. Consequently, administrators can utilize these insights to make strategic decisions that enhance operational efficiency while simultaneously fostering a more engaging learning environment. Moreover, the adaptability of generative AI allows for continuous improvement in campus management systems. As new data is integrated into the platform over time, AI models can evolve to reflect changing circumstances or emerging trends. This dynamic capability ensures that educational institutions remain agile in their responses to challenges such as fluctuating enrollment numbers or shifting pedagogical approaches. Ultimately, the application of generative artificial intelligence technology in campus management not only streamlines administrative functions but also contributes significantly to the overarching goal of creating a responsive and intelligent educational ecosystem.

3.2 Intelligent Campus Management Platform

In recent years, there has been a growing interest in the development and implementation of intelligent campus management platforms in educational institutions. These platforms leverage advanced technologies such as artificial intelligence, machine learning, and data analytics to streamline various campus operations and enhance the overall student experience.One of the key benefits of an intelligent campus management platform is its ability to automate routine administrative tasks, such as class scheduling, resource allocation, and student enrollment. By reducing the time and effort required to perform these tasks manually, these platforms enable administrative staff to focus on more strategic initiatives that can improve the overall efficiency and effectiveness of the institution.Furthermore, intelligent campus management platforms can also provide valuable insights into student behavior and performance through the analysis of data collected from various sources, such as attendance records, academic performance, and extracurricular activities. By leveraging this data, institutions can identify at-risk students, personalize learning experiences, and improve student outcomes.Another advantage of intelligent campus management platforms is their ability to enhance communication and collaboration among students, faculty, and staff. These platforms often include features such as online forums, messaging systems, and collaborative tools that facilitate seamless communication and information sharing, leading to a more connected and engaged campus community. The smart campus architecture based on generative AI technology is shown in Figure 3.
The Smart Campus architecture based on Generative Artificial Intelligence (Gen AI) technology is a highly integrated and intelligent educational environment that aims to improve the efficiency and quality of all aspects of teaching, management, services and safety and security through AI technology. A smart campus architecture typically consists of four main layers: the perception layer, the network layer, the platform layer, and the application layer, which collaborate with each other to support the operation of the smart campus.

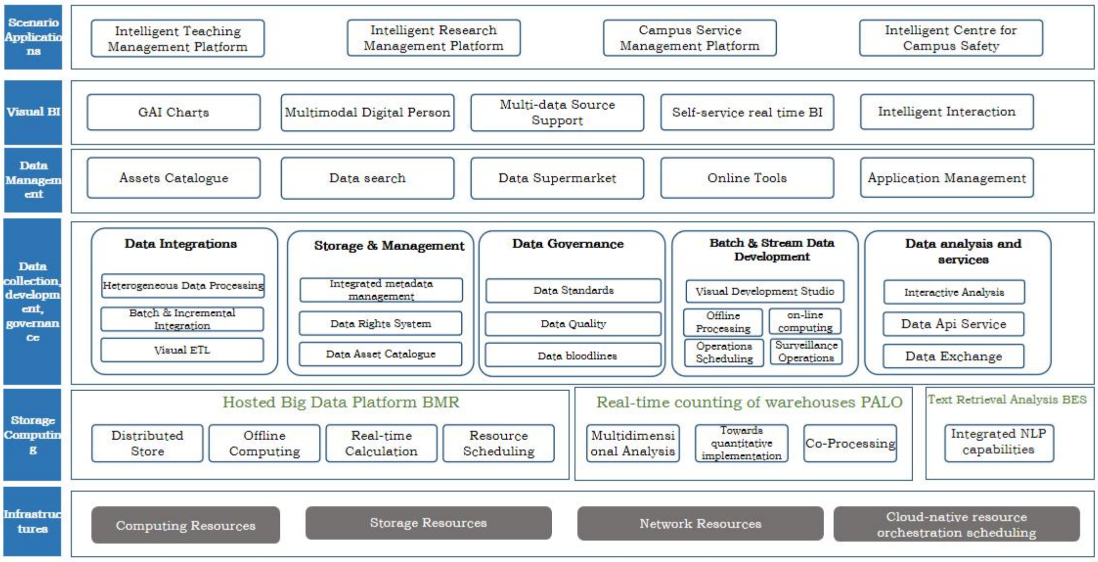

Figure 3 Intelligent campus management platform architecture based on generative artificial intelligence technology

Sensing Layer. Collect information on physical, chemical or biological quantities in the campus, such as students' attendance, equipment status, environmental parameters, etc. through various types of sensors, RFID, GPS, cameras and other devices.
Network Layer. Build a high-speed and stable campus network to realise real-time transmission and sharing of information, including wired network, wireless network, mobile Internet and other forms of network.
Platform layer. including infrastructure platform and support service platform. The infrastructure platform is responsible for computing, storage and backup services; the support service platform provides data processing, middleware services and database services to achieve centralised, scale management and dynamic flow of resources.
Application Layer. Provides all kinds of intelligent services for campus users, including teaching management, student services, security management, energy management and other aspects.
Overall, the implementation of an intelligent campus management platform can significantly improve the efficiency, effectiveness, and overall experience of students, faculty, and staff in educational institutions. As technology continues to advance, it is likely that these platforms will play an increasingly important role in shaping the future of higher education. Furthermore, the integration of artificial intelligence and machine learning algorithms within these platforms allows for predictive analytics and data-driven decision-making, enabling institutions to proactively address issues and provide targeted support to individuals based on their unique needs and behaviors. Moreover, the utilization of data analytics and artificial intelligence within intelligent campus management platforms can also lead to personalized learning experiences and tailored interventions for students, thereby enhancing student success and retention rates in educational institutions.

4 KEY TECHNOLOGIES AND APPLICATIONS OF GAI-BASED SMART CAMPUS

Smart campus construction based on GAI technology is an important trend in the current education field. Generative AI technology, with its powerful data generation, analysis and processing capabilities, provides strong technical support and innovative power for the construction of smart campuses.

Personalized teaching. By analysing students' learning behaviours and outcomes, Gen AI technology is used to generate personalised learning paths and resources to improve teaching effectiveness and learning efficiency. For example, AI can assist teachers in designing questions to stimulate students' critical and creative thinking; in essay correction, AI can provide evaluation and revision suggestions to help teachers conduct diversified evaluations.

Intelligent management. In campus management, Gen AI can assist in data analysis, decision support, resource scheduling and other tasks. For example, when selecting school managers, AI can comprehensively analyse the data and situation of the candidates and provide decision-making support for the managers; in safety management, AI can monitor the campus safety situation in real time, predict potential risks and intervene in advance.

Resource optimization. through Gen AI technology, smart campuses can achieve optimal allocation and sharing of educational resources. For example, AI can analyse students‘ learning needs and ability levels, and extract personalized learning content from the resource library that meets students' characteristics; at the same time, AI can also promote cooperation and communication with external resources to achieve the sharing and optimal allocation of educational resources.

Intelligent services. In the smart campus, Gen AI technology can also be applied to various intelligent service scenarios. For example, the smart library system can use AI technology to realize automatic classification, retrieval and recommendation of books; and the smart one-card system can realize the seamless connection and unified management of all kinds of consumption and services on campus.

The construction of smart campuses based on generative AI technology is an important change in the field of education. Through the application of personalized teaching, intelligent management, intelligent assessment and feedback, and intelligent service and protection, smart campuses will provide students and teachers with a better, more efficient and convenient educational environment and service experience. However, in the process of promoting the construction of smart campuses, it is also necessary to pay attention to issues such as technological challenges, funding and resource challenges as well as teacher qualification and training challenges, and take corresponding measures to solve them.

5 SUMMARY

With the continuous development and maturity of generative AI technology, the construction of smart campuses will focus more on personification, intelligence and openness. In the future, the smart campus will pay more attention to the personalized development of students, and provide more accurate learning paths and resources for each student through AI technology; at the same time, the smart campus will also strengthen cooperation and communication with external resources to achieve the sharing and optimal allocation of educational resources; in addition, with the continuous progress of technology and the continuous expansion of application scenarios, the smart campus will provide students and teachers with a more convenient, efficient, intelligent learning and management experience. In short, the smart campus architecture based on generative AI technology is a highly integrated and intelligent educational environment, which will provide teachers and students with more quality educational resources and service experiences, and promote the sustainable development and progress of education.In this paper, the development of generative AI technology is sorted out, while relevant algorithms and models are summarized in detail, a smart campus management architecture based on generative AI technology is proposed, and its application scenarios are preliminarily planned. The method proposed in this paper will effectively improve the current intelligent level of smart campus management, which has high practical significance and theoretical value.

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COMPETING INTERESTS

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