Different Levels of Access to Artificial Intelligence (AI) – A Deep Dive into OpenAI and Deepseek

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Abstract. The rapid development of artificial intelligence (AI) technologies is transforming all spheres of life - from education and healthcare to industry and public administration. AI systems, in particular generative models (such as GPT, Deepseek, Claude, Gemini), are increasingly being used not only by researchers and large companies, but also by the general public. However, there is a significant difference in the level of access to these technologies: from open source models to closed solutions with limited functionality, which creates digital inequality and limits the innovation potential of certain communities. Against this background, it is of particular interest to compare the OpenAI platforms and Deepseek as an example of an open, research-oriented initiative. Studying their functional, ethical, and accessibility differences allows us to better understand the architecture of the modern artificial intelligence landscape. The study used a comparative and systematic analysis of two platforms: OpenAI, as an example of a commercial but widely available AI system with a high level of integration into mass-market products (ChatGPT, Copilot, API); Deepseek, as a representative of an open research initiative focused on shared knowledge and transparency (Deepseek-Coder, Deepseek-VL), which allows downloading models, playing them locally, and adapting them to one's own needs. AI platform access criteria were developed and the features of each criterion were described: Architectural features of models (e.g., Transformers, multimodality); License terms (open-source vs. closed-access); Accessibility for educational and research purposes; Level of documentation, support, community activity; Ethical aspects (transparency of algorithms, data protection, control over use).

Keywords: Access Levels, Artificial Intelligence, Open Models, Systems Analysis.

1 Problem statement

Comparative and systemic analysis of two platforms: OpenAI, as an example of a commercial but widely available AI system with a high level of integration into mass-market products (ChatGPT, Copilot, API); Deepseek, as a representative of an open research initiative focused on shared knowledge and transparency (Deepseek-Coder, Deepseek-VL) consisted in describing AI models and the characteristics of each of them.

ChatGPT is a modern artificial intelligence system developed by OpenAI, which uses powerful language models of the GPT (Generative Pre-trained Transformer) series to conduct a natural, logical and meaningful conversation with users. Purpose of the system: Conducting a dialogue with the user in the form of a text chat; Providing answers to questions, explanations and advice; Generating texts of various types (essays, letters, codes, descriptions, etc.); Supporting the user in learning, work, programming and creative tasks.

The system consists of the following main elements: GPT-4 language model (or newer versions) — the main intelligent mechanism that processes text queries; User interface — a web application or mobile application for entering queries and viewing responses; Server part — processes queries, manages sessions, controls access to the model, and ensures security; Training base — the model was previously trained on a large corpus of texts from the Internet (until a certain date).

Working principle - The user enters a query, the query is sent to the OpenAI server, the model processes the text, taking into account the context of the conversation, A response is generated based on knowledge and language structure, the response is returned to the user. Features - Responses in different styles (formal, colloquial, technical); Support for many languages, including Ukrainian; Code generation and analysis (support for C#, Python, Java, etc.); Explanation of complex concepts in an accessible language; Imitation of dialogues, writing stories, creating presentations, etc.

Limitations - the model does not have access to the real Internet (unless the appropriate module is enabled); Information may be outdated (model training is completed by a certain date); Possible errors or fictional facts (the phenomenon of "hallucinations"). Areas of application: Education (preparation for exams, explanation of topics); Business (creation of texts, analysis of documents); Programming (writing, explaining and testing code); Creative industries (writing, design, idea generation).

Deepseek is a cutting-edge artificial intelligence system developed by DeepSeek AI, a company specializing in the creation of large language models (Large Language Models, LLMs) with open source. It is designed for natural language processing, text generation, code writing and performing various intelligent tasks.

Deepseek was created for: Automated text processing and generation; Programming (code generation, explanation and editing); Support for developers, researchers, educators and businesses; Conducting research in the field of open LLM and democratizing access to AI. Deepseek AI's main products: Deepseek LLM (Deepseek-VL, Deepseek-Coder, Deepseek-LLM) - large language models with billions of parameters, similar to GPT, designed for a wide range of tasks; Deepseek-Coder - a specialized model optimized for programmers, with support for many programming languages (C++, Python,

Java, C#, etc.); Deepseek-VL (Vision-Language) - a multimodal model that combines images and text (similar to GPT-4V, Gemini or Claude 3 Opus).

Technical architecture: Architecture: Transformer model, similar to GPT; Training volume: Trained on hundreds of billions of text tokens, including from open source repositories (e.g. GitHub); Number of parameters: Deepseek models can have up to 67 billion parameters; License: Distributed as open-source (for example, the Deepseek-Coder 6.7B model is licensed under the Apache 2.0 license). Working principle: The user enters a query (text or code); The system converts the query into tokens; The model processes the context using a transformer; A response or code fragment is generated; The response is returned as understandable text.

The system features are: High quality code generation (often compared to GPT-4 and Claude 3 in HumanEval tests); Open access to models - they can be downloaded, retrained or integrated into your own systems; Multimodality support (in some versions); Optimization for computational efficiency (works effectively on modern graphics processors). Applications - Automating code writing and testing; Development of chatbots and support systems; Education and research in the field of AI; Creation of open LLMs for commercial or academic use.

Limitations - An open model requires computing resources to work effectively; Possible errors in complex code or queries with insufficient context; Does not have direct access to the Internet (outside of APIs/integrations). A comparison of API platforms is presented in Table 1.

Table 1. Comparison of APIs of ChatGPT and DeepSeek platforms

Criteria	ChatGPT	DeepSeek
Models	GPT-4o mini - GPT-4o - o3-mini (limited in free plan) - o1 pro mode (in Pro plan) - All current OpenAI models	DeepSeek-V3 - DeepSeek-R1 - DeepSeek Coder (specialized for coding) - Open-source models
API functions	- Custom GPTs for specialization without coding - Multimodal capabilities (text, image, video) - Privacy features such as timed chat mode - Supports over 50 languages, limited to almost 100	- Uses the Mixture of Experts (MoE) framework - Web search and DeepThink (R1) switch for understanding - Highly customizable for specific applications - Explicit attention to bias, fairness, and transparency
Pricing	Free tier (limited) - Plus: $20/month (extended limits, Sora, deep research, voice modes, Custom GPTs) - Pro: $200/month (o1 pro mode, unblocking)	Free web access - API cost: $0.14/million input tokens (peak), $0.035/million input tokens (discount) - $2.19/million withdrawal tokens (peak), $0.550/million withdrawal tokens (discount)

2 Analysis of recent research and publications

Analysis of scientific, technical and practical sources shows that artificial intelligence (AI) is today one of the most dynamic and promising areas of information technology. The literature of various directions notes a wide range of applications of AI - from automation of business processes and support for decision-making to the development of educational systems and scientific research.

Thus, in the work [1] Operationalizing responsible AI principles through responsible AI capabilities is considered, which is an important element in the application of AI models. Much attention is now paid to the application of artificial intelligence platforms in higher education institutions, especially in the conditions of distance learning and preparation of project works [2-4]. AI models are now also used in various areas of health care [5-7] for the diagnosis of diseases, deep learning models, analysis of MRI, CT, X-ray images to detect pathologies with an accuracy that rivals that of doctors. Also, research is devoted to personalized treatment using AI, which helps to form individual treatment regimens based on big data about the patient's condition, genomes, and medical history. Researchers describe the use of AI in business for process automation, consumer behavior analysis, marketing strategies, and logistics optimization, in particular, decision support systems help managers predict financial risks, chatbots and virtual assistants reduce customer service costs, sales analytics and demand forecasting [8], and technical and management solutions [9]. If we analyze the use of AI in education in more detail, we can conclude that researchers use artificial assistants to build proprietary testing platforms supplemented with artificial intelligence [10] and develop innovative approaches to mastering new knowledge and skills with the integration of AI [11, 12].

A review of the literature indicates the versatility and rapid development of artificial intelligence technologies. Scientific, analytical, and practical materials create the basis for a deep understanding of both the technical aspects and social challenges that accompany the introduction of AI into modern life.

3 Statement of basic material and the substantiation of the obtained results

The aim of the study is to comprehensively study and comparative analysis of different levels of access to modern artificial intelligence systems using the example of OpenAI and Deepseek, with an emphasis on openness policy, technical capabilities, licensing restrictions, ethical aspects and impact on the scientific community, business and society. The study is aimed at identifying key differences in approaches to the dissemination and use of AI models, assessing the consequences of such policies for innovative development.

The study described the criteria for accessing AI platforms. These include: Access Model (Open (open-source) or closed (pro-proprietary). Determines whether you can modify/deploy yourself); Price/Payment (Free, shareware, subscription (Pro), paid API or fully commercial model); Access Method (Through a web interface, mobile

application, API, or local deployment); Need for an Internet connection (Online or the ability to work offline (locally, without a server)); Required resources for launch (For open-source models, do you need a powerful GPU/server infrastructure); Language support (Does it support a specific language); Ease of integration (Is it easy to integrate into existing systems (via API, SDK, libraries, etc.)); Registration/Authorization (Does an account need to be created, is there anonymous or guest access); Privacy Policy (How is user data stored and processed (important for business)); Possibility of additional training/customization (Can the model be modified for your own data or knowledge added); Response speed (Depends on hosting, model and access method (locally faster, but more difficult)); Access to source code (Important for open-source: can you view, change, compile it yourself).

Analytical research of AI platforms allowed us to draw conclusions regarding the effectiveness of using platforms in professional activities depending on the tasks set. The results of the analysis are presented in Table 2.

Table 2. Usage Analytics: ChatGPT vs Deepseek

Scope of application	ChatGPT	DeepSeek	Analysis
Education and training	Ideal for explaining theory, generating tests, preparing for exams	Limited (depends on additional training), focus on technical topics	ChatGPT has a wider coverage of topics and better adaptation to the non-professional user
Programming	Powerful tool (especially GPT-4), explains, fixes, tests code	Specialized Deepseek-Coder model — generates complex code fragments	Deepseek wins in highly specialized coding tasks, especially in offline scenarios
Business analytics	Creation of reports, SWOT analyses, marketing strategies, financial explanations	Can be used, but needs adaptation	ChatGPT has a more flexible approach to business text tasks
Scientific research	Helps with writing articles, generating hypotheses, explaining scientific terms	Can be used for technical modeling	ChatGPT has better versatility, Deepseek can be retrained for narrow topics
Web development	Generates HTML/CSS/JS well, explains frameworks	High accuracy of front-end and back-end code generation	Both are strong, but Deepseek-Coder is better at structured coding
Creativity (writing, screenwriting)	Generates literary texts, dialogues, poems, advertisements	Does not focus on creative tasks	ChatGPT is the undisputed leader in creative tasks
Local use	Works only through OpenAI servers	Can be deployed locally without internet access	Deepseek is more beneficial for corporate security or offline access

Table 2. Usage Analytics: ChatGPT vs Deepseek (continuation)

Scope of application	ChatGPT	DeepSeek	Analysis
Corporate application	Has paid APIs, but stable and scalable	You can further train according to business needs	Deepseek is suitable for creating internal AI systems, ChatGPT is suitable for rapid implementation
Data analytics	Can describe graphs, tables, statistics	Depends on previous integration	ChatGPT has more ready-made templates and a more flexible query syntax

The analysis results suggest that ChatGPT is better suited for a wide range of users due to its versatility, creativity and convenience; Deepseek is more effective for technical specialists and programmers, especially in conditions of limited Internet access or with the need for additional training.

The development of artificial intelligence (AI) has significantly transformed both academic research and industrial practice. At the heart of this breakthrough are large-scale language models (LLMs), such as GPT, Claude, Gemini, Deepseek and others. While most popular solutions are proprietary and operate in a cloud environment, open AI models such as Deepseek are gaining increasing importance due to their unique advantages in research autonomy, adaptability and local use.

The analysis of different levels of access to AI through a comparison of capabilities and a description of access criteria allowed us to draw the following conclusions and recommendations:

Recommendations for academic institutions and educators. Given the benefits of open AI models, in particular such as Deepseek, a number of practical recommendations are offered for higher education institutions, scientific institutes and teachers: Integrate open AI models into the educational process (use Deepseek or other open-source LLMs to teach the basics of artificial intelligence, machine learning and natural language processing; Create labs on customizing models, building bots or text/code generation systems; encourage students to work with open source to develop skills in analyzing AI architecture).

Recommendations for developers: how to effectively combine open model resources. In the context of developing intelligent systems, open models such as Deepseek provide unique opportunities for building autonomous, flexible and scalable solutions. Combining language models (Deepseek, LLaMA, Mistral) with other open tools (Knowledge bases: Wikipedia dumps, ArXiv, Common Crawl; Search frameworks: Haystack, ElasticSearch; Interfaces: LangChain, Gradio, RAG pipelines.

Recommendations for government and educational bodies to support the use of open AI models. In today's conditions of digital transformation and threats of technological dependence, government and educational structures play a key role in shaping policies to support open artificial intelligence platforms, such as Deepseek, LLaMA, Mistral,

etc. Institutionalize the use of open models in the field of education and science. Develop state programs for the implementation of open-source AI in: general secondary education (in computer science, language lessons); higher education institutions (as part of interdisciplinary courses); scientific institutions (for automation of data processing, language analysis, etc.).

Recommendations for users of open AI models. Open AI models, such as Deepseek, provide users with free access to powerful generation, analysis, and automation tools — without the need to connect to paid or closed cloud platforms. Using open models for learning, research, and self-development: Work with local LLMs for (writing texts, articles, plans, resumes; code generation (Deepseek-Coder, CodeLlama); analyzing large amounts of information — preparing for exams, summarizing notes, summarizing scientific sources).

Recommendations for researchers on working with open AI models. Open AI models open up new horizons for scientific research, providing high flexibility, control and customization. Integrating open models into your own experiments and projects: Using open LLMs as a base for (creating specialized models based on domain data (fine-tuning); developing new methods for analyzing text, code, images and other types of data; experimenting with new architectures and optimizations; Combining the model with other tools for RAG (retrieval-augmented generation) and Knowledge Graph.

In conducting the research and preparing this article, we have laid down the concepts and approaches that have been formed and implemented at V. N. Karazin Kharkiv National University as part of the Erasmus+ project ERASMUS-EDU-2022-CBHE: CRED4TEACH - MOOC-based micro-credentials for teacher professional development (CRED4TEACH).

4 Conclusions

The level of access to AI has a significant impact on the technology's usability. A comparison of OpenAI and Deepseek shows that access restrictions, licenses, and technical requirements determine who can use AI in different contexts and how. OpenAI provides easy access through cloud services, making it suitable for a wide range of users, from students to businesses. However, this comes with limitations in the form of paid tariffs, privacy policies, and dependence on external infrastructure.

Deepseek, as an example of an open model, offers greater research autonomy and adaptability, allowing local deployment, customization, and operation without connecting to cloud services. This is especially important for educational, government, and scientific institutions that seek to control data and infrastructure. Open AI models create a favorable environment for local technology development, language adaptation, and innovation, lowering the barriers to entry for countries and communities that do not have constant access to commercial solutions. A balance needs to be struck between ease of use, security, openness, and performance of AI systems. Different levels of access have their place depending on the goals: OpenAI is better suited for rapid commercial deployment, while Deepseek is better suited for scientific research and the development of national digital independence. It is recommended to support the

development of open models, including investment, educational programs, and regulatory support, to ensure fair, inclusive, and independent development of AI.

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