

# SaaS Multi-Model Integration: A Comprehensive Student Companion

Anuj K. Chobe<sup>1\*</sup>, Prajwal Matsagar<sup>2</sup>, Vaishnavi Chaughule<sup>2</sup>, Roshan Ostwal<sup>3</sup>, Ranjana Dahake<sup>4</sup>

## Abstract

The “SaaS Multi-Model Integration” paper addresses the challenges faced by students in accessing timely, personalized, and cost-effective academic assistance. Individual large language model chatbots excel in specific areas – academic reasoning, mathematical problem-solving, or general queries – but their fragmented nature forces students to subscribe to multiple services, leading to wasted time, money, and effort, particularly during urgent academic needs. This paper consolidates the strengths of widely used large language models into a single subscription service. Students can create one account, pay one fee, and access a suite of artificial intelligence tools for text generation, image creation, video and audio support, and more, eliminating the need for multiple platforms or subscriptions. Additionally, the “DocuTutor” feature offers personalized document tutoring, providing tailored explanations for dense academic texts or complex research papers. Unlike generic search engines, it breaks down intricate concepts and delivers context-specific guidance, empowering students and educators with clear, effective communication of complex material. This paper presents a groundbreaking platform that streamlines access to cutting-edge artificial intelligence technologies and revolutionizes the educational experience through innovative, user-focused features.

**Keywords:** Artificial intelligence, SaaS, subscription model, LLMs, AI modeless

## INTRODUCTION

The “SaaS Multi-Model Integration” paper is designed to address the multifaceted challenges faced by students in seeking timely, personalized, and cost-effective academic assistance. As a student companion, this platform leverages state-of-the-art large language models (LLMs) to provide an all-encompassing solution. While individual LLM chatbots have made strides in offering support, they

each excel in different areas, some in academic reasoning, others in mathematical or general problem-solving. This fragmented experience forces students to subscribe to multiple services, leading to wasted time, money, and effort, especially when urgent help is needed for projects, assignments, or learning purposes [1].

Our paper consolidates the strengths of widely used LLM models into a single, seamless subscription service. Students create one account, pay one subscription fee, and gain access to a suite of artificial intelligence (AI) tools that cover text generation, image creation, video and audio support, and more, eliminating the need for multiple platforms or subscriptions [2].

Additionally, we introduce the “DocuTutor” feature. This personalized document tutor goes

### \*Author for Correspondence

Anuj K. Chobe  
E-mail: anujchobe007@gmail.com

<sup>1</sup>Faculty, Department of Computer Engineering, MET Institute of Engineering, Adgaon, Nashik, Maharashtra, India

<sup>2</sup>Student, Department of Computer Engineering, MET Institute of Engineering, Adgaon, Nashik, Maharashtra, India

<sup>3</sup>Technical Director, Department of Computer Engineering, MET Institute of Engineering, Adgaon, Nashik, Maharashtra, India

<sup>4</sup>Assistant Professor, Department of Computer Engineering, MET Institute of Engineering, Adgaon, Nashik, Maharashtra, India

Received Date: May 12, 2025

Accepted Date: September 11, 2025

Published Date: November 20, 2025

**Citation:** Anuj K. Chobe, Prajwal Matsagar, Vaishnavi Chaughule, Roshan Ostwal, Ranjana Dahake. SaaS Multi-Model Integration: A Comprehensive Student Companion. International Journal of Software Computing and Testing. 2025; 11(2): 10–17p.

---

beyond the generic, often superficial responses offered by standard search engines. Whether it is breaking down complex concepts from textbooks or translating the dense academic language of a research paper into something understandable for a younger audience, “DocuTutor” analyzes specific context within the document. This feature empowers both students and educators alike by providing explanations tailored to the document at hand, ensuring that the complexities of the material are communicated effectively and accurately.

The “SaaS Multi-Model Integration” platform is a breakthrough in educational support, streamlining access to cutting-edge AI technologies and enhancing the learning experience through innovative, user-centered features.

## LITERATURE REVIEW

The *SaaS Multi-Model Integration Platform* addresses significant gaps in existing AI-driven educational tools by unifying multiple LLMs and providing innovative features like real-time model selection and contextual document assistance. This survey examines prior work in AI chatbots, document interaction tools, and multi-model integration to highlight unresolved challenges and the unique contributions of this paper.

### Related Work

#### *AI Chatbots*

AI chatbots, like OpenAI’s ChatGPT [3], Google Bard [4], and Anthropic Claude [5], have demonstrated substantial progress in areas such as academic reasoning, creative writing, and coding assistance. Despite their individual strengths, these tools remain siloed, forcing users to manage separate accounts and subscriptions for each service. This fragmented approach burdens users with high costs and administrative inefficiencies [6].

Moreover, task specialization in these chatbots limits their versatility. For example, while GPT-based models excel in text generation [3], others, like DeepMind’s AlphaCode, are better suited for specific problem-solving tasks in programming [7]. However, none of these systems offer dynamic task-specific integration to adapt to user needs in real time [8].

#### *Document Interaction*

Traditional tools for document interaction, such as Adobe Acrobat Reader and Foxit PDF Editor [9–10], focus on static functionalities like annotations, text search, and keyword highlighting. While these features are helpful for basic editing, they fail to provide deeper contextual understanding or advanced summarization capabilities for dense academic material.

Efforts to integrate AI-driven summarization tools have yielded some progress. Tools, like Scholarcy [11] and ExplainPaper [12], attempt to simplify academic content, but they often rely on pre-trained models with limited scope and lack real-time customization based on user queries. Such limitations hinder their effectiveness in breaking down complex research papers or textbooks [13].

#### *Multi-Model Integration*

Existing multi-model platforms, such as Hugging Face Hub [14], allow users to experiment with a variety of AI models. However, these platforms typically serve as repositories rather than fully integrated systems. Users are required to manually select and manage models, which is impractical for real-time use cases [15].

Furthermore, while multi-modal systems, like OpenAI’s DALL·E for image generation [16] and Whisper for audio processing [17], offer advanced functionality, they do not integrate seamlessly into a unified platform for diverse user needs. The lack of automated model selection based on live benchmarks or query-specific requirements remains a major gap [18].

### **Previously Non-Existent Solutions**

This paper introduces several groundbreaking solutions that address the limitations of existing tools.

#### ***Unified Access and Cost Savings***

Existing systems often require separate accounts and subscriptions for accessing specialized AI tools [3–5]. This paper’s proposed platform consolidates all major LLMs under a single subscription, significantly reducing user costs and administrative effort. By centralizing access, the platform provides a streamlined and cost-effective solution [19].

#### ***Dynamic AI Model Selection***

Unlike current systems, which rely on fixed or user-selected models, this platform employs real-time benchmarking and query analysis to dynamically choose the best-performing LLM for each task [8, 18]. This ensures optimal performance by leveraging each model’s strengths, addressing the inefficiencies of static selection approaches observed in platforms like Hugging Face Hub [14].

#### ***Docu Tutor Feature***

Existing document tools, such as Scholarcy and ExplainPaper, lack the ability to provide contextual, personalized tutoring [11–12]. The “DocuTutor” feature fills this gap by offering tailored explanations, summarizations, and contextual breakdowns of academic documents, empowering users with actionable insights [13, 19]. This functionality is particularly valuable for students and educators dealing with complex academic materials.

### **PROPOSED APPROACH**

This system consists of multiple layers and modules, making it a whole platform. A detailed description can be seen below.

#### **Platform Integration**

The SaaS platform will be developed using the MERN stack, providing a robust backend and scalable infrastructure. By incorporating Next.js, the platform will offer seamless frontend performance, ensuring an intuitive and responsive user interface. All AI functionalities – text generation, image creation, code generation, video production, and audio processing – will be integrated into one platform using APIs, eliminating the need for multiple subscriptions.

#### **DocuTutor Feature**

The DocuTutor module will analyze academic documents and provide personalized explanations. It leverages natural language processing (NLP) to extract key concepts from textbooks, research papers, or any academic material. The AI will use contextual understanding and summarization techniques to break down complex information into simpler terms tailored to the user’s level of understanding (Figures 1 and 2).

#### **AI Model Selection**

Multiple AI models, such as GPT for text generation, CLIP for image understanding, and specific ML models for video and audio processing, will be integrated using APIs. Each model will be carefully chosen based on its strengths, ensuring the platform offers best-in-class services for each functionality.

#### **Real-time Document Processing (DocuTutor)**

The DocuTutor feature will provide real-time, document-specific tutoring. It will analyze uploaded documents, extract relevant academic concepts, and deliver personalized explanations. The AI will not only summarize content but also clarify complex sections, making it easier for students to understand dense material quickly.

#### **Scalability and Performance Optimization**

The platform will be designed to scale effortlessly as user demand grows. Load balancing and efficient API integration will ensure that the system remains responsive, even as it handles large amounts of data from multiple AI services.

---

### User Notifications and Interface

Once the document is analyzed, users will receive notifications with personalized suggestions and educational material based on their input. The user-friendly interface will allow for seamless switching between different AI functionalities, making it easy to access any service with minimal effort.

### Subscription Management

Stripe will handle subscription billing, allowing users to pay a single fee for access to all services. Clerk will be used to secure user authentication, ensuring privacy and data security while managing user accounts efficiently.

The work aims for the achievement of the following objectives.

- *Unified AI Platform*: Develop a comprehensive SaaS platform that integrates various AI services, including conversational AI, code generation, image creation, video production, and audio generation, all accessible under a single subscription.
- *DocuTutor Feature*: Implement the “DocuTutor” feature to provide personalized document analysis and assistance, allowing users to break down complex concepts and receive tailored explanations based on specific documents.
- *User-Friendly Interface*: Create an intuitive and seamless user interface that enables easy navigation between different AI tools, ensuring a smooth experience for users of all technical backgrounds.
- *Real-Time Assistance*: Enable real-time assistance for users, providing instant responses and support for queries related to their documents and other AI functionalities.
- *Cost-Effectiveness*: Offer a cost-effective solution by combining multiple AI services into one platform, allowing users to save money compared to subscribing to individual services.
- *Continuous Improvement*: Establish a feedback loop for continuous improvement, incorporating user suggestions and the latest advancements in AI technology to enhance the platform’s features and capabilities.

## ARCHITECTURE DETAILS

This work is designed in a way that integrates all operations seamlessly for efficient functioning. The architecture of the same is given below.

When users visit the platform, they start by signing in or out. Existing users with active subscriptions gain direct access to various AI services. If their subscription is deactivated, they are directed to the payment page for renewal. New users are offered a free trial to explore different AI services, including text, code, docututor, video, image, and audio generation. This architecture ensures a smooth and intuitive user experience by guiding them through the process seamlessly (Figure 1).

When users visit the platform, they can either enter a query or upload a PDF. For queries, the system processes the input and displays the result. For PDFs, the document is broken into chunks, embedded, stored in a vector database, and processed for output. This setup ensures users get accurate and relevant responses, whether they are asking questions or uploading documents (Figure 2).

### Model Integration

The project utilizes various third-party AI APIs for functionalities like text generation, image creation, and more.

Each service (e.g., OpenAI’s GPT for text, CLIP for images) is accessed via RESTful APIs, allowing seamless interaction between the user interface and the backend models.

This modular approach simplifies the addition of new AI services in the future without significant architectural changes.

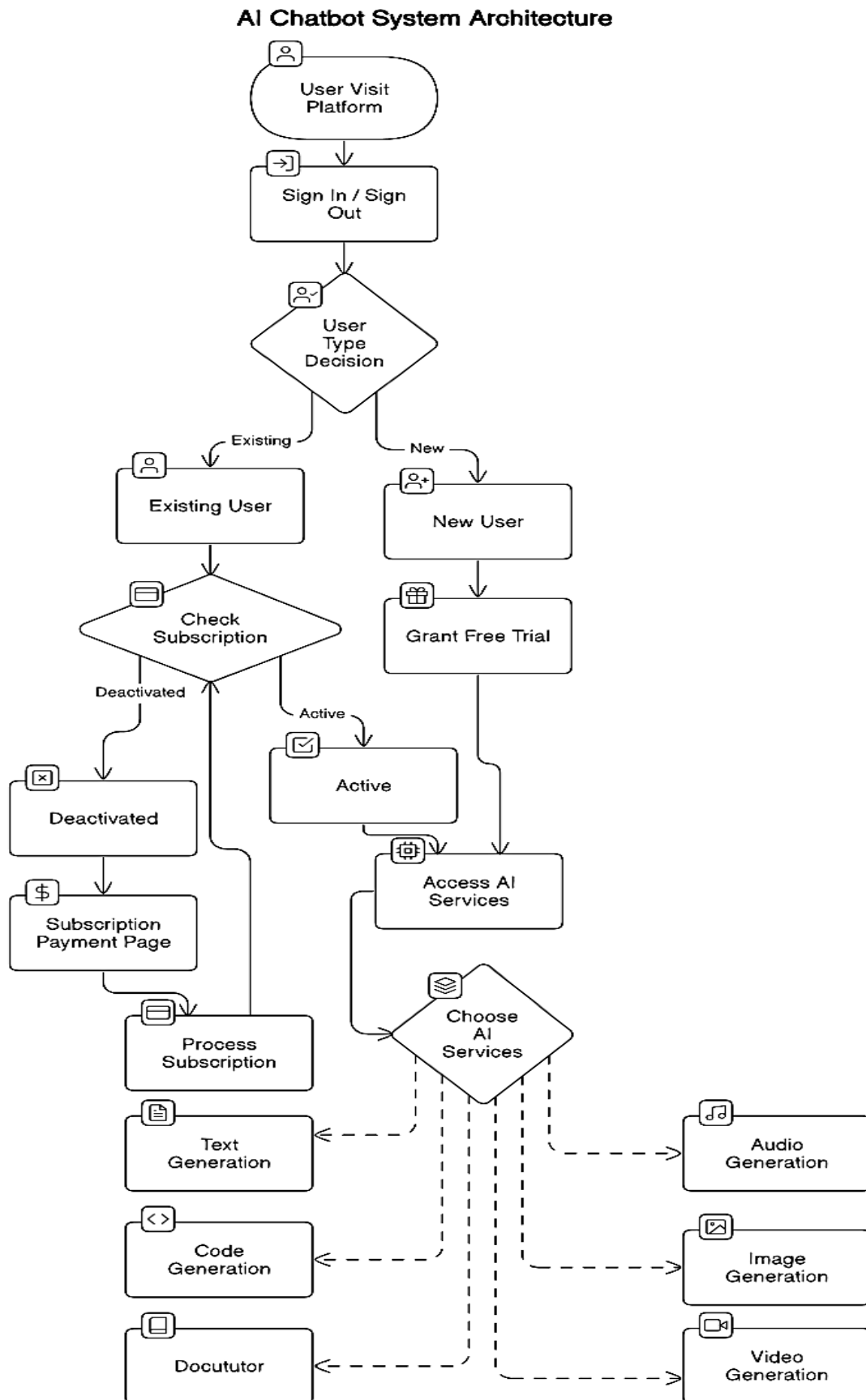
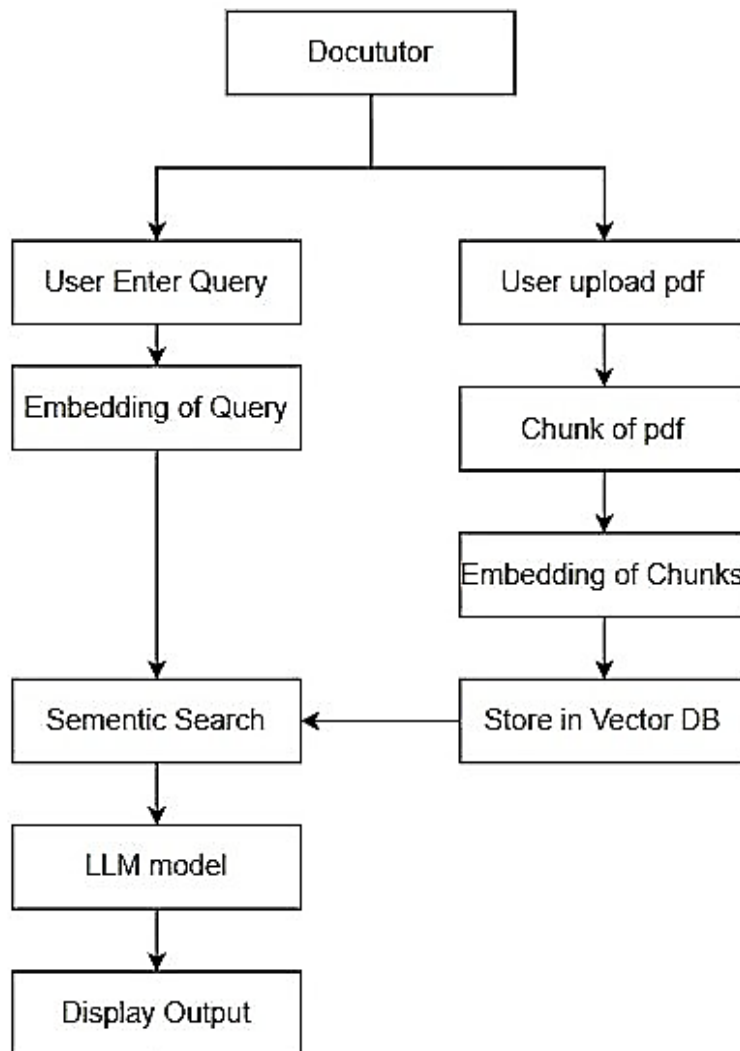


Figure 1. Flow of the system.



**Figure 2.** Flow of Docututor module.

### Natural Language Processing (NLP)

The DocuTutor feature employs advanced NLP techniques to analyze academic documents.

NLP algorithms will be used to extract key concepts, summarize complex sections, and provide tailored explanations.

Techniques, such as named entity recognition and semantic analysis, enable the system to understand context and deliver meaningful insights that cater to the user's specific needs.

### User Authentication and Subscription Management

User management is facilitated through Clerk, ensuring secure authentication while allowing users to create accounts and manage subscriptions effortlessly.

By integrating Stripe for payment processing, the platform supports a subscription-based model, enabling users to access multiple AI services under a single subscription, enhancing convenience and cost-effectiveness.

### Scalability and Performance Optimization

The architecture is designed for scalability, utilizing cloud services to handle varying user loads effectively.

Load balancing and microservices architecture ensure that as user demand increases, the platform can adapt without sacrificing performance.

Continuous monitoring and optimization techniques will be implemented to enhance responsiveness and reliability, providing seamless user experience.

## RESULT AND DISCUSSION

SaaS Multi-Model Integration Platform addresses critical gaps in the fragmented AI service landscape. By unifying AI functionalities and introducing dynamic model selection, the platform achieves efficiency and performance optimization. Real-time benchmarking and contextual analysis enable resource-efficient operations while maintaining high-quality outputs.

A key strength is the DocuTutor feature, which elevates the platform to an educational companion rather than just a general-purpose AI tool. Its ability to process documents in real-time and provide personalized, context-aware responses positions it as a game-changer for personalized learning. This fosters comprehension, simplifies complex academic materials, and empowers users with actionable insights.

The platform also democratizes access to advanced AI tools, catering to students and educators from diverse backgrounds. Its scalable design ensures reliability and efficiency even during peak usage. Future enhancements, such as multilingual support, offline capabilities, and AI model customization, could further broaden its applicability.

However, there are challenges to address. Data privacy and security must be prioritized through encryption and regulatory compliance. Service reliability risks like downtime, call for robust infrastructure, and redundancy planning. Dependence on third-party APIs introduces cost variability, highlighting the need for sustainable partnerships or alternatives.

By overcoming these risks and leveraging its unique features, the platform has the potential to transform AI-assisted education, making it more accessible, efficient, and impactful across various domains.

## CONCLUSIONS

The platform will effectively address the challenges posed by fragmented AI services by unifying multiple AI functionalities within a single, cohesive interface. It will provide users with capabilities, such as text generation, code generation, image creation, video production, and audio support, all accessible under a single subscription model. This unified approach will reduce costs, streamline access, and enhance workflow efficiency.

The platform's integration of features, like DocuTutor, will further elevate its value, delivering personalized assistance with document analysis and offering user-specific contextual insights. This will make it especially impactful for students, educators, content creators, and developers, helping them achieve greater productivity and deeper understanding.

By consolidating these advanced tools, the platform will pave the way for more accessible and efficient AI-driven workflows, fostering innovation and transforming how users interact with AI technology in diverse fields.

## Future Scope

Imagine a future where we can mold AI to our exact needs, like having our own personal tailor crafting solutions, that fit us perfectly. Picture an AI that is tuned not just to a broad market but to our very niche, industry-specific demands. It is a custom-made intelligence, an extension of your unique vision.

Now, think about a platform that is not confined to just one form. It seamlessly flows from web apps to mobile devices and beyond. It is a fluid experience, adaptable and versatile, wherever and whenever we need it. This is flexibility redefined, breaking the barriers of traditional use.

### Acknowledgment

I sincerely thank the authors of the reference papers for their invaluable contributions, which have greatly informed and guided my research. I am also deeply grateful to the principal and staff of MET Institute of Engineering for their support and encouragement throughout. Their assistance has been instrumental in the successful completion of this research.

### REFERENCES

1. Guan X, Zhang LL, Liu Y, Shang N, Sun Y, Zhu Y, et al. rStar-Math: Small LLMs can master math reasoning with self-evolved deep thinking. arXiv preprint arXiv:2501.04519. 2025.
2. Banait SS, Sane SS, Bage D, Ugale AR. Reinforcement mSVM: An efficient clustering and classification approach using reinforcement and supervised techniques. *Int J Intell Syst Appl Eng*. 2022;10(1s):78–89.
3. Gabriela TR, Axinte SD. ChatGPT–information security overview. In: *Proc Int Conf Cybersecurity Cybercrime*. 2023;10:81–5.
4. Ahmed I, Kajol M, Hasan U, Datta PP, Roy A, Reza MR. ChatGPT versus Bard: A comparative study. *Eng Rep*. 2024;6(11):e12890.
5. Amelia C, Failasuf'Alim IN. Analysis of Claude AI as a writing assistant for English education students at Tanjungpura University. *J Engl Foreign Lang Educ*. 2024;5(1):74–85.
6. Minaee S, Mikolov T, Nikzad N, Chenaghlu M, Socher R, Amatriain X, et al. Large language models: A survey. arXiv preprint arXiv:2402.06196. 2024.
7. Lertbanjongngam S, Chinthanet B, Ishio T, Kula RG, Leelaprute P, Manaskasemsak B, et al. An empirical evaluation of competitive programming AI: A case study of AlphaCode. In: *2022 IEEE 16th Int Workshop Softw Clones (IWSC)*. IEEE; 2022 Oct 2. p. 10–5.
8. Brühl V. Generative artificial intelligence–foundations, use cases and economic potential. *Intereconomics*. 2024;59(1):5–9.
9. Lott C. Adobe Acrobat: A very useful toolkit for people who use screen magnification. In: *Braille Forum*. American Council of the Blind. 2000;38(9):25–6.
10. Bansal B, Patel R, Das ML. CheckPDF: Check what is inside before signing a PDF document. In: *Proc Int Conf Signal, Networks, Comput Syst (ICSNCS)*. India: Springer; 2016. p. 75–85.
11. Day MY, Chen CY. Artificial intelligence for automatic text summarization. In: *2018 IEEE Int Conf Inf Reuse Integr (IRI)*. IEEE; 2018. p. 478–84.
12. Al-Thanyyan SS, Azmi AM. Automated text simplification: A survey. *ACM Comput Surv*. 2021;54(2):1–36.
13. Xerri D. AI in education: Challenges and opportunities. *Symposia Melitensia*. 2025;20:33–7.
14. Ait A, Izquierdo JL, Cabot J. Hfcommunity: A tool to analyze the Hugging Face hub community. In: *2023 IEEE Int Conf Softw Anal Evol Reeng (SANER)*. IEEE; 2023. p. 728–32.
15. Tsai WT, Huang Y, Bai X, Gao J. Scalable architectures for SaaS. In: *2012 IEEE 15th Int Symp Obj/Comp/Service-Oriented Real-Time Distrib Comput Workshops*. IEEE; 2012. p. 112–7.
16. Reddy MD, Basha MS, Hari MM, Penchalaiah MN. DALL-E: Creating images from text. *UGC Care Group I J*. 2021;8(14):71–5.
17. McGuire M, Larson-Hall J. Assessing Whisper automatic speech recognition and WER scoring for elicited imitation: Steps toward automation. *Res Methods Appl Linguist*. 2025;4(1):100197.
18. Mangan NM, Kutz JN, Brunton SL, Proctor JL. Model selection for dynamical systems via sparse regression and information criteria. *Proc R Soc A Math Phys Eng Sci*. 2017;473(2204):20170009.
19. Akinola P. Leveraging cost-effective AI and smart technologies for rapid infrastructural development in USA. *Afr J Adv Sci Technol Res*. 2024;15(1):59–71.