

Google DeepMind evolving Medicine Field with AI

Medicine is a field that is always researching, studying and changing to evolve every day to provide a better health for everyone. One of the most current technologies that has been impacting our daily life is AI. Artificial Intelligence is the future that is taking part in every field and Medicine is one of them. In recent years Artificial Intelligence has emerged as a transformative force across various industries with healthcare being one of the most promising Fields for its application.



Google DeepMind Technologies Limited, also known as Google DeepMind, a British AI company that it was acquired by Google in 2014 and merged with Google AI's Google Brain to become Google DeepMind in April 2023.

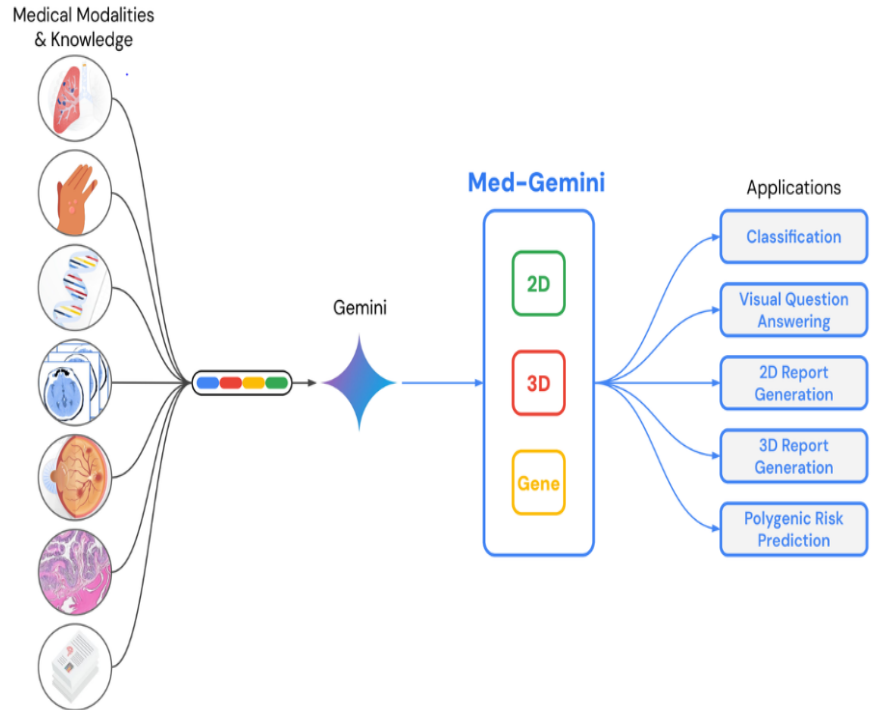
The founders of Google DeepMind are Demis Hassabis, Shane Legg and Mustafa whom met for first time at the Gatsby Computational Neuroscience Unit at University College London.

On 26 January 2014, Google acquired DeepMind from DeepMind Technologies for a price between \$400 million and \$650 million. The company changes its name and it was renamed Google DeepMind.

Google DeepMind in Healthcare

Google DeepMind has made significant strides in applying AI technologies to healthcare leveraging deep learning and neural networks to enhance patient care, streamline processes and address some of the most pressing challenges facing the medical community.

Google DeepMind has released multiple Products and technologies such as the case of Med-Gemini which is a model of the Gemini models. Med-Gemini is a Google AI model that assists doctors with diagnostic and treatment by processing medical data like text reports,



X-ray images and videos. Med-Gemini has been used in a variety of applications including radiology, pathology dermatology and Ophthalmology.

One of the key areas where DeepMind has made an impact is in the analysis of medical imaging. Utilizing advanced deep learning algorithms, the company developed AI systems capable of diagnosing diseases from medical scans with remarkable accuracy. For instance, a landmark study published in 2020 demonstrated that DeepMind's AI could outperform human radiologists in identifying breast cancer in mammograms. This achievement not only showcased the potential of AI in enhancing diagnostic capabilities but also highlighted the possibility of reducing human error, which is a critical factor in medical assessments. In August 2016, a research programme with University College London Hospital was announced with the aim of developing an algorithm that can automatically differentiate between healthy and cancerous tissues in head and neck areas.

DeepMind's initiatives extend beyond mere diagnostics. The company has developed a range of AI tools designed to predict patient outcomes and optimize treatment plans. One notable application is in the prediction of acute kidney

injury (AKI). DeepMind's AI system can analyze a patient's electronic health records and laboratory results to identify those at risk of AKI up to 48 hours in advance. This early warning system allows healthcare providers to take preventative measures, ultimately improving patient survival rates and reducing the burden on healthcare systems.

DeepMind's AI has also been utilized in the management of eye diseases. In August 2016, Google DeepMind partnership with Moorfields Eye Hospital, the company created an AI model that can analyze retinal scans to detect conditions such as diabetic retinopathy and age-related macular degeneration. The model not only matches the performance of expert ophthalmologists but can also provide real-time results, facilitating timely interventions that can preserve patients' vision.

DeepMind's top competitors.

There are multiple competitors in the Healthcare field using AI to enhance medicine to provide a better and higher heal quality for every patient. There are multiple competitors of DeepMind such as BioMap, RealAI, Aleph Alpha, Irreverent Labs, ect. DeepMind has three top competitors which are: Rhine AI, Huma and xAI.

- Rhino: Rhino AI specializes in accelerating enterprise software devolvemement through the use of generative AI agents within the technology sector.
- Huma: specializes in digital health technology focusing on advancing digital-first care and research in the healthcare sector.
- xAI: focuses on artificial intelligence, specifically in the domain of language learning models.

There are other Competitors and Alternatives of DeepMind related to the Market Share Field for AI technologies. The top three of DeepMind's competitors in the Artificial Intelligence category are Drift with 23.07%, Optimole with 22.07%, OpenAI with 14.11% market share.

Technology	Domains	Market Share (Est.)	Versus page
Drift	18,426	23.07%	DeepMind vs Drift
Optimole	17,628	22.07%	DeepMind vs Optimole
OpenAI	11,269	14.11%	DeepMind vs OpenAI

Despite there are multiple competitors and companies that offer Healthcare AI Tools, DeepMind is a unique company that utilizes deep learning, where complex neural networks with many layers are trained. Each layer refines the data allowing AI to learn and develop advanced capabilities. DeepMind is also a better option when comes to budget and data, as they have implemented Privacy Data policies to ensure every customer data is secured, private and safe while using AI to provide a better healthcare service.

Ethical Considerations

In a recent podcast it has been said that: While the promise of AI in healthcare is vast, it also raises significant ethical questions, particularly concerning data privacy and the implications of algorithmic decision-making. DeepMind has been proactive in addressing these concerns. The company has emphasized the importance of maintaining patient confidentiality and has implemented strict protocols to ensure that sensitive medical data is protected. Furthermore, partnerships with healthcare institutions like the NHS are conducted with transparency, aiming to build public trust and ensure that the benefits of AI are equitably distributed.

DeepMind has also engaged in discussions around the ethical implications of AI, advocating for responsible AI development that prioritizes patient safety and wellbeing. This includes rigorous testing and validation of AI systems before they are deployed in clinical settings, as well as ongoing monitoring to assess their real-world performance.

Conclusion

In Conclusion Google DeepMind stands at the forefront of AI innovation in healthcare, demonstrating the transformative potential of technology in improving patient outcomes and revolutionizing medical practices. The company has made significant advancements in diagnostics, predictive analytics, and patient care. Medicine is a field that is always changing and evolving, now we have AI tools that we can use to improve people life quality, the journey is just beginning and we should look for a better future that holds possibilities for advancements in health while using AI.

According to World Health Organization (WHO) approximately 4.5 billion people don't have access to essential health services, if we have the chance in our hands for a brighter future that provide access to all those who lack of access to health services due to different factors then we should use the power of AI and the chance to start changing the world for better.

References:

- ☺ Wikipedia: Google DeepMind
- ☺ Github Google DeepMind
- ☺ Google DeepMind (official site)
- ☺ Youtube: Google DeepMind Podcast
- ☺ Chat GPT
- ☺ Sense Website (provides data for multiple products related to budget and market)

Links:

https://en.wikipedia.org/wiki/Google_DeepMind#:~:text=more%20computing%20power.-,DeepMind%20Health,of%20diseases%20leading%20to%20blindness.

<https://github.com/google-deepmind.>

<https://deepmind.google/>

https://www.youtube.com/playlist?list=PLqYmG7hTraZBiUr6_Qf8YTS2Oqy3OGZEj

<https://6sense.com/tech/artificial-intelligence/deepmind-market-share>